Toward Better Utilization of E-Government Platforms in Light of Logistics

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Abstract
The transformation of e-government in Saudi Arabia is one of the biggest challenges in the IT-related field. E-government services aim to establish a relationship between government and citizens or other governments using information technology. This study will investigate the unused e-government platforms, reasons behind this problem and we will discuss many factors and models that can encourage end-user to use these platforms. This study aims to investigate the reasons behind the difficulty to handle sudden digital transformation and to measure citizens' level of awareness and guide them to Saudi Arabia's 2030 visions. The Activity Theory framework is used to guide the survey creation and to ground the study scientifically. Thus, the survey technique has been used for data collection. Based on 87 responses and the literature reviews the outcome of this study is an integrated model that clarifies the factors that can affect e-Government platform utilization in light of logistics. The proposed model focuses on the development of the Saudi e-government platform based on information logistics. However, in this study, we faced several limitations, thus, for future research, we recommend expanding the sample size to cover different countries and cultures. Replicating this research in different countries could yield generalizability of the study findings. Other factors can be added to this model based on the environment and context of other countries.

Keywords:
E-government platforms, E-government services, Logistics services, Digital transformation, Activity Theory.

Abbreviations:
Electronic government (E-government), Electronic readiness (E-readiness), Government to Citizen (G2C), Government to Business (G2B), Government to Government (G2G), Kingdom of Saudi Arabia (KSA), Information and Communications Technology (ICT), Ministry of Interior (MOI), National Information Center (NIC), Gulf Cooperation Council (GCC).

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1. Introduction

The transformation of Electronic government (e-government) in Saudi Arabia is one of the biggest challenges in the IT-related field. E-government services aim to establish a relationship between government and citizens or other governments using information technology. It all started when the supreme Royal Decree. 7/B/33181, dated 10/7/1424 (7/9/2003), including a Directive to the Ministry of Communications and Information Technology (ICT) to draw up a plan for the online delivery of government services and transactions [1]. The objectives of this e-government are to increase the availability of public services twenty-four hours per day and seven days per week, raise the sector productivity and efficiency, provide better and easier facilities to customers and others, boost return on investment and provide the required information on time with great accuracy[1].On the other hand, logistics are trending now in the Saudi government as well as other businesses and there is a need to improve it along with e-government services to rise with the economy. Logistic services, in this case, can be defined as the delivery of government services to citizens through electronic systems and websites. Saudi Arabia's 2030 vision promised to enhance the quality of existing e-government systems by solving the current issues, addressing the challenges and to develop new systems for the manual government services. The Saudi government is focusing on electronic services to serve citizens in many ways. In this section, we will introduce the most important e-government services/platforms in Saudi Arabia.

- "Yesser" is an e-government program responsible for creating, producing and operating many e-government programs and goods using the highest technological and secure standards. It acts as a bridge between government agencies in their e-transition journey[1].

- "Absher" is an integrated electronic system that facilitates the provision of services to citizens and residents, in line with Vision 2030, providing more than 160 services to both the private sector through "Absher Business" and the public sector through "Absher Government" [2].
- "Sadad" is the central system in the Saudi Arabia Monetary department for the online monitoring and payment of bills and other payments, since its primary task is to promote and accelerate the process of paying bills and other payments through all the Kingdom's banking networks [3].
- "Hafiz" is an e-government program to encourage and facilitate job hunting as well as providing educational, motivating resources and financial assistance of up to 2,000 SAR monthly. Employment applicants for those who are interested in Hafiz can gain access to job placement centers, "Taqat-online" job listings, "Liqaat" career fairs, various education and training programs, and many more [4].
- "Saned" this program is focused on the patronage of the Saudi worker and his/her families during the period of unemployment for causes out his control where the system seeks to fill the transitional gap between the previous job and the ability to obtain a new job by ensuring a minimum income to guarantee a decent living for him and his family, as well as providing the necessary training and assistance till he finds another job [5].
- "Nafatn" is a national program of the Kingdom of Saudi Arabia's National Information Center to provide and maintain digital identity close to the traditional identification of citizens and residents. The aim is to identify and strengthen the national digital identity strategy that regulates the digital identities with rigorous implementation delivered as a service. Accordingly, Ministry of Interior (MOI) / National Information Center (NIC) has extended its physical identification network and developed a National Digital Identification Network intending to have a highly secure, trustworthy and effective identity portal that can boost interest in online services across Saudi Arabia and the [6].
- "Salamah" one of the online services provided in the Governorate of Jeddah by the department of civil defense, which helps to apply for civil defense licenses [7].

E-government systems in Saudi Arabia offer more than 2453 services, this is delightful but also, leads to myriad problems as there is a huge number of systems that are not used by citizens for many reasons. In this study, we will investigate the unused e-government platforms, the reasons behind this problem. Then, we will discuss many factors and models that can encourage end-user to use these systems. Through our reviews and surveys, we aim to investigate the reasons behind the difficulty to handle sudden digital transformation and to measure citizens' level of awareness and guide them to Saudi Arabia's 2030 visions. This paper suggests a model clarifies factors for better utilization of the available e-government platforms. This research methodology is based on the Activity Theory framework which used to guide the survey creation and to ground the study scientifically. Thus, the survey technique has been used for data collection. The overall structure of the paper takes the form of six sections, including literature review, methodology, results, discussion, and findings. In the end, the conclusion will be provided.

2. Literature Review

One of Vision 2030's goals is to reach the government's effectiveness index from 80th to 20th rank [8], as it made a promise to expand the range of electronic services provided, including health and education services. It also promised to improve the quality of currently available electronic services. E-government's role and importance lead us to investigate and discuss its current state. There have been numerous studies highlighted the challenges, barriers, and factors that affect the success of e-government in Saudi Arabia. In particular, logistics development and growth will take place in this review as it plays a strong part in e-government flourishes. In this section, several articles will be reviewed to support our proposed model. *Alshomrani* (2012) has made a comparative study using the United Nations e-government indicators in Saudi Arabia [9]. The performance of Saudi Arabia's e-government was ranked poorly compared to other Arab countries, such as Bahrain, the United Arab Emirates, Kuwait, and Jordan. In 2003, 2004, 2005, 2008 and 2010 the Saudi e-government ranks were 105, 90, 89, 70, and 58 respectively. *AlSobhi, Kamal* and *Weerakkody* (2009) claim that 'Khdamatec' electronic offices in Madinah failed because of the weakness in user confidence in the internet and information security as well as the resistance to change in government employees forcing people to visit the offices to acquire the services [10]. Based on the established interviews in their study, they highlighted another challenge which is authentication (how to identify citizens through the use of e-government services). Another study by *Alshehri, Drew* and *Alfarraj* (2012) show that there are highest priority approaches to be used to facilitate the effective implementation of e-government services in Saudi Arabia: the development of robust and sensitive technical support networks for all Saudi government departments and organizations, establish comprehensive information and training programs that

increase awareness and knowledge of e-government services among people as they become available in each area and acceleration of the deployment of high-performance network and internet infrastructure to government agencies and service providers [11]. Previous research has been established by *El-Sofany et al. (*2012) appear to be valuable and informative since it focuses on all e-government domains: Government to citizen (G2C), Government to Business (G2B) and Government to Government (G2G) [12]. Their research illustrated the Kingdom of Saudi Arabia's (KSA) e-government main benefits such as reduced cost, productivity improvement, raise government power, quality of service to enterprises and customers, network and community creation. Also, their research focused on important goals that any e-government program wishes to achieve. First, raising productivity and efficiency in the public sector. Second, providing better, easier-to-use G2C resources for individual citizens and G2B services for business customers. Third, increasing IT return on investments. Fourth, increase transparency and easy access to government data. Furthermore, *El-Sofany et al's* study discussed the most important factors impacting e-government success or failure: resistance to electronic ways of transition, lack of cooperation and alliance, poor strategic preparation, economic obstacles, lack of qualified staff and preparation, culture, security, privacy, and trust. Furthermore, *Alanezi, Mahmood,* and *Basri (2012)* discussed how e-government services quality is important for public acceptance and use [13]. A qualitative approach was taken through individual interviews that explored categories of service quality. The category of system function included ease of use and system availability; and the category of content included three dimensions: format, information, and personalization. Besides, the procedural category included security and privacy, credibility, interactivity, and processing time; sensitivity and communication dimensions included citizen help. For quality purposes, online citizens ' assistance should be offered by e-government websites to address questions and resolve problems promptly. A recent study by *Alateyah, Crowder,* and *Wills* in 2013 implemented an integrated model for "Citizen Adoption of E-government Services" [14]. The higher-level concept presented includes the intention of using E-Government and E-Readiness services. In addition*, Alghamdi, Goodwin,* and *Rampersad* (2014) developed a model for "Organizational E-Government Readiness" in Saudi Arabia this model integrates seven key areas: strategy, user's access, national e-government program (Yesser), portal, processes, Information, and Communications Technology (ICT) infrastructure and human resources [15]. Prior research by *AL-Shehry et al. (*2006) has inspired our study [16]. The motives are serving as powers to embrace e-government system and put a lot of pressure on public sector entities to shift to online services. *AL-Shehry et al's study* discussed "The Motivations for E-government Adoption Model" as there are many aspects that could obstruct this transition, and therefore need to be included in the implementation of e-government. In light of logistics, *Saatcioglu, Deveci*, and *Cerit* (2009) focused on e-government and logistics in Turkey [17]. Because the use of information systems in the logistics field is increasing rapidly and the globalization of world trade, as well as the increased volume of exchange, have created difficulties in determining the position of the cargo. As a result, they focused on investment in e-government services including transport and logistics. Nevertheless, *Powell* (2001) emphasized on logistics state in Asia as most domestic companies will also boost their international competitiveness by using logistics to create value [18]. This is important to support the planned future economic growth of the country. In *Powell's* study, he discussed two views of logistics. The first view illustrated the realistic approach usually practiced in Asia. The strengths of this strategy rely on the specific organizational dimensions of transport where the primary skill is operational competence. The second view relies on the experience of the consumer, from the delivery level to the end-user. The goal is to offer premium performance at the lowest cost. Apparently, this model view takes a holistic approach and is the standard of modern economies.

Such analyses of articles enriched this paper in many areas. The next section illustrates the methodology including the data collection technique.

3. Methodology

To support this study, the 4th generation of Activity Theory (AT) has been used as a framework for creating our questioners to gather data [19]. It is based on a cultural-historical school largely based on Vygotsky's (1978) works. Leontiev (1977) described the Activity theory as "the substance of consciousness" It is suggested that Activity theory is a useful Russian philosophy for researchers [19]. The aspects of the 4th generation of Activity theory are barratries, motivations, division of labor, level of awareness, community, rules, people, tools and objectives (see Fig.1).

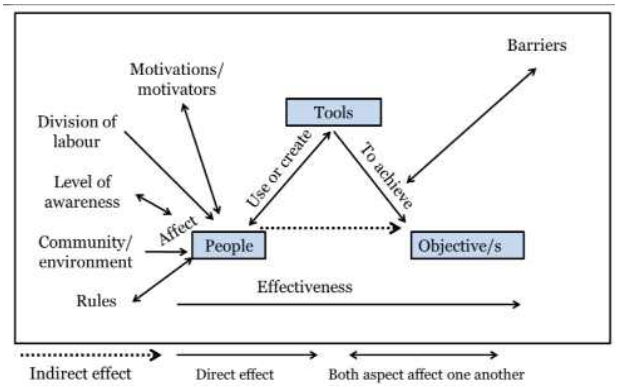

Fig.1: The 4th generation of the AT model [19].

Based on Fig.1, people are the participants, tools are the e-government platforms, objective is better utilizations of the platforms and all of that will be affected by six aspects which are barratries that users can face, motivations for them to use online platforms, division of labor that means how the workflow is distributed, users' level of awareness, community pressure, rules of using the online platforms. The intended outcome of using the AT model has gained a wide knowledge about using the context of the e-government platform to propose a model that can improve e-government adaption and utilization in Saudi Arabia.

Our survey questions have been inspired by the Activity Theory aspects. For example, one of the questions was about participant's level of awareness which is one aspect of the 4th generation of AT as mentioned above. The survey was created using Microsoft Forms on the 25th of February 2020. It contains 16 different questions about Saudi e-government platforms, the benefits, and the barriers of using e-government systems, logistic services and its importance to e-government as well as their support to 2030 Saudi vision. The questions types were multiple choice and some open-ended questions. The sample was random, targeting all Saudi Arabia citizens and distributed through different channels such as social media, emails. The obtained responses were from 87 citizens. All the findings from the literature reviews and the survey were used to endorse general conclusions. However, caution must be taken in consideration of the small sample size compared to the total population in Saudi Arabia, as the results may not have sufficient detail to generalize but to give a flavor for further research. The results of the survey will be addressed in the following section and evaluate citizens' responses.

4. Results

This section will discuss the survey results, as mentioned the overall responses were 87 and 16 questions were asked in the survey, it was focused on e-government Saudi platforms and their level of utilization, citizens' opinion regarding these systems and the provided services, asked about the most used e-government systems as well as their knowledge about the important advantages and difficulties faced when using these platforms. The survey aimed to know more about the citizens' background in logistic services and digital transformation. Based on the responses, 66 citizens agreed that Saudi Arabia has many and varied electronic systems services for government agencies. More than 60 responses liked the service level provided by Absher system. When they were asked about the most important advantages of the Saudi e-government services, most of the answers were "Saving time and effort" and "Meet the citizen's need". On the other hand, the difficulties they are facing when using these systems as follows:

First, "lack of responding to citizens' complaints". Second, "Insufficient support for the system". Third, "the requirement for a user account" as it presented statically in Fig.2.

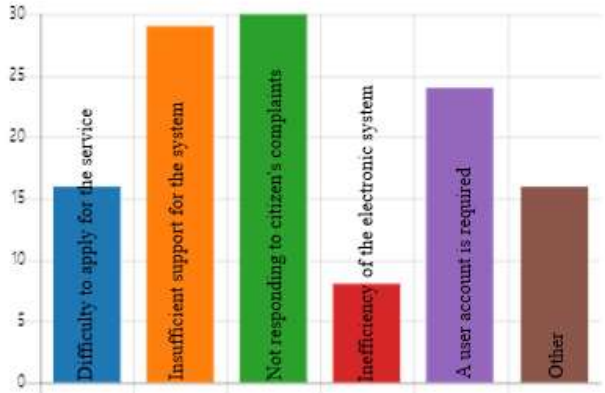

Fig.2: The difficulties faced by citizens when using e-government systems.

The gathered data showed that 82 citizens chosen Absher as the most used e-government system. Their responses nearly equal regarding the use of The Unified National Platform and 77% of them categorized it "High rating (4-5)". Based on the results most of the citizens support the Kingdom's vision for 2030 to transform the Saudi government more electronically and based on the results many organizations support the use of electronic services. One of the main objectives of this study is to measure the citizens' familiarity with the term of the logistic service. Unfortunately, the evidence showed that a lot of citizens have an average to zero knowledge

regarding the logistics concept as shown in Fig.3. However, 49 citizens support the necessity of developing logistical services electronically "*To keep up with the Saudi's vision for 2030*" as they say while 38 participants did not know anything about the logistics concept.

Fig. 3: The citizens' familiarity with the term "Logistic Service".

Few responses were received regarding the definition of Logistic Service. Around 28 only gave us the right definition. One of them said," *It is the art and science of managing the flow of goods, energy, information, and other materials such as service products and even mankind from the production area to the consumption area*". Another respondent said, *"It is a group of electronic services provided through government systems and is an alternative to paperwork that waste effort and time.*" this defines the exact Information logistics concept used in e-government platforms. The responses illustrated that most of the old citizens do not accept this sudden digital transformation because they have a weak technology background. Others complain about insufficient systems' technical support and the lack of encouragement and awareness provided by the government. "*Ease of use, quality, flexibility, reliability, and security of system also, training and awareness, speed of internet, advertising the service*" were their answers about the most important factors that lead to the success of the digital transformation. At the end of this survey, it was suggested that there is a need to have "*Video tutorials for the utilization of all e-government services*" and *"All the government departments should be integrated together, so there is no need to provide data to the organization, where the data already exist in another one."* Others suggested *"To have the e-government website like Absher accessible without the need to have an internet plan. the same way where you could call 911 without a sim card"* and to *"Connect logistics services with all other sectors"*. In the next section, we will discuss all findings, results, and reviews of our study.

5. Discussion of Findings

The beginning of this study illustrated the importance of e-government and logistics services to the public sector and how citizens should use these platforms efficiently to follow Saudi Arabia's 2030 vision. There are several e-government platforms such as Absher, Sadad, and Hafiz popular and well used by most of the citizens, not like other systems. Based on the literature review, encouraging results came up. Lack of user confidence in internet services and the government's employee resistance to change were the main barriers to e-government growth and success. In another finding, different approaches must be used by the government to build effective e-government systems. The first approach is to build a technical support network for all organizations in the Saudi Government. Second, is to build training programs to increase people's awareness. Third, is to accelerate high-performance network and internet infrastructure to government agencies. In the next finding, the focus was not only on the e-government itself but also on all its domains. The reviews discussed many goals that should be achieved in any program such as boosting public sector productivity and efficiency, providing individual citizens with cheaper, easier-to-use G2C tools, and encourage the business with G2B services. Besides the focus on e-government domains and goals, there are also important factors impacting the success or failure of the e-government such as resistance, lack of cooperation, security, privacy, and so on. The next finding complements the previous one as it discusses how the quality of e-government services is essential for the acceptance and use of the public and a qualitative approach was adopted that explored the quality of service categories. The following models from the articles' reviewed to support this study strongly and work as a foundation for the proposed model that enhances the utilization of e-government platforms in Saudi Arabia. The first model presents factors affects the citizens' intention to adopt e-government in Saudi Arabia. The second model for organizational e-government readiness in Saudi Arabia integrates seven key areas: portal, processes, ICT infrastructure, and human resources, strategy, user's access, national e-government program (Yesser). The third model was a promising addition to our model because it focuses on motivations and they are the key factor to e-government success. The last model takes a holistic approach and works as the standard of the modern economy because of the strong integration between government and logistics. It addressed two logistics views. The first view illustrated the usual realistic approach in Asia. The second view is based upon the consumer's experience, from the level of raw materials to the end-user.

The overall response to the survey was very supportive to come up with the findings, together with the previous findings they will strongly complement each other. As we have a lot and varied e-government systems, where the level of the services provided by them is generally acceptable. The Logistics Services concept was new to the majority of citizens. However, they were supportive of the development of logistical services electronically to keep up with the Saudi's vision for 2030. Based on the responses for the definition of logistics and the factors that lead to the success of the digital transformation along with other suggestions a new model has been developed in this study. The outcome of this research is an integrated model that clarifies "The influencing factors on e-government platforms utilization in light of logistics". This proposed model focuses on the development of the Saudi e-government platform based on information logistics as shown in Fig.4.

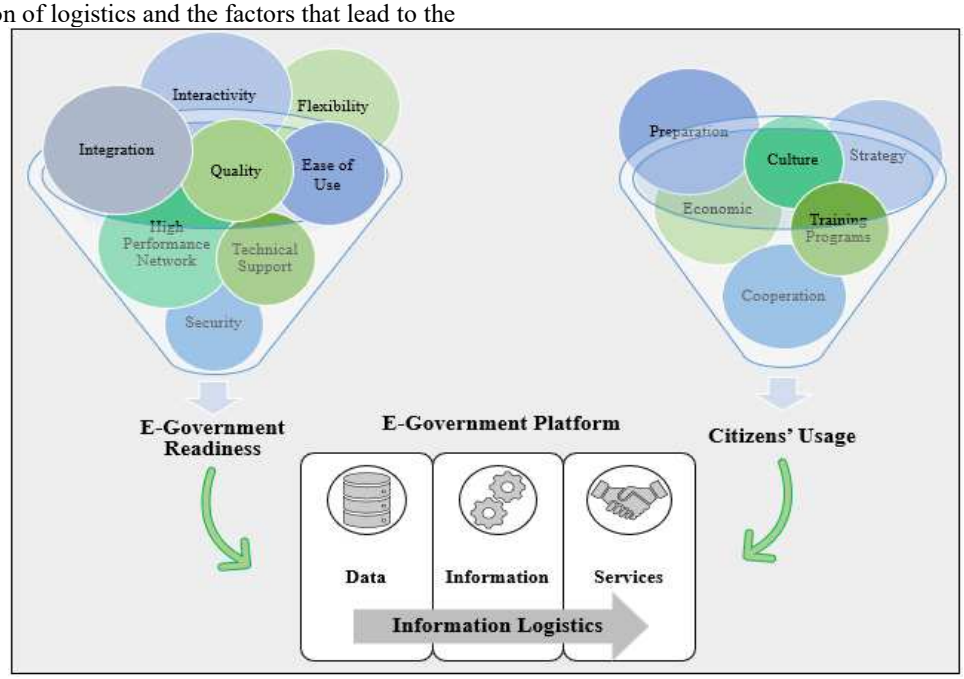

Fig.4: Influencing factors on e-government platforms utilization in light of logistics.

This model illustrates the concept of Information Logistics as a base for the development of e-government platforms because they deliver the services to the citizen after processing based on the original data, In other words, the delivery of services from the production stage to the consumption stage. Two main parts involved in this model and interact with the platform: E-Government System Readiness and Citizens Usage. Many factors affect each of them and as much they are positively affected as much e-government platform utilization will be better. The first part, e-government readiness affected by eight factors: security, quality, flexibility, integration, interactivity also by, the system ease of use, technical support, and high-performance network. In the second part, citizens' usage affected by six factors: cooperation, preparation, culture, economic, strategy, and training programs. The next section will conclude this paper and discuss some of the limitations faced during the research.

6. Conclusion

The purpose of the current study is to guide Saudi Arabia to better development and use of e-government platforms. This research has discussed the benefits, barriers, and factors that can influence the e-government usage, growth, and success. Regarding logistics, we aimed to increase the people's knowledge regarding this concept and to highlight its importance in the e-government arena. This is to keep it in line with the Saudi 2030 vision. The result of this study was the development of "The influencing factors on e-government platforms utilization in light of logistics" model.

However, in this study, several limitations were faced, starting with the respondent small size in comparison to the Saudi Arabia population size as they reached 32.94 million in 2017 [20] and that due to the time limitation for this study. So, the results may not be generalized. Based on these limitations, some recommendations are addressed

which could support future researches. It is recommended to expand the sample size to cover different countries and cultures. Replicating this research in different countries could yield generalizability of the study findings. Other factors can be added to this model based on the environment and context of other countries. There is a need to examine more closely the implementation of logistics in e-government systems. Further surveys and interviews could also be performed to determine the effectiveness of these results which have been reflected in the proposed model.

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