The efficiency of e-government portal management from a citizen perspective: evidences from Turkey

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Abstract

Purpose – This study aims to explore the key factors in achieving an efficient e-government portal management system from a citizen perspective. Accordingly, this study focuses on explaining how an e-government portal should manage its digital public services for citizens efficiently.

Design/methodology/approach – This study employs a qualitative research design. As a sample case, this study preferred to analyze the Turkish e-government portal. The data is based on available open access data and information from the Turkish e-government portal, which is called e-Government Gateway in practice. In addition, the data of TURKSTAT (Turkish Statistical Institute) were used to determine the general profile of citizens about Internet skills and usage. Then, the data is analyzed by descriptive content analysis.

Findings – As a result of descriptive findings, user type, digital platform options, security and access options, and digital public service classification are all found as important factors for providing a well-designed e-government portal system from a citizen perspective. Especially, citizens should be informed about using options and service categories and types to be accessed by the e-government portal. Social media tools are efficient factors when informing citizens about the e-government portal and communicating with them.

Research limitations/implications – This study provides an original model to explain how the Turkish e-government portal works from a citizen perspective. However, there are some limitations to the study. The findings and suggestions are based on the Turkish e-government portal and its digital public service management. Also, this study evaluates the efficiency of the e-government portal management from a citizen perspective. Future studies can investigate e-government portal management for different countries by different approaches or research designs.

Practical implications – Based on the Turkey case, it is determined that creating an e-government portal with having up-to-date public services, including both web-based and mobile-based platforms, will support the adoption and use of e-government portals.

Social implications – The digital transformation of government is almost the main issue for policymakers in the world. But, this transformation process has some risk factors as well as challenges. To overcome these challenges, policymakers should design flexible and adaptable digital portals and systems to provide easy-to-use and self-use options for the citizens.

Originality/value – This study reveals key factors for efficient e-government portal management by providing descriptive evidence from Turkey. The main contribution of this study is expected to give practical implications and to guide other countries about the adoption of efficient e-government portals by citizens.

Keywords E-government, E-government management, E-government portal, Digital public services

Paper type Research paper

Introduction

The rise of digital transformation in government and public services has created a new phenomenon as "e-government" for economies since the 2000s. However, there were studies investigating ICT usage (information and communications technology) in government management in the 1990s (Taylor and Williams, 1991). The literature gives many aspects

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for the e-government, but the definition is mostly based ICT use in government and public services (Srivastava, 2011; Behzadi *et al.*, 2012; Tsohu *et al.*, 2013; Samsor, 2020; Khan and Krishnan, 2021). The issue of the e-government also reveals an alternative competition area for countries. In other words, the digital transformation in government management became an important indicator for countries when determining e-government development performance. At this point, the e-government index is mostly used to determine the performance of digital government system management in a country. There are some e-government index implications guiding policymakers and researchers globally. For example, the e-government benchmark aims to measure the e-government performances and to compare countries based on their e-government performances. The e-government benchmark indicates four main dimensions for the e-government performance as "*user-centricity; transparency; cross-border mobility and key enablers*" (European Commission, 2019). United Nations E-Government Development Index (EGDI) measures the performance of e-government skills for the member countries of the United Nations. The EGDI consists of three main dimensions as "*provision of online services, telecommunication connectivity and human capacity*" (United Nations, 2004). On the other side, OECD uses Digital Government Index to measure the e-government performance of OECD countries. This index includes six main dimensions as "digital by design; government as a platform; data-driven public sector; open by default; user-driven and proactiveness" (OECD, 2019).

The e-government portal supports the management of interactive communication with citizens and participation systems (Fang, 2002; Kulcu, 2009; Tolbert and Mossberger, 2006). Linders (2012) determined a new approach as "we-government" and presented some basic elements for this concept. According to his study, interactive communication, social media, mobile and web-based platforms will change the means of the e-government portal. In fact, the importance of digital transformation of public services and (Priyono *et al.*, 2020 and Iivari *et al.*, 2020; Nagel, 2020; Soto-Acosta, 2020; Öncü *et al.*, 2021; Yıldırım *et al.*, 2021) the need for the e-government portal has been realized (Yasir *et al.*, 2020; Mat Dawi *et al.*, 2021) during COVID-19 pandemic. The recent trend of the e-government portal design is mostly seen as citizen-user friendly. In other words, citizen-based e-government portal management will satisfy citizen-user greatly by making the adoption process easier (Al-Khouri, 2011). It is observed that recent literature focuses on examining how citizens perceive e-government services. We can summarize some studies guiding the current paper by Table 1:

As seen in Table 1, the user-based portal design is an important indicator when determining the efficiency of the e-government portal in the literature. The adoption of an e-government portal can challenge countries in the long term (Akman *et al.*, 2005). In this case, studies investigating e-government portals and digital public services with regard to user-based aspects can guide policymakers to improve digital systems for public services. This paper mostly focuses on examining the working way of the e-government portal from a citizen perspective, and it is claimed that the e-government portal cannot satisfy citizens or users without efficient management of digital public services. As a sample case, this study aims to investigate the efficiency of e-government portal management in Turkey. Turkey is a member of the United Nations (UN), and Turkey's e-government development level is also being monitored by the UN. According to the UN e-government database, Turkey's report for EGDI can be summarized in Table 2:

The UN measures the e-government performance of 193 member countries by showing ranks and values of E-Government Development Index (EGDI), E-Participation Index (EPI), Online Service Index (OSI), Telecommunication Infrastructure Index (TII) and Human Capital Index (HCI). In other words, 193 members of the UN are all ranked by their e-government performances (United Nations Department of Economic and Social Affairs, 2020). Turkey is categorized as a country in Western Asia with upper-middle income (see Table 2 and Figure 1).

Researchers	Methodology	The study
Carter and Belanger (2005)	Quantitative research, United States' case	The study employed a survey for citizens and provided empirical findings for citizen-based e-government performance
Chatfield and AlHujran (2007)	Qualitative research	The study evaluated e-government stage models concerning the user-based aspects
Lee *et al.* (2008)	Qualitative research, Turkey's case	The study evaluated the services of e-government portals concerning the user aspects in Turkey
Lean *et al.* (2009)	Quantitative research, Malaysia's case	The study provided empirical findings with the intention to use e-government portal of citizens by a survey method
Farhan and Sanderson (2010)	Qualitative research, Kuwait's case	The study investigated users' satisfaction with the e-government portal
Balci and Medeni (2011)	Qualitative research, Turkey's case	The study investigated models for the Turkish e-government portal to improve it according to the user-based system
Barbosa *et al.* (2013)	Qualitative research, Brazil's case	The study analyzed the e-government performance through user aspects
Ahmad *et al.* (2013)	Quantitative research, Pakistan's case	The study explored main factors in the adoption of e-government by citizens
Tsohou *et al.* (2013)	Qualitative research	The study evaluated e-government services from a citizen perspective
Almalki (2014)	Quantitative research, Saudi Arabia's case	The study investigated the e-government performance and success concerning the user aspect
Jiang and Ji (2014)	Quantitative research, China's case	The study investigated how individual Chinese users perceive the service quality for the e-government web portal
Al-Hujran *et al.* (2015)	Quantitative research, Jordan's case	The study investigated how Jordanian citizens use and adopt e-government services
Haider *et al.* (2015)	Quantitative research, Pakistan's case	The study explored the adoption of the e-government portal and services from a citizen perspective
Kamau *et al.* (2016)	Qualitative research, Kenya's case	The study investigated how citizens perceive e-government websites in the contest of public value
Anwer Anwer *et al.* (2016)	Quantitative research, Afghanistan's case	The study provided empirical findings for main factors in citizen satisfaction against e-government services
Qureshi *et al.* (2017)	Quantitative research	The study provided a review of the e-government evaluation. In this context, customer satisfaction was highlighted

Source(s): By authors

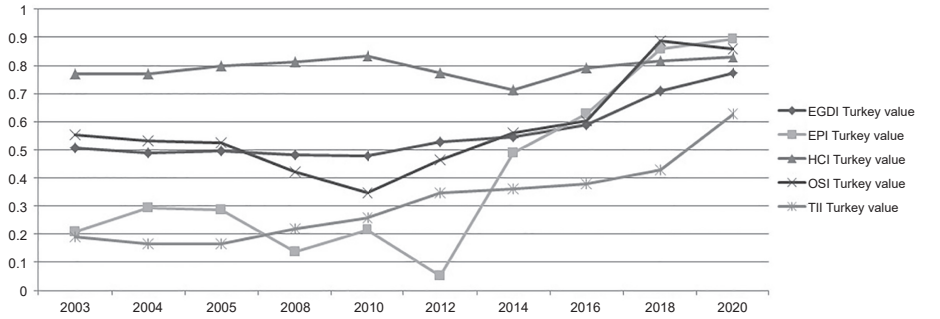
Table 1. Some studies investigating e-government portal by user/citizen aspect

According to the UN E-Government knowledge base, Turkey increased its value for the E-Government Development Index (EGDI), E-Participation Index, Human Capital Index (HCI) and Telecommunication Infrastructure Index (TII) from 2003 to 2020. But, the value of the Online Service Index (OSI) decreased compared to the previous year. When observing regional results of the E-Government Development Index, it is seen that Asia is the second region with a higher value (0.6373) in EGDI based on the UN's report (2020) (UN E-Government Knowledgebase, n.d.b). Turkey calculated a 0.7718 EGDI value in 2020, and this EGDI value is higher than the World average (0.5988) and also Asia region average (0.6373) (UN E-Government Knowledgebase, n.d.b). According to the UN reports (2020), this study assumes that investigating the Turkish e-government portal management can be a good sample case for future studies, especially for beginners in digital transformation. In addition, many researchers are investigating the quality or design of the Turkish e-government system in the literature.

Years	E-government development index (EGDI) Turkey's rank	E-government development index (EGDI) Turkey's value	E-participation index Turkey's rank	E-participation index Turkey's value	Human capital index (HCI) Turkey's value	Online service index (OSI) Turkey's value	Telecommunication infrastructure index (TII) Turkey's value
2003	49	0.50551	48	0.20690	0.77000	0.55458	0.19196
2004	57	0.48919	26	0.29508	0.77000	0.53281	0.16475
2005	60	0.49595	34	0.28571	0.80000	0.52307	0.16479
2008	76	0.48340	78	0.13636	0.81155	0.42140	0.21911
2010	69	0.47800	55	0.21428	0.83386	0.34603	0.25810
2012	80	0.52812	124	0.05260	0.77256	0.46405	0.34777
2014	71	0.54428	65	0.49019	0.71330	0.55905	0.36048
2016	68	0.58995	60	0.62712	0.79096	0.60145	0.37745
2018	53	0.71120	37	0.85960	0.81480	0.88890	0.42980
2020	53	0.77180	23	0.89290	0.82870	0.85880	0.62800
Rating class: V1							
Group: VHEGDI							
Region: Asia							
Sub-region: Western Asia							
Income: Upper-middle income							

Source(s): Adapted from the data from UN E-Government Knowledgebase (n.d.a.)

Table 2. Turkey's e-government performance profile



Source(s): Based on the data from UN E-Government Knowledgebase (n.d.a)

Figure 1. Turkey's e-government performance development

The main contribution of this study is expected to give practical implications and new perspectives for investigating the management of the e-government portal from a citizen perspective. In this context, the current study will answer these research questions.

RQ1. How does the e-government oortal work in Turkey?

RQ2. What kinds of public services can be provided by the e-government portal?

RQ3. What are the key elements of providing digital public services to citizens efficiently?

Also, this study evaluates the efficiency of e-government portal management in the context of a public administration and business management perspective. Future studies can evaluate the efficiency or performance of e-government portal management by the multidisciplinary studies.

Research design

The current study's research design is based on a qualitative research methodology. Qualitative studies focus on specific philosophical perspectives, assumptions or approaches when the researcher investigates one issue, case or phenomenon (Vaismoradi *et al.*, 2013). This study follows descriptive content analysis to explain key indicators for the efficiency of e-government portal management. In other words, the data are analyzed by descriptive content analysis. Qualitative content analysis aims to describe and explain the topic or issue by creating original tables, classifications, themes or models (Öncü *et al.*, 2021). The descriptive analysis provides detailed information about the research topic, and it summarizes the key factors or elements of the related issue (Yıldırım *et al.*, 2021). Qualitative content analysis has three main steps as "preparation, organization and reporting (Elo *et al.*, 2014)" to provide descriptive findings. As a sample case, the data are based on available open access data from the Turkish e-government portal, which is called e-Government Gateway. In addition, the Turkish Statistical Institute (TURKSTAT) provides open access data on the Internet usage behavior of Turkish households. By using classifications, tables and figures, this study analyzes important factors to improve the e-government portal management and design an efficient system for citizens. Accordingly, the working way of e-government portals, user options, service types accessibility and security options will be discussed based on observation from e-Government Gateway in Turkey.

Descriptive findings

According to TURKSTAT (2020a) data, this study assumes that Turkish households are close to the adoption of the e-government portal and its digital public services. The total proportion of Internet usage was calculated as 79% for individuals aged between 16 and 74. When analyzing Internet usage by gender, it was seen that male users (84.7%) were higher than female users (73.3%). 90.7% of Turkish households can have Internet access at home. The proportion of using e-government services was 51.3%. In 2020, it was seen that 51.5% of Turkish individuals, who were between 16 and 74, used public services or communicated with public utilities by digital platforms (TURKSTAT, 2020a).

According to United Nations E-Government Survey 2020, Turkey's official e-government portal is "www.turkiye.gov.tr," and it is called the e-Government Gateway in practice. (Member States Questionnaire (MSQ), 2020).The e-Government Gateway was opened on December 18, 2008, with 22 public e-services. It aims to serve citizens by one digital platform with having uninterruptedly, securely, 24/7 working options (TURKSAT, 2016). Citizens or individuals can use the e-Government Gateway to get some digital public services in Turkey. The e-Government Gateway is used by identity verification tools such as password, e-signature, mobile signature, Internet banking and ID card (TC-Republic of Turkey), which require access to personal information via a web browser or mobile application or to access integrated electronic services that require security (Turkish E-Government Portal, n.d.a). Since the beginning of the e-government portal /e-Government Gateway, both the numbers of users, digital public utilities and digital public services have increased. For example, the recent number of the used digital public services is counted as 5,746, and the number of the used mobile public services is counted as 2,994. There are 791 institutions in the e-Government Gateway, and the number of registered users is counted as 54.187.676 recently (Turkish E-Government Portal, n.d.b).

The working type of an e-government portal can help policymakers to improve the delivery of digital public services by the e-government portal. At this point, Table 3 explains how citizens or users can access and use the e-Government Gateway.

In Turkey, most people can benefit from the e-Government Gateway and its services. Users/individuals can be classified into two main categories: Turkish citizens, including

Factors	Tools	Information
User type	Individuals (citizens)	Turkish citizens or individuals aged 15 and over can use the e-Government Gateway
	Disabled citizens	All pages and interactive contents have been created to ensure disabled users get access Individuals not able to use screen readers and mouse can use the e-Government Gateway using a keyboard
	Foreigners with Blue card (foreign country citizens specified in Article 28 of the Turkish Citizenship Law No. 5901)	Blue cardholders are required to submit a photo ID card, passport, or driver's license issued by the state authorities of their nationality, along with the password applications. Persons who do not have a Blue card must present any of the official identification documents issued by the state of the country of nationality
	Foreigners with foreign ID issued by the competent authorities of the Republic of Turkey	Foreigners should present documents to get access: (1) A recognized(valid) residence permit (2) A recognized(valid) temporary protection permit certificate (3) A recognized(valid) international protection applicant / status holder identity document (4) A recognized(valid) stateless person identification document (5) A work permit and passport
Digital platforms	Website	The e-Government Gateway website provides digital public services to citizens in an electronic environment. The link is provided below: https://www.turkiye.gov.tr
	Mobile platforms (mobile phones, smartphones and tablet)	The e-Government Gateway mobile provides individuals to access digital services by mobile devices like Android, iPhone, iPad and Huawei
Social media integration	Twitter	By following the @ekapi, users/individuals can be informed about the new announcements of the e-Government Gateway, and they can send all questions to the team of the e-Government Gateway
	Facebook	Users/individuals can follow the e-Government Gateway viathe link provided below: https://www.facebook.com/edevletkapi By following a Facebook account, users/individuals can be informed about the new announcements of the e-Government Gateway, and they can send all questions to the team of the e-Government Gateway
	YouTube	The e-Government Gateway shows helpful videos to its users via this YouTube link: https://www.youtube.com/channel/UChX28lHPQ2jyaBatdfRqGSQ
	Instagram	@edevletkapisi is the legal Instagram account of the e-Government Gateway

Table 3.
The working way of the e-Government Gateway

(*continued*)

Factors	Tools	Information
Security and access	ID number and an e-government password	Passwords can be obtained through PTT (Turkish Post corporate) workplaces or authorized agents in a country. If individuals/users are abroad, they can get passwords through the embassies and consulates affiliated with the Ministry of Foreign Affairs
	An e-signature, mobile signature, ID card	If individuals/users are using the mobile signature, electronic signature, new Turkish ID card or Internet banking, they can create a password after logging into the e-Government Gateway with one of these
	Internet (online) banking password of the contracted banks	Users/Individuals can access the e-Government Gateway using their current online banking password
	Users/Individuals can access the e-Government Gateway via the link provided below: https://giris.turkiye.gov.tr/Giris/	
Searching options and easy-to-use	There is a searching option on the website	With the help of searching links, individuals/users can access their information and documents from a single point and quickly complete the application procedures
	Categorization	Individuals/users can quickly access the information, document or application form by selecting related service categories on the digital platform

Source(s): Adapted from Turkish E-Government Portal (n.d.a)

Table 3.

singular citizens, disabled citizens and enterprises and non-Turkish citizens, including foreigners with blue cards and foreigners with foreign ID cards in Turkey. The e-Government Gateway can serve by several digital platforms. There are options for users to access the e-Government Gateway through the website and mobile application. Individuals can be informed by social media tools like Twitter, Facebook, YouTube and Instagram. Citizens can perform with the e-Government Gateway when they have access to its digital platform. There are options (ID number and e-Government password, e-signature, mobile signature, ID card or Internet (online) banking password) for citizens to get access to the e-Government Gateway (see Table 4).

Table 4 summarizes the characteristics of digital public services provided by the e-Government Gateway. Most of these services can be categorized as inquiry services, application services, integrated services, document production services, payment services,

Characteristics	Benefits
Inquiry services	(1) Acceleration of information communication
Application services	(2) Cost reduction
Integrated services (services created by combining the services of more than one institution)	(3) Time efficient by usage
Document production services	(4) 24/7 service
Payment services	(5) Transparency
Information services	(6) Higher satisfaction by fast service
Subscription services	(7) Reliability

Source(s): Adapted from Turkish E-Government Portal (n.d.a)

Table 4.
The characteristics and benefits of digital public services supplied by the e-Government Gateway

information services, payment services and subscription services. In addition, citizens can get 24/7 service with time and cost efficiency.

The e-Government Gateway categorizes its service contents as justice, education, job and career, traffic and transportation, environment, agriculture and livestock, general information, personal information, complaints and information, tax, fee and penalties, government and legislation, security, and health and telecommunication. Citizens can select its category and access its specific service (see Table 5). Both public and private enterprises mostly provide one or many specific services based on main service contents. Table 6 summarizes the category of enterprises included by the e-Government Gateway.

Table 7 presents the most popular digital public services used by citizens via the e-Government Gateway in April, 2021. This information is updated frequently that the ranking of digital services can vary over time. According to the Turkish e-government open access data, the most used digital public services were found as "the case file query" by the Ministry of Justice (MOJ). Then the most popular second digital services were ranked as "HES (life fits into home) code generation and listing." The HES Code generation and the listing was a new public service for the citizens in Turkey. During the COVID-19 pandemic, most of the sub-services linked to health services have been provided by the Turkish e-Government platform (Öncü *et al.*, 2021). Accordingly, it can be said that the demand for e-public services can vary over time. For example, "the query of the family tree" was the most used digital public service through the Turkish e-government portal when it was launched for the first time. Especially, the citizens mostly accessed the digital portal between 02:00 a.m. and 04:00 a.m. in a day (Anadolu Agency, 2018). The query of family the tree was not a vital public service, but the demand for this service was surprisingly higher before the COVID-19 pandemic. Public services, including education, health, justice and social security, are the

Main contents	Service type
Justice	Users/Individuals can reach their cases and other judicial files and monitor file details
Education	Individuals can benefit from information and application services about scholarships and exams
Job and career	Employees and commercial businesses have access to the services they need
Traffic and transportation	Review your social security and benefit status. Get information about your insurance
Environment, agriculture and livestock	Take advantage of traffic-related services. Manage your land, air and sea freight business
General information	Make use of general information and data sources that you may need in daily life
Personal information	Assets, debts, health, education, etc. in state institutions. Check out your personal information
Complain and information	Manage your notices, complaints and information requests about government agencies and companies
Tax, fee and penalties	Track your debts and receivables such as taxes, traffic fines, fee payments and so on
Government and legislation	Get information on tenders, legislation, voting and more
Security	Take advantage of safety-related services. Access and process your military information
Health	Get information about your health. Manage your medication, examination and appointment processes
Telecommunication	Take advantage of services related to GSM, Internet, telephone, postal and other communication channels

Source(s): Adapted from Turkish E-Government Portal (n.d.b)

Table 5.
The main service contents in the e-Government Gateway

Type of enterprises	Sub-category	Service content
Public enterprises	Ministries	The Republic of Turkey has 16 main ministries, and these ministries provide some public services by the e-Government Gateway
	Public units (departments or presidencies)	Sub-public units (departments or presidencies) affiliated with the ministries provide some public services to citizens through the e-Government Gateway platform
	Local management/municipalities	On the e-Government Gateway, 352 municipalities provide main public services such as water, transportation and sewage, etc. Additionally, there are 25 local public units providing information to the citizens
	Public university (owned by public enterprise/public capital)	Public universities, who are participated in the e-Government Gateway platform, provide some services such as e-document management and student diploma/certificate
Private enterprises	Private enterprises	These enterprises are joint-stock companies that serve electricity and natural gas. There are services including contract, bill and subscription
	Foundation university (owned by private enterprise/capital)	The universities. who participated in the e-Government Gateway platform, provide some services as e-document management and student diploma/certificate

Table 6.
The main service contents in the e-Government Gateway

most demanded e-public services during the term of lockdown. Especially, new digital public services such as HES code were mostly used through the e-Government Gateway during the Covid-19 pandemic (Presidency of the Republic of Turkey Digital Transformation Office, 2020). As seen in Table 7, e-services of health, justice and social security are mostly used by the citizens during the COVID-19 pandemic in April, 2021.

The COVID-19 pandemic has also accelerated the adoption of e-public services in Turkey. Mr. Koc, the Head of the Digital Transformation Office (DTO), pointed out that the number of usages/access in the e-Government Gateway was doubled in 2020 compared to 2019. He determined that e-government portals had only 9 public units with 22 e-public services. Nowadays, e-Government gateway is performing with 112 private enterprises, 238 public utilities, 372 municipalities and 5,456 e-services as being digital-face of Turkey. It can be said that Turkish citizens utilized the e-government portal and its e-public services during the COVID-19 pandemic (Presidency of the Republic of Turkey Digital Transformation Office, 2021).

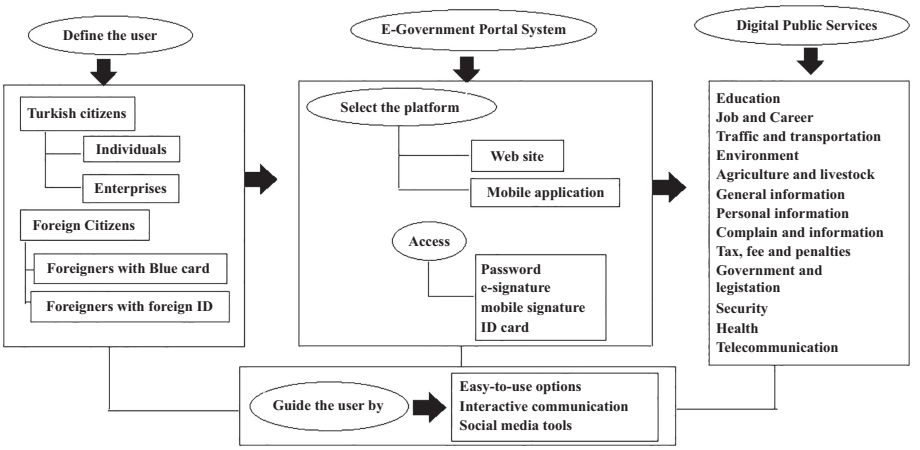
Models and graphics can be helpful to understand complex systems in general. At this point, there is a model by presenting the Turkish e-government portal website to show how the e-Government Gateway works. The existing model provides brief information about the working way of the Turkish e-government portal in general. For example, the model does not show user definitions and user options, and there is limited information about the digital platform. Also, there isn't any information about accessible digital services or contents (Turkish E-Government Portal, n.d.d). On the other side, this study focuses on user definition and types for citizens, digital platform options, access options and digital service content when explaining the working way of the e-Government Gateway in Turkey.

Figure 2 gives important details about the usage of digital public services via the e-Government Gateway when comparing the existing model on the the Turkish e-government portal website. Firstly, the e-Government Gateway defines the users in a country. For example,

Rank	Public authority	Used services
1	Ministry of Justice	The case file query
2	Ministry of Health	HES (life fits into home) code generation and listing
3	Social Security Institution	4A Service statement (last 6 months)
4	Turkey Union of Notaries	A registered vehicle inquiry (real person)
5	President of revenue management	A tax debt inquiry
6	Ministry of Family, Labor and Social Services	A social Assistance Information Inquiry
7	Social Security Institution	SGK registration and service statement/workplace title list
8	The General Directorate of Security	A criminal inquiry written on the vehicle plate (real person)
9	Ministry of Family, Labor and Social Services	A pandemic social support pre-application
10	General Directorate of Land Registry and Cadaster	A deed information inquiry
11	Ministry of Justice	Execution file query
12	The General Directorate of Security	Inquiry for parking information where my vehicle was taken (real person)
13	Turkish Employment Agency (ISKUR)	An unemployment benefit/job loss compensation and short work allowance inquiry
14	Social Security Institution	Receiving 4A/4B incapacity payment
15	General Directorate of PTT (Turkish Post)	A fast transition system (HGS) account information inquiry (real person)
16	National Defense Department	A military status document inquiry
17	Information Technologies and Communication Authority	A mobile line inquiry
18	Social Security Institution	4A Retirement monthly information
19	Ministry of Environment and Urbanization	An exhaust gas emission measurement inquiry
20	Ministry of Transport and Infrastructure	A barcode vehicle inspection report query

Source(s): Adapted from Turkish E-Government Portal (n.d.c)

Table 7.
The ranking of the most popular digital public services by the e-government gateway



Source(s): Developed by authors

Figure 2.
The working way of the e-Government Gateway from a citizen perspective

Turkish citizens and foreign citizens can access the e-Government Gateway in Turkey. The users are defined as citizens aged 15 and upper in Turkey. In addition, the foreigner should have some documents to be a user of the e-Government Gateway. Secondly, it should be known what kinds of digital platforms can provide public services to its citizen. There are two main digital platforms: websites and mobile applications in Turkey. The citizens can access, with their password, a digital platform. Thirdly, service categorization and classification are important for citizens. The variety of services will solve citizens' problems and meet their needs when the e-government portal provides accessible public services.

Conclusion

Digital transformation is a new trend in government management and government policy in the long term. Both developed and developing countries invest in digitalization and technology to improve living standards and citizens' quality of life. By e-government portals, policymakers can improve citizens' quality of life and have a significant advantage in controlling their citizens.

As the main purpose, this study provides key factors to achieve efficient e-government portal management from a citizen perspective. According to the findings from Turkey case, the key factors improving the efficiency of e-government portal management from a citizen perspective can be summarized as follows:

(1) *Digital platforms:* In the long term, mobile applications and mobile tools need e-government portal management. So, policymakers should use alternative digital platforms together. E-government portal should be designed to enable mobile systems and mobile tools.

(2) *Self-use options:* To provide security and privacy of citizens, e-government portals should be designed to enable self-use systems.

(3) *Access:* Security and access issue should be considered together. To access e-government portals, the system should enable alternative secured options.

(4) *Searching options:* It is important to determine service categorizations and classification for easy-to-use option.

(5) *User options and definitions:* The definition of users is important. Citizens should know how they can use the e-government portal. For example, management should determine that citizens and foreigners know about the usage of the e-government portal. In addition, guides and information will help disabled citizens to use the e-government portal efficiently. In other words, the management of user-friendly designed digital platforms and disabled-friendly systems are important.

(6) *24/7 service:* The system should be designed to meet the citizens' need 24/7.

(7) *Social media tools and communication:* The system should be accessible to the citizens by giving open access to information to beginners. For communication, it is suggested they use social media tools when providing more information to citizens.

(8) *The variety of digital public services:* The e-government portal system should be designed to adopt new digital services and up-to-date services based on the unusual periods such as the COVID-19 pandemic.

This study claims that online public services are more accessible and affordable than face-to-face public services in the long run. To provide appropriate and fully satisfied public services for the rising population in a country, online platforms and applications are primary tools.

By showing the importance of e-government portal management from a citizen perspective, this study provides similar conclusions with prior studies and supports their findings (Chatfield and AlHujran, 2007; Lee *et al.*, 2008; Farhan and Sanderson, 2010; Balci and Medeni, 2011; Barbosa *et al.*, 2013; Tsohou *et al.*, 2013; Almalki, 2014; Jiang and Ji, 2014; Al-Hujran *et al.*, 2015; Kamau *et al.*, 2016). This study will provide original evidence by showing the key factors to achieve efficient e-government portal management from a citizen perspective in Turkey.

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