Exploring Citizens' Motives influencing the satisfaction with and adoption of E-Government Services in the Kingdom of Saudi Arabia

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Governments worldwide invest hugely in e-Government (eGOV) services implementation to better serve their citizens. However, the eGOV services' adoption level still low in developing countries, which explains the need for understanding the motives underlying to the satisfaction with and the adoption of such services. This article explores the motives citizens would adopt eGOV services in the Kingdom of Saudi Arabia. Data was collected through 34 semi-structured individual interviews. After an examination of the citizens' overall evaluation of eGOV services, a thematic analysis method was used to investigate the critical factors underlying eGOV success, their impacts on users' satisfaction and eGOV adoption. Findings showed that eGOV success hinges on the users' characteristics and their perception of the eGOV portals' features. Moreover, results revealed that 11 factors influence citizens' satisfaction and eGOV adoption success. The factors classified at the top five by the interviewees are (1) the service relevance to the users' needs and it personalization, (2) the ease of use of portals, (3) the security, privacy as well as the service quality levels, (4) the information quality offered, and (5) the accessibility. The other factors cited by respondents are associated to the design technology, the interactivity, and the transparency. In light of the outcomes, advices to support eGOV adoption were formulated. Since results demonstrated that user needs and characteristics are at the core success of an eGOV service, governments in developing countries in general, and the Saudi government, in particular, should adapt their e-services' content and technology to users, as well as implement an efficient communication strategy on efforts deployed in eGOV services to enhance citizens trust. This paper suggested that future investigations should cross citizens and professionals in charge of eGOV services viewpoints for developing a more comprehensive framework supporting eGOV services adoption.

Keywords: E-Government, citizens' perspective, satisfaction, adoption, Saudi Arabia

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Governments invest huge efforts to deliver online services and information to citizens and organizations (Warkentin et al., 2002; Muir & Oppenheim, 2002; Vintar & Nograšek, 2010). The challenge in establishing eGOV is not just the creation of additional options to communicate with citizens and departments through technology. In fact, in facing growth in population, social demands, economic transactions, and crisis

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like epidemics, eGOV become mandatory for a competitive nation. Therefore, technologies represent a tool to redefine and strengthen the relationship between the government and stakeholders, to remove the perception of the government as complex, mammoth bureaucratic establishments, towards enhancing the quality of life as well as the society well-being (Stiftung, 2002; Brown, 2005).

EGOV uses Information Communication Technologies (ICTs) to enhance government service delivery (Spremić et al., 2009) and create good governance which creates basis for a sustainable development (Dhaoui, 2021). However, eGOV implementation particularly in developing countries leads to mixed results and the large part of the eGOV projects fail to achieve desired outcomes (Furuholt & Wahid, 2008; Wirtz & Daiser, 2018). The implementation of eGOV confronts a number of barriers, like absence of an effective eGOV strategy, poor technological and IT infrastructure, unsuitable policy and legal framework, organizational and cultural issues, and high operational cost (Al-Rawahna et al., 2018).

The adoption of eGOV is not straightforward. It is not simply introducing web-based technologies to government, but it needs a political will as well as cultural, social, technological, and organizational changes designed to support it (Fasanghari & Habibipour, 2009; Choudrie et al., 2005; Moon & Norris, 2005; Beynon-Davies, 2007; Pina et al., 2009). Harmony and coordination of many activities of government units and a solid cooperation of employees, managers, IT specialists, citizens as well as businesses are needed for eGOV success (Ziemba et al., 2013). In fact, for an effective eGOV implementation, the integration of knowledge from information systems and public administration is mandatory (Glyptis et al., 2020; Khan et al., 2021). It is also important to assess citizens' perceptions of eGOV services and analyze their needs and expectations (Weerakkody et al., 2019). As suggested by earlier studies, the complexity of the eGOV concept requires taking into account the perspective of the multiple eGOV stakeholders during it implementation (Malodia et al., 2021). Citizens are often regarded as the most important stakeholder group. Therefore, the non-factoring of the citizens requirements and needs during the eGOV projects largely leads for their failure (Ahmad et al., 2012). Ergo, understanding the citizens' perception of eGOV services and their motivation to adopt such services is important to implement eGOV successfully.

In The Kingdom of Saudi Arabia, the digital maturity level of eGOV services attained 71% in 2018. The Saudi government has invested heavily in information and communications technology infrastructure and about $800 million in developing eGOV systems (AMEinfo, 2006). In collaboration with the Communication and the Information Technology Commission and the Ministry of Finance, the "Yesser" program was established in 2005 as an eGOV initiative. This program covers three domains that are G2G, G2C, and G2B (Muzaffar & Zaman, 2020). It represents an "umbrella for all eGOV activities, procedures, legislations and other related issues and acts as the government's controller" (Alfarraj & Alhussain, 2013). The main "Yesser" products are the Saudi eGOV Portal that provides around 1000 e-services and the National Contact Center called "Amer" that supports the eGOV strategic goals. In 2010, the budget allocated for "Yesser" project had increase to 1.2 billion dollars (Alriyadh Information Technology, 2010; Muzaffar & Zaman, 2020).

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Thus, an evaluation of this eGOV system is crucial to measure return of this huge investment and to implement corrective actions if needed. This paper aims to assess the eGOV system "Yesser" perception and identify the motives affecting the citizens' satisfaction with and their adoption of the Saudi eGOV. Furthermore, the research goal is to suggest a conceptual framework including critical factors of eGOV success from Saudi citizen's perspective. To address the aims of this study, the following research questions were formulated. First, how Saudi citizens perceive eGOV services? Second, what are the critical factors (motives) affecting eGOV services success (satisfaction and adoption)?

Literature review

There are numerous definitions of eGOV (Scholl, 2003). EGOV is the use of ICTs (such as WAN, internet, mobile computing) and its application by the government for the provision of information and public services to the people (Muir & Oppenheim, 2002; UN, 2005; Heeks, 2006). Some authors add that the eGOV integrates a continuous innovation in the delivery of services, citizen participation, and governance through digitalization of external and internal relationships (Jeffrey, 2008). Others state that eGOV has three purposes, namely providing public services, improving managerial effectiveness, and promoting democracy (Vassilakis et al., 2007). Therefore, eGOV is not only about technology, it is a complicated social system that embodies organizational, social and economic issues (Wicander, 2001; Fasanghari & Habibipour, 2009; Malodia et al., 2021). EGov can be perceived as a modern channel that citizens can use to interact with public administration. Preferring an online channel or the traditional one depend on the level of barriers related to the internet and computer use that are the mental access, material access, skill access and usage access (Ebbers et al., 2008; Teerling & Pieterson, 2010; Van Dijk & Hacker, 2003).

In adopting diverse perspectives and theories such as the Diffusion of Innovations Theory, the Technology Acceptance Model, the Theory of Planned Behavior and the Unified Theory of Acceptance and Use of Technology, prior studies identified a number of factors affecting citizens' adoption of eGOV. Among these factors authors found citizens' trust, perceived risk, perceived behavioral control, perceived usefulness, ease of use, power distance, uncertainty avoidance, confidentiality, safety, reliability, visual appeal, enjoyment, time, cost, personalization, convenience, control, avoidance of personal interaction, relative advantages, compatibility, civic mindedness, service quality, performance, effort expectancy, and social influence (Warkentin et al., 2002; Tufail et al., 2017; Gilbert & Balestrini, 2004; Carter & Bélanger, (2005; Belanger & Carter, 2008; Dimitrova & Chen, 2006; Horst et al., 2007; Al-Awadhi & Morris, 2008; Al-Shafi & Weerakkody 2009). In Saudi Arabia context, authors found that perceived complexity, privacy, compatibility; social and cultural barriers, legislative and regulatory issues, transparency, perceived usefulness, perceived ease of use, computer self-efficacy, and "wastta" affect the adoption of eGOV services (Almukhlifi et al., (2019, 2018), Al-Ghait et al., 2010; Abu Nadi , 2012; Al-Solbi & Al-Harbi, 2008). Alghamdi and Beloff (2014) represented four fundamental groups of factors that have a critical influence on the adoption and usage levels of eGOV. These groups are called personal factors (e.g. age, gender), motivational factors (e.g. perceived benefits, functional quality of service), technical factors (e.g. perceived simplicity, technical quality) and reliability factors (e.g. perceived trust).

Despite the similarities between the variables mentioned by researchers in the developed and developing countries contexts, the differences in technologies used by governments, the dissimilarities between countries cultures, as well as the impacts of circumstances, such as Covid-19 pandemic, on individuals and governments strategies, represent relevant motives for continuously exploring how governments should enhance the adoption of their electronic services.

Researchers considered eGOV adoption as expressing the citizens' intention to build an online engagement to collect information and demand services (Warkentin et al., 2002), as intent to use (Carter & Belanger, 2005) or as willingness to use (Gilbert & Balestrini, 2004). In fact, eGOV adoption is a complex process and a multi-dimensional construct (Pichlak, 2016) where willingness and intention to use represent adoption dimensions.

Since success in eGOV is very context dependent (Atkinson, 1999, Fonseca-Lind & Ramaswamy, 2013; Joosten et al., 2011; Shareef et al., 2012), this study used a qualitative approach to explore factors influencing the satisfaction with and the adoption of eGOV from the citizens perspective.

Method

A qualitative approach was employed in this study. The data was collected via personal interviews and analyzed through a flexible qualitative data analysis method, the Thematic Analysis (TA). This method allows identifying, reporting, organizing, and offering insight into patterns of meaning (themes) across a data set evoked by individuals (Riessman, 2008). By analyzing the verbal and/or written qualitative data gathered from interviewees, TA makes a sense of collective or shared meanings and experiences. A TA including three main steps was adopted (Boyatzis, 1998; Braun & Clarke, 2006; Thomas & Harden, 2008). The first step is about coding of text content 'line-by-line', so the interviews are transcribed and themes are identified as well as coded. The second concerns the development of 'descriptive themes', means the creation and categorization of new codes that did not fit the pre-determined categories were performed. The final step is 'reviewing themes', here the reliability of names allocated to the themes extracted was verified through a double-blinded encoding, which is an investigator triangulation. The second encoder was an external researcher, who is not familiar with the eGOV literature. After checked the codes and coding, the agreement level was 80% and some corrections were made.

Procedure

Data was collected using in depth semi-structured individual interviews integrating a number of open-ended questions. The semi-structured interview was used since the interviewer is knowledgeable about the interview topic and the semi structured interview permits a high level of flexibility to extract the accurate information from interviewees (Jacob & Ferguson, 2012; Dikko, 2016). Moreover, this data collection tool is suitable where the investigator aims to find out all information related to the research topic from the interviewee's viewpoint (Chenail, 2011) and it permits to understand the meaning attributed to behaviors such as perceptions and motivations (Khansa et al., 2016). The interview guide is qualified as an effective instrument to collect data if the

data it collects is valid and reliable (Dikko, 2016). A pilot test was conducted to verify the research instrument validity (Majid et al., 2017). Five Saudi citizens were invited to participate to this test. In this step some questions in the interview guide were improved and clarified which is add value and credibility into the research (Van Wijk & Harrison, 2013). The interview reliability, that represents its consistency and stability, was verified through test-re-test (Sekaran, 2003; Mitchell, 1996). Two Saudi citizens were selected for conducting the interview-re-interview procedure. The answers obtained from interviewing these two interviewees at different two times were similar, so the interview instrument used was considered as reliable (Punch, 2003).

Saudi citizens participating in the present research have been encouraged to be honest about their thoughts, opinions and experiences about eGOV services in Saudi Arabia. The goal is to extract factors that allow drawing an eGOV success evaluation framework.

The interview guide focused on (a) the interviewee's demographic information, (b) awareness level of "Yesser" eGOV program, (c) evaluation of eGOV services in Saudi Arabia, (d) the important factors (motivators/inhibitors) that affect the use of eGOV services, and (e) what elements can enhance users' satisfaction with eGOV services. Interviewees' confidentiality was respected, the interviews were audio recorded with a previous authorization and were transcribed verbatim. The interviews lasted an average of 30 min. The participants' number is determined using a "saturation point" approach (Strauss, 1987; Kvale, 1996). Saturation was attained after 34 interviews. Respondents' demographics are summarized in Table1.

Results

Results showed that all respondents declared using eGOV services. However, 56% of them not have idea about the existence of the eGOV program "Yesser" and only 18 % presented correct information related its foundation and services. In fact, most of interviewees identify eGOV services as independent and related each one to a specific sector or governmental entity, while in reality the eGOV program "Yesser" represents a unified national electronic system integrating all government agencies to serve citizens, residents, businesses and visitors. It is not surprising that the eGOV program "Yesser" is unknown by most citizens. This program was established to provide electronic services, to support and to enhance the public sector to transform to eGOV (Alfarraj et al., 2013), therefore it cooperates directly with governmental agencies and individuals discover the cooperation outcomes through governmental websites. The eGOV portals cited through interviews were "Absher" where 160 e-services are offered by the Ministry of Interior (MI); "Mawid" the online service provided by Ministry of Health to get an e-prescription; "Musaned" launched by the Ministry of Labor and Social Development to simplify the employment of domestic labors; "Najiz" the electronic portal of the Ministry of Justice facilitating clients transactions; "Safeer" that helps students abroad, and "Jadarah" that assists job seekers.

Interpretation of the data generated interesting findings about the overall evaluation of the eGOV services, the eGOV critical success factors, users' satisfaction and eGOV adoption.

Table 1
Interviewees' characteristics

Characteristics	Descriptive Statistics
Age	29% (25-29); 32%(30-39); 24% (40-49) and 15% (50 years and more)
Gender	44%Male and 56% Female
Nationality	100% KSA
Education	9% Diploma; 62% Bachelor; 21% Master and 9%PhD
Job category	26% Administrator; 9% Financial Analyst; 18% IT Specialist; 15% Teacher; 3% Technician; and 29% Manager.
Sector	% 29 Private and 71 % Public

E-Government services perception

Throughout the interviews, respondents attested that the most successful e-services sectors are eGOV and e-Banking services. Concerning online bank services, interviewees outlined that they have strong experience, since that the banking sector has started earlier than the government in offering e-services. In fact, in mid-2000, banks in Saudi Arabia have established their online presence via websites and a number of them were offering internet banking services (Jasimuddin, 2001). Regarding online government services, opinions converge to confirm that government has made big efforts over the last years to facilitate government, citizens, residents and visitors interactions. Overall, when asked to rate eGOV portals, participants allowed scores ranging from 6 to 9 out of 10. They mentioned that eGOV portals have attained a good progress in providing services and that they appreciate save time, effort as well as money in using them. However, even if the global evaluation of government online services is positive, there is an agreement that improvements are needed to enhance the user experience: "*I think that more efforts should be done in terms user experience in all government's portals... especially, conceiving an excellent interface design that helps the user to navigate easily and quickly through the portal.*" "*Unsuccessful experiences with government's portals come from insufficient knowledge and lack of experience. Government should educate citizens to facilitate portals usage.*" Thus, issues related to eGOV services use can be divided into two categories, the first one related to the eGOV portals features and the second one associated to the users' characteristics. This result is consistent with antecedent researches, which confirmed that many variables namely the ease of navigation, the aesthetics, the content, the accessibility, and the personalization impact users online experiences when they navigate and as consequence their level of satisfaction and adoption (Kumar et al., 2007). In fact, previous studies confirmed that the effectiveness of eGOV portals, from a citizen's perspective, can be measured in terms of perceived usefulness and perceived ease of use (Kumar et al., 2007; Susanto & Aljoza, 2015). In addition, they established that the characteristics of online users such as internet experience and perceived risk have a significant effect on citizen's trust in eGOV (Warkentin et al., 2002; Miyazaki & Fernandez, 2001; Alzahrani et al., 2017).

After discussing eGOV global perception, the interview guideline invited participants to discuss about their experiences with Saudi eGOV services portals as well as to present the factors that may lead to their adoption and success.

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Critical factors affecting e-Government services success

During the interviews, unanimity was observed about the performance of "Absher" platform. Without except, all interviewees classified this eGOV portal, provided by the MI, as the successful portal. According the collected data content, its success is due to many reasons: "*Absher offers personal and secured services in few clicks*"; "*Absher integrates many services, save time and effort, the information is offered smoothly and is updated continuously ....globally the platform is friendly and it is easy to use*". "*It enables me to complete all of my necessary needs easily*'' "*I think that the reason of it success is that it meets people's needs, especially in specific circumstances like the COVID-19 pandemic*". Although the existence of an agreement regarding the perception of the MI online services; there seems to be less consent as to designate the less efficient eGOV portal. From the interviewed citizens' quotations it raised that many EGOV portals are disappointing, however disadvantages were perceived especially in three eGOV services. Many participants evoked their unsatisfactory experience with "Safeer" platform. They mentioned important concerns about the system halts during working hours. Also, a number of interviewees raised out problems in term of ease of use and usefulness encountered with "Sakani". Moreover, the "Jadarah" portal was criticized for non-transparency procedures in calculation of candidate scores and shortlisting.

From the assessment of a number of eGOV portals emerged a list of 11 factors (motivators/inhibitors) that affect the eGOV services success (Table 2). These factors were classified in term of their citation frequency by interviewees.

Table 2
Factors affecting e-Government services success

No.	Factor	Example Verbatim Quotations	Frequency (n=34)
1	**Coverage level of users' needs/ Personalized services**	"*Offers many services*"; "*integrates various services*"; "*offers a number of services*"; "*it should serve all the user's needs*"; "*access to all e-services*"; "*provide me with all of the services I need*"; "*there are many services that you cannot do on the portal*"; "*it offers me to complete all my necessary needs*"; *it meets people needs*"; "*The portal does not prioritize people's needs.*"	94.11% (n=32)
2	**Ease of use**	"*Offers easy transactions*"; "*ease to use functionalities*"; "*it is more easy*"; "*it offers more clear process*" ; "*ease to use without effort*".	88.23% (n=30)
3	**Security & Privacy**	"*It is more secure*", "*protect my personal information*" "*confidentiality of personal information*"	85.29% (n=29)
3	**Service quality**	"*Fast in processing inquiries*"; "*Fast services, save time and effort*"; "*helpful services*"; "*It offers quicker response*"; "*The rapidity of services*"; "*The service quality doesn't meet my expectation as a user*".	85.29% (n=29)
4	**Information**	"*Information clearness*"; "*Information reliability*";	58.82%

	quality	*"clear steps and information".*	(n=20)
5	**Accessibility**	*"It makes the information reachable for all at any circumstances."; "when these portals are easy to access"*	55.88% (n=19)
		"offer voice service for those with eyesight troubles and a visual guide to dumb and deaf users"; "Providing many way to access to the platform via apps and connected born in malls or public area"; "Facilitate the use and access from phone".	
6	**System quality**	*"Efficiency and effectiveness of the system"; "The use of advanced technology".*	47.05% (n=16)
6	**User friendly platform**	*"Good Design"; "The simplicity of the website or the application"; "the platform is friendly".*	47.05% (n=16)
7	**Technical support**	*"Support with video and photos"; "IT support is important".*	29.41% (n=10)
7	**Interactive platform**	*"Interactions are very important"; "Definitely responsive"; "virtual interaction is more efficient"; "fast interaction in processing".*	29.41% (n=10)
8	**Service processing transparency**	*"The platform politic is not clear"; "it needs more transparency".*	11.76% (n=4)

User satisfaction and adoption of e-Government services

For a deep understanding of the factors that may lead to successful eGOV portals, interviewees were asked about their intention to re-use the eGOV services and the elements that can enhance their satisfaction. Overall, participants exhibit their trust in the government e-services and their willing to a continuous use. One of the respondents commented "*I will continue to use eGOV services, I trust on the government initiatives for continual services' enhancements .... Successful eGOV is essential today, for both the government to save budgets and for individuals to save time.*" Another one added that "*because it saves time and effort, sure I will use eGOV services and I am confident that many improvements will be done".* In fact, reasons interviewees felt encouraged them to a continuous use of the eGOV services were similar to the factors mentioned in assessing eGOV services success. However, participants stress on the importance of the continual eGOV services improvements to maintain and enhance the user satisfaction.

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Figure 1

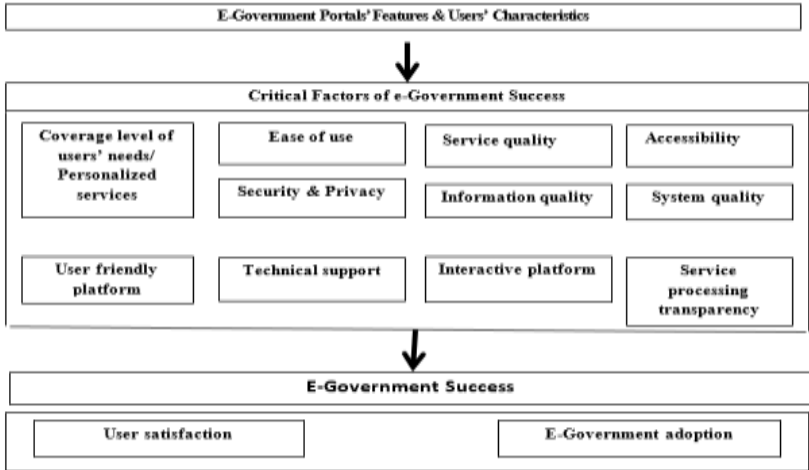*Antecedents & consequences of critical factors of e-Government success*

Figure 1 summarizes findings. The users' perception of eGOV portals features and the users' characteristics represent the foundation of the critical factors eGOV success. The eleven factors extracted influence the user satisfaction as well as the eGOV adoption.

Results confirm those found in researches on information system (IS), in general and those of eGOV system in particular. Findings attest to the robustness of the Delone and McLean (1992, 2003) model. These researchers developed a framework of IS success identifying six factors that are system quality, information quality, service quality, intention to use/use, user satisfaction, and the net benefits achieved from using the system at the individual and organizational level. Previous eGOV studies focused mainly on governments' internal relationships and employees' satisfaction (Ali & Al Kabbi, 2018; Gable et al., 2008). By analyzing the eGOV system success from a citizens' perspective, findings contribute to the eGOV knowledge. Outcomes support those of Warkentin et al., (2002), Gilbert & Balestrini (2004) and Mensah et al., (2020) where variables such as citizen trust, perceived risk, perceived usefulness ease of use, time, personalization, cost, convenience, control, confidentiality, enjoyable, reliability, safe, visual appeal, were candidate to influence the electronic government services use.

Moreover, in contrast with up-mentioned academic papers, the qualitative nature of findings offers a more detailed understanding of the factors affecting the eGOV success. The verbatim quotations of the research participants propose a bundle of items for developing and/or improving factors measures.

Conclusion, limits and future research

This study explored the eGOV success factors from Saudi citizens' perspective. Findings showed that the eGOV services perception depend on eGOV portals features and is influenced by the users' characteristics and needs. This paper emphasizes that developing an effective eGOV adoption strategy requires an examination of the citizen characteristics (e.g. internet experience, perceived risk, user's technical capability) and their specific needs from eGOV along with the eGOV portals technical features.

Eleven factors that affect the eGOV service success were extracted and classified in term of their importance to participants. Results disclosed that, at the top five, factors are the service relevance to the users' needs and it personalization, the ease of use of portals, the security, privacy and the service quality levels, the information quality offered and the accessibility. The other factors which are also important for user are ranked successively as following: the system quality and its design, the technical support and its interactivity, and the process transparency. This classification demonstrates that the primary factors to consider place the user needs and characteristics at the core success of an eGOV service. Users claim a variety of services, and an easiest technology to use that is secure, respects their privacy, provides information quality and improves services accessibility. The last five factors relate more to the technology used to enhance the eGOV system design, the interactivity and the transparency.

The factors discussed are crucial for user satisfaction with eGOV services which in turns influences their adoption. Regarding the adoption process, this research paper underlines the importance of the users' trust on the continual improvement of the online services by the government. Therefore, governments should invest in enhancing trust with citizens related to the efforts deployed in improving their e-services. In summary, future actions are recommended for Saudi Arabia government and in similar contexts to support users' satisfaction with eGOV services and their adoption. First, examine users' characteristics and needs to choose suitable services and technology to them. Second, evaluate the technology to perform efficiently services. Finally, strengthening the government-citizen trust through assessing continually users' satisfaction level and inform them about services improvements. Mass media can be used, as the mouth organ of governments, to communicate with citizens and notify them about services enhancements, which will reinforce their involvement and engagement (Saqib, 2010; Behramand et al., 2020).

This research paper is not without limitations. Due the research qualitative nature, results cannot be extended to a larger population. The interviews outcomes are based on content derived from a convenient sample and are conducted in a specific context, so findings should be interpreted in the light of these two circumstances. In fact, a sample of Saudi citizens was excluded from the present investigation. The research sample was mainly young people, well-educated and with occupations. This category of persons may have a particular perception of eGOV and be influenced by factors that are different from other citizens' categories. It is subsequently recommended in forthcoming investigations to recruit a more representative sample of interviewees which will enable gathering more extensive information and enhancing the research external validity. Moreover, the interview guide neglected the particular cultural environment of the research context. In fact to extend understand on how eGOV services are perceived by citizens and why they are adopted researchers need considered of the contextual factors within the culture where these eGOV services are developed. Adding open-ended questions related to possible effects of the cultural environment on perception of and adoption for eGOV services will be benefit into upcoming works. Furthermore, data was collected only from Saudi citizens with ignoring the perception of other stakeholders of eGOV services. Future qualitative and quantitative investigations are needed to draw a comprehensive model to better understand the factors underlying the eGOV success. Researchers should adopt a dual perspective in studying eGOV success factors. Crossing viewpoints of professionals in charge of eGOV services conceptualization and maintenance as well as those of citizens will bring deep knowledge to an effective eGOV services development which will enhance users' satisfaction, and consequently will maintain a high adoption rate.

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