The Effect of PESTLE Factors on E-Government Adoption in Jordan: A Conceptual Model

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ABSTRACT
Countries all over the world pursue to improve their government system in order to provide efficient e-services to stakeholders in real time with minimum efforts. Regardless the inclusive adoption and benefits of using ICT, many developing countries face several implementation and adoption challenges. To understand the user adoption of e-services, several model are developed. However, most models concentrated on technological and social dimensions. Moreover, none of the former studies has made any further effort to develop and validate a unified model of e-government includes all the micro-environmental factors affecting e-government adoption. Consequently, this research develops a conceptual model based on PESTLE framework to address the effect of these factors with considering the moderated effect of government support. Taking into account, the effect of PESTLE factors significantly contributes to manage expenses, mitigate risks and attain competitive benefits.

Keywords: *Challenge, Conceptual model, E-government, PESTLE.*

I. INTRODUCTION

The information and communications technology (ICT) is available to all, which gives excessive opportunities for all countries to gain its advantages. Countries in all the world can use the ICT to enhance their government system and provide high service quality. Using ICT in providing services permits citizens instant access to services with minimum efforts. Furthermore, the ICT decreases the costs of conducting business and improve service efficiency and transparency (Chipeta, 2018). The implementation of e-government is anticipated to aid governments in delivering services and enhancing interaction with citizens, businesses and other government agencies (Guenduez et al., 2018). The concept of e-governance or also known as digital governance, includes applying the changes that information and communication technologies make in the delivery services of governance. The changes involve the interaction and involvement of citizens in the field of governance (El-Ebiary et al., 2019)**.**

E-government is not just developing a website; it is the government's ability to provide services via the websites that have the features to facilitate access to services by citizens. E-government should enhance the interaction between governments and their citizens by facilitating their online access to government information and services (Guenduez et al., 2018). The implementation of e-government enhances candidness and transparency in public service, enables government responsiveness to citizens' desires and reduces corruption in government agencies as it boosts accountability (Joseph, 2017). As for an example, in Malaysia, within Multiple Super Corridors (MSC) there are 7 core areas or leading applications as follows: e-business, e-government, identity card (MyKad), international student card (i-Kad), research and development group, smart school, development Technobrener, Telehealth (El-Ebiary et al., 2019). Despite the growing delivery of e-services, adoption of e-services by citizens is still restricted particularly in developing countries (Al-Hujran et al., 2015), which may cause e-government system to fail. While the developed countries contend to provide more innovative services, developing countries still unable to gain the elementary benefits of e-government due to some barriers that impede e-government successful adoption (Mkude and Wimmer, 2015; Al-rawahna et al., 2018). These challenges comprise, but are not limited to, a large digital divide, insufficient e-infrastructure, limited bandwidth, network failure, high internet charges, resistance to change, shortage of skills and capabilities to design, implement, trust, ease of use, government structure, service quality, regulatory issues, top management support, manage and use e-government systems (Anjoga et al., 2016; Alrawabdeh, 2017; Twizeyimana and Anderssona, 2019). The challenges also include evolving economies, high rate of corruption, instable politic situation, uncertain legal rules and regulations, various social and cultural standards (Mkude and Wimmer, 2015). Moreover, the gap between the design and reality of e-government implementation is reported as the main reason of e-government failure in developing countries (Al-Hujran et al., 2015; Harfouche and Robbin, 2015).

A. Jordanian E-Government

Irrespective the extensive adoption and benefits of using ICT, many Arab countries have faced many adoption and implementation challenges. Jordan expected to reap the benefits of e-government by increasing its productivity, accountability, and transparency (Al-Shboul et al., 2014). A study on online Jordanian consumers' behavior was conducted to assess the factors that influence their preferences (El-Ebiary et al., 2020)**.** This can be used as an early parameter to strategize the adoption of e-services in Jordan. To achieve this mission, Jordanian government pursued to enhance its e-services, however, its e-government did not achieve its goals completely. UNs' surveys have shown that Jordanian e-government rank declined (Al-rawahna et al., 2018). In fact, the government is still facing problem of low-level adoption of e-government services by citizens (Al-Hujran et al., 2015). The websites of Jordanian e-government lack to consistent standards and features that could increase interaction with the user (Alrawabdeh, 2017). In general, the e-government did not utilize information and communication technologies efficiently for providing e-services (Abu-Shanab and Al-Dalou, 2016; Al-rawahna et al., 2018). The global information technology report designated a decay in readiness sub index and the corresponding usage sub index. This confirms the necessity to investigate the main challenges to adopt successful e-government (Al-Refaie and Ramadna, 2017). All the previous studies investigated most of the barriers of e-government, however very few studied addressed the macro-environmental factors. This shall be used to power an affiliation, personnel and the records that live inside the e-services as an essential centre factor along approaches and innovation (Saany et al., 2020). Many studies investigated some of these factors separately not in the whole, therefore, this study seeks to fill this gap.

II. THEORETICAL FRAME WORK

Several theories have been developed to depict users' attitudes, perspectives and adoption of new inventions. The most commonly used theories are the theory of technology acceptance model (TAM), the theory of diffusion of innovation (DOI), the unified theory of acceptance and use of technology (UTAUT) (Liu and Bing, 2017). These models provide valuable visions to understand user's intention to use e-government services (Sampson et al., 2017). Researcher also used PEST (political, economic, social, technology), scenario planning, foresight and SWOT (strengths, weaknesses, opportunities, threats) models to analyse the influence of several factors on e-government (Yingfa and Hong, 2010; Rezazadeh et al., 2011). In general, researchers investigate several factors affecting e-government

adoption, however, designing and persisting e-government needs to investigate political, economic, technological, social, cultural and legal issues (Mkude and Wimmer, 2015). These issues are represented in PESTLE technique. This technique is common for organizations environment analysis and is an abbreviation for political, economic, social and technological, legal and environmental that commonly affect businesses. PESTLE analysis predicts the future based on the present (Stoyanova and Harizanova, 2017). PESTEL analysis is used in strategic planning to analyse macro-environmental factors surrounding organisations (AlAyoubi, 2018, khan et al.,2018). The method is utilized in various fields for strategic analysis such as in assessing traffic safety, airlines, tourism, business and more (Katko, 2016; Mhlanga and Steyn, 2017; Kara, 2018; Mochalova, 2019). Related to e-government, Mkude and Wimmer (2015) used PESTLE to investigate e-government challenges in Tanzania. Therefore, this study utilizes the PESTLE technique to study the macro-environmental factors impeding e-services user adoption in Jordan. PESTLE assists to identify inevitable change in macro economy that could have a critical effect on business performance (Chaleunsouk, 2017). PESTLE factors offer opportunities for growing business or threats that lead to failure (Mochalova, 2019). PESTLE factors could have a significant effect either positive or negative on e-government adoption by users based on the country political and economic situation. The top management of government of the country plays a significant role in augmenting the positive effect of these factors, or mitigating their negative effect on e-government. Alshehri and Drew (2011) stated that the successful implementation of e-government requires the support from the leaders and top management of government. The support of top management plays a substantial role in e-government implementation and adoption (Ntulo and Otike (2013; Mohammed et al., 2016). Alrawabdeh (2017) stated that top management of government is one of the significant factors affecting e-government adoption in Jordan. Likewise, Al-rawahna et al. (2018) indicated that lack of leadership support is one of the main barriers of e-government in Jordan

III. CONCEPTUAL MODEL

Based on the theoretical framework, a conceptual model is developed to study the effect of PESTLE factors on user's adoption of Jordanian e-government. PESTLE is utilized because it is a comprehensive framework and an effective tool to comprehend, analyse, and categorize various variables in the macro environment (Ansah et al., 2016).

A. Conceptual Model Variables
a) The Independent Variables:
The independent variables of this study are six ingredients (PESTLE). These factors refer to several issues as introduced in the following (Mkude and Wimmer, 2015; Silinevicha and Kalinina, 2017; Perera, 2018; Mochalova, 2019):

• Political Factors (P)

The political factors refer to stability of government, government regulations and policies regarding e-government, corruption level, inadequate government funding, transparency in government processes, inadequate organisational leadership commitment.

• Economic Factors (Ec)

They refer to economic growth, inflation rates, interest rate fluctuations, GDP, income, government expenditure, economic stability, Internet high cost, inadequate allocation of funds for ICT education.

• Social Factors (S)

These factors refer to society cultures, education level, beliefs, behaviours, users' demographics, social conventions, lack of adequate IT skills in the public sector, insufficient IT skills of citizens in using computers and advanced technologies, poor awareness of the e-government benefits, absence of public trust in e-government

• Technological Factors (T)

They refer to technology contribution to quality and quantity of e-services, infrastructure, Internet access and availability, technology development, lack of consistency in ICT applications and business processes, lack of adequate measures to guarantee security and privacy

• Legal Factors (L)

The legal factor refers to the laws affecting e-government environment such as security and privacy laws, legislative system, lack of an obvious legal framework for supporting e-government implementation.

• Environmental Factors (En)

They refer to government policy towards pollution, utilization of eco-friendly technology, energy efficiency, climate change.

b) The Dependent Variable:
The dependent variable is the user's adoption of e-government. Users' adoption of e-government is vital matter for successful e-government. E-government initiatives will not succeed if e-services are not used by citizens (Al-Hujran et al., 2015). The government utilizes the ICT especially the Internet to enhance government processes, citizens' participation, and deliver e-services. The participation of users is very significant for successful e-government. Although citizens adopt e-government services, the interaction rate with governments is still low, which leads to e-government failure (Nunes et al., 2017).

c) Moderating Variable
The moderating variable is the government top management support. Top management plays a substantial role in e-government adoption and implementation. It refers to the leaders promise and commitment to accept e-government systems, support its adoption and applications, provide a confident environment that encourages users' participation in e-government iniciatives. (Alshehri and Drew, 2011; Ntulo and Otike, 2013; Alrawabdeh, 2017).
The following figure illustrates the introduced model by this study, which displays the relations among the study variables.
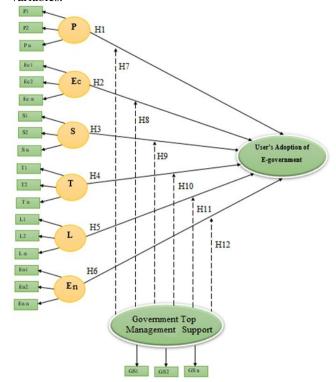

Fig 1: The Developed Conceptual Model

d) Hypotheses

Based on the developed conceptual model, 12 hypotheses are developed to investigate the effect of PESTLE factors on user's adoption of e-government, and the moderating role of government top management support on the relation between PESTLE factors and user's adoption of e-government.

- Direct Hypotheses

H1: Political factors have a significant effect on user's adoption of e-government
H2: Economic factors have a significant effect on user's adoption of e-government
H3: Social factors have a significant effect on user's adoption of e-government
H4: Technological factors have a significant effect on user's adoption of e-government
H5: Legal factors have a significant effect on user's adoption of e-government
H6: Environmental factors have a significant effect on user's adoption of e-government.

- Moderating Hypotheses

H7: The government top management support moderates the political factors effect on user's adoption of e-government
H8: The government top management support moderates the economic factors effect on user's adoption of e-government
H9: The government top management support moderates the social factors effect on user's adoption of e-government
H10: The government top management support moderates the technological factors effect on user's adoption of e-government
H11: The government top management support moderates the legal factors effect on user's adoption of e-government
H12: The government top management support moderates the environmental factors effect on user's adoption of e-government.

IV. CONCLUSION

Assessing the micro-environmental factors affecting e-government is essential to reduce their effect on e-government adoption, directions, activities and performance as a whole. E-government system fails if the government will not educate and increase the awareness of citizens about e-government value. E-government failure is still critical ranging from partial failure to complete rejections due to user dissatisfaction with e-government adoption. The support of top management of government positively contributes to reduce or mitigate the effect of those factors. Understanding the PESTLE factors effect helps countries including Jordan to reduce the gap between e-government design and reality under definite situation of each country. To test the proposed conceptual model validity, data will be collected by a semi-structured interview and a structured questionnaire with civil citizens and government employees in Jordanian government. PLS software package and structural equation modelling (SEM) will be used to analyse the collected data and identify the structural relationships among the study variables.

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