

# CULTURE AND DIGITAL DIVIDE INFLUENCE ON E-GOVERNMENT SUCCESS OF DEVELOPING COUNTRIES: A LITERATURE REVIEW

<sup>1</sup>KINN ABASS BAKON, <sup>2</sup>NUR FAZIDAH ELIAS, <sup>3</sup>GHASSAN A. O. ABUSAMHADANA

<sup>1</sup> Lecturer, School of Computing & Engineering, FTMS College, 63000 Cyberjaya, Selangor, Malaysia

<sup>2</sup> Senior Lecturer, Centre for Software Technology and Management, Faculty of Information Science and Technology, Universiti Kebangsaan Malaysia, 43600 Bangi, Selangor, Malaysia

<sup>3</sup>Lecturer, Al-Azhar Universiti-Gaza, 1277, Palestine

E-mail: <sup>1</sup>kinn@ftms.edu.my, <sup>2</sup>fazidah@ukm.edu.my, <sup>3</sup>ghassan.abusamhadana@alazhar.edu.ps

## ABSTRACT

Developing countries invest heavily in e-government systems mainly to deliver prompt and better service to citizens, engage them in decision-making processes, enhance transparency and accountability of institutions towards policymaking, and to minimise the prospects of corruption. Despite widespread enthusiasm and progress in e-government development in developing countries, their implementations are not as successful as their counterpart in developed economies. In an extant study, a mere 15% of e-government systems were found to be successful in developing countries. In the latest United Nations (2018) E-government Development Index (EGDI) data, the average EGDI of African countries in the survey is 0.3423 whereas the EGDI average of European countries is 0.7727. In spite of this huge gap, factors impeding the successful implementation of e-government in developing countries are greatly misunderstood as empirical studies of e-government success in developing countries are very difficult to find. Without empirical evidence, the digital divide and cultural factors are perceived to influence the e-government success in developing countries. This paper gives an overview of the available research on the digital divide, culture, and e-government success. A literature review was conducted covering empirical studies on the digital divide, culture, and e-government success. Result shows that (1) empirical studies of e-government success in developing countries are rare; (2) most research on digital divide were conducted in developed countries and focused on ICT access, instead of multi-dimensional approach; (3) studies that investigate different dimensions of the digital divide influence on e-government successes in particular are almost non-existent; (4) in IS culture studies, the impact of cultural dimensions on e-government success in particular is missing; and (5) the study of individual level cultural dimensions influence on e-government success receives little attention from researchers. This review calls on research attention to the influence of culture and the digital divide on e-government success. The major gaps identified could offer researchers the potential directions for further research.

**Keywords:** *Countries Individual-Level of Culture, Developing, E-Government Success, IS & Culture Digital Divide*

## 1. INTRODUCTION

The latest United Nations E-Government Readiness Survey demonstrates a positive trend towards higher levels of e-government development globally. Countries in all regions are realising the enormous potential of e-government in delivering excellent services, engaging people in decision-making processes, enhancing transparency and accountability of institutions towards policymaking,

and facilitating an integrated approach. The use of e-government to realise these goals has been expressed and supported in the United Nations 2030 Agenda for Sustainable Development [1]. Nations including the developing countries are increasingly recognising that e-government implementation and support are vital in sustainable economic growth, to gain the inclusion of citizens in policymaking, and to be able to halt the environmental challenges facing us today.

Despite some successes, e-government projects continue to fail in developing countries [2, 3]. In an extant study, just 15% of e-government systems were considered a success in developing countries [4]. Heeks and Stanforth [5] estimated a loss of US\$ 3 trillion on information technology (IT) projects in developing countries between the periods of ten years.

In the regional E-Government Development Index (EGDI) by United Nations as shown in Table 1, the EGDI of the African region stands at 0.3423, which is the lowest development among all regions [6]. This survey demonstrates a minimal success rate of e-government implementation in Africa.

Table 1: Regional Grouping for E-Government Development Index (EGDI)

Egypt	North Africa	0.4594	108	Medium
Botswana	South Africa	0.4531	113	Medium
Libya	North Africa	0.4322	118	Medium
Kenya	East Africa	0.4186	119	Medium
Ghana	West Africa	0.4181	120	Medium
Central African Republic	Central Africa	0.0789	191	Low
Niger	West Africa	0.0593	192	Low
Somalia	Eastern Africa	0.0270	193	Low

Source: [1]

Rank	Region	EGDI Average
1	Europe	0.7727
2	Americas	0.5898
3	Asia	0.5779
4	Oceania	0.4611
5	Africa	0.3423
	<b>World</b>	<b>0.5491</b>

Source: [6]

Table 2 shows among all the countries in the African region, only Mauritius, Tunisia, South Africa, Morocco, and Seychelles are in the higher level of e-government development in Africa. The remaining African countries are in the lower two tiers (medium-EGDI and low-EGDI group).

Table 2: Selected Countries for E-Government Development Index in Africa

Country	Region	Year 2016		
		EGDI	Rank	Level
Mauritius	East Africa	0.6231	58	High
Tunisia	North Africa	0.5682	72	High
South Africa	South Africa	0.5546	76	High
Morocco	North Africa	0.5186	85	High
Seychelles	A East Africa	0.5181	86	High
Cape Verde	West Africa	0.4742	103	Medium

Though these failures are costly and prevent the government’s goal of delivering efficient services to citizens and participation of citizens in decision making in these countries, it is surprising to find research on e-government successes in developing countries to be very rare. Heeks [4] found empirical studies of e-government success in developing countries, in particular, to be very scant and Gunawong [7] found them to be greatly misunderstood. Despite the scarcity of empirical research, the digital divide is perceived to be hampering the success of e-government systems globally [1, 101]. Also, Akther, Onishi, and Kidokoro [8] posited that overlooking cultural factors when implementing e-government in developing countries lead to their failures. Hofstede et al. [9] and Sabri et al. [10] also pointed out that the success or failure of ICT implementation largely depends upon cultural issues and acceptance.

This paper reviews existing research literature on e-government success, digital divide, and culture to identify their respective dimensions and factors affecting e-government success in developing countries. The purpose of this effort is to facilitate the clarification of culture and digital divide factors which have effects on e-government success research. This paper aims to build upon the previous information system (IS) culture research to enhance our understanding of the constructs of the digital divide and culture in their relevance to e-government success to provide substantive directions for future research in the form of propositions. To achieve the aforementioned aim, this paper is structured as follows: Part 2 provides the definitions and benefits of the e-government; Part 3 reviews culture, digital divide, and IS success

literature; Part 4 provides discussion and suggestions for further research; and Part 5 presents the conclusion.

## 2. DEFINITION AND BENEFITS OF E-GOVERNMENT

### 2.1. Definition of E-Government

E-government was defined by the World Bank [11] as “government agencies use of information technologies such as Wide Area Networks, the Internet, and mobile computing that have the ability to transform relations with citizens, businesses and other arms of government”. The purpose of e-government is to restructure the delivery of services to citizens and implement mechanisms that enhance communication between different parties; thus making the processes simpler, easier, and faster. The developing countries started to take part in e-government services because of the promises shown by the superior governance in the accountability and transparency factors [12, 13].

### 2.2 Stages of E-Government Development

Layne and Lee [14] proposed four stages for e-government development in his model and are as follows:

- Cataloguing - The initial stage of the development is where the emphasis and expectation are for the government to have a web presence i.e. official website.
- Transaction stage - The secondary stage of the development is where interaction and transactions are allowed for citizens. Zero or minimum human involvement is preferred here.
- Vertical integration - The tertiary stage of the development focuses on the provision of services at a local level. This level focuses on the connection of local government to the central government and other key institutions.
- Horizontal integration - The fourth stage of e-government development is allowing the integration of government online services over various functional walls. At this stage, the concept of one-stop-shop for citizens by serving their needs in one go is realised.

#### 2.2.1 Benefits of e-government

Among the notable benefits of e-government are the improved services of government agencies at a reduced cost, efficiency

and speed in processing large quantities of data, better understanding of users’ needs, and 24/7 online service provisions [20, 21]. United Nations [1] found that countries which implemented e-government systems gain these key advantages: (1) the ability to facilitate policy integration through the provisions of several vital elements that are needed; (2) the increase in accountability, transparency, efficiency, and effectiveness of government institutions particularly through Open Government Data (OGD); (3) the remarkable ease of facilitation of public participation in government decisions. As the seamless availability of ICT enables innovative channels of communication between citizens and government, including social media; citizens participation in government decision has become more prevalent and pervasive; (4) the enabling nature of e-government to facilitate interaction between government officials and citizens which is pivotal in attaining a sustainable development; and (5) the ability to use e-government by governments to integrate and utilise digital technologies to bring complex mobile and electronic services to the benefits of all people. The developments of e-government systems could minimise the prospects of corruption and therefore will increase the citizens’ trust [22, 23, 24, and 25].

## 3. REVIEW METHOD

The approach recommended by Levy and Lewis [27] and Webster and Lewis [28] was used in our research to review the literature on factors that impact the e-government success. The first step was to search for literature in top journals. The research on e-government success crosses many disciplines. Articles from top IS journals and other disciplines were included, which are Information Systems (example, *MIS Quarterly*, *Communication of the ACM and Information System Research*), and Public Administration (*Government Information Quarterly*). The second step was to conduct an online keyword search of the literature in Elsevier (Science Direct), IEEE, Thomson Web of Science, ACM, SAGE, Wiley Online Library, Springer, Emerald, Taylor and Francis Online, IGI Global (IGI Global Journal & Database), and university libraries. The keywords and terms used in the search are e-government success in developing countries, factors influencing e-government success, culture and information system success, digital divide, digital divide influence/effect/impact on e-government success, culture influence/effect/impact on e-government success, culture and ICT, and IS success. The final step was to look for working papers and

reports pertaining to e-government, for example, United Nation E-government Readiness Survey [1] and International Telecommunication Union [15].

### 3.1. Culture

Hofstede [16] defined culture as “*software of the mind that differentiates members of one group or group of people from another*”. He further explained that culture is not inherited but learned through patterns of feelings, thinking, and actions that are usually acquired by staying with a group of people for a certain period of time. To operationalise and measure the culture is very challenging [26], as there are different definitions and dimensions of culture in cultural literature [60].

#### 3.1.1 Culture models

Several models to define and measure culture are available. Different scopes and variables are used by each model to examine the characteristics of the culture. Four of the most popular models are:

(a) Hall Model [17] - This model is inspired by understanding the basic units or variables of culture. These basic units according to Hall [17] are space, context, and time.

(b) Trompenaars Model [18] - This model defined culture as ways of a group of people solves problems. His model consists of three layers which are the outer layer, the middle layer, and the core.

(c) Schwartz Model [19] - This model identified seven cultural domains in his model based on universal human values. The seven domains are conservatism, intellectual autonomy, affective autonomy, hierarchy, mastery, egalitarian commitment, and harmony.

(d) Hofstede Model [16] - This model has originally theorised four dimensions of culture: high versus low power distance, uncertainty avoidance, individualism/collectivism, and masculinity/femininity.

Compared to other models, Hofstede’s model has been widely used across different disciplines. It has also been tremendously criticised by most influential multi-disciplinary researchers in culture investigation.

The important cultural models and key dimensions are identified and further explained in Table 3.

Table 3: Cultural Variables and Dimension. Adapted from Tarhini [26]

Cultural Variables	Researcher	Interpretation
Power Distance (High versus Low)	Hofstede	The degree upon which the less powerful members of society within a country accept and expect power to be unequally distributed. <b>High PD</b> citizens/authorities are equal <b>Low PD</b> citizens/authorities are unequal.
Uncertainty Avoidance (High versus Low)	Hofstede	The degree to which members of a group or culture are threaten by uncertain situations. <b>High UA</b> -show of emotions emotions -different situation is dangerous <b>Low UA</b> -no show of -different situation is curious
Individualism versus Collectivism	Hofstede	The level of togetherness individuals within groups. <b>Individualism</b> - right to privacy - group invade private life <b>Collectivism</b> -individual decisions

		- group decisions
Masculinity versus Femininity	Hofstede	The degree to which gender roles are different in the society. <b>Masculinity</b> - work goals focus - assertive <b>Femininity</b> - personal goals focus - modest
Confucian Dynamism (Long-term versus Short-term)	Hofstede	The degree to which fulfillment of needs is balanced between long-term and short-terms. <b>Short Term</b> - respect for tradition - social obligations are unlimited <b>Long Term</b> - modernize tradition - social obligation are limited
Universalism versus Particularism	Trompenaars	The degree to which, solution of problems is based on rules against relationship with others. <b>Particularist</b> - based on relationship - rules are broken if necessary <b>Universalist</b> - based on rules - rules are applied strictly.
Specific versus Diffuse	Trompenaars	The degree to which private and public life and personal spaces are differentiated. <b>Diffuse</b> - public -life are integrated <b>Specific</b> - private - life are separated
Achievement versus Ascription	Trompenaars	The degree to which being and achieving values are emphasised. <b>Achievement</b> The culture of being -achievements. - Stresses social relations <b>Ascription</b> The culture of doing - emotional oriented - activity oriented
Low-context versus High-context	Hall	The degree to which meaning is found in context versus in code. <b>High Context</b> -meaning in context. - implicit <b>Low Context</b> -meaning in message - explicit
Time Perceptions Polychronic versus Monochronic Time Perception	Hall	The degree to which time variable is perceived. <b>Polychronic</b> - several things at once - change plans easily - relationship to be life time

		<p><b>Monochronic</b></p> <ul style="list-style-type: none"> <li>- one thing at a time</li> <li>- strict to plans</li> <li>- relationship to be short term</li> </ul>
Hierarchy versus Egalitarian	Schwartz	<p>Extent to which people in nation believe in equality, freedom and concern for others.</p> <p><b>Hierarchical</b> Individuals follow their leaders.</p> <p><b>Egalitarian</b> Individual Follow their neighbors in the latter.</p>
Harmony versus Mastery	Schwartz	<p>Extent to which citizens of a nation are concerned with mastering social environment and getting rid of obstacles.</p> <p><b>Harmony</b> Values; success ambition, competence and daring.</p> <p><b>Mastery</b> Versus; unity with nature, world at peace, environmental protection.</p>
Conservatism versus Affective/Intellectual Autonomy	Schwartz	<p>Extent to which citizens stress the need to maintain status quo (Conservatism), or stress innovation or affective autonomy stresses the need for an exciting life and pleasure.</p>

3.1.2. Culture and ICT

The importance of culture to the success of IS was well observed by Hofstede et al. [9]. According to Hofstede et al. [9], ignoring the difference in thinking among users and partners is one of the reasons why IS fails to be implemented successfully. Moreover, Leidner and Kayworth [60] posited that culture is an important variable to be used in clarifying how groups in society interact with information technology.

Leidner and Kayworth [60] themed cultural studies in IS into (1) Culture and IS development; (2) Culture, IT Adoption and Diffusion; (3) Culture, IT Use and Outcomes; (4) Culture, IT Management, and Strategy; (5) IT Influence on Culture; and (6) IT Culture, or the value attributed to IT by group.

Table 4 demonstrates IS cultural studies were mostly carried out in the behaviours and differences within the national level, followed by organizational level, and very few studies were conducted at individual level.

Table 4: Different Levels of Culture Research

Levels of Culture Study		
National Level	Organizational Level	Individual Level
[30]	[53]	[71]
[31]	[54]	[26]
[32]	[55]	
[33]	[56]	[72]
[34]	[58]	
[35]	[59]	
[36]	[61]	
[37]	[62]	
[38]	[63]	
[39]	[64]	
[40]	[65]	
[41]	[66]	
[42]	[67]	
[43]	[68]	
[44]	[69]	
[45]	[70]	
[46]		
[47]		
[48]		
[49]		
[50]		
[51]		
[25]		
[52]		

As shown in Table 4, it is clear that the level of cultural dimensions that has received little attention in IS literature is the individual level. Most IS culture-related research were on the national level, followed by the organizational level. Srite and Karahanna [71] and Tarhini et al. [72] posited that technology use or acceptance is an individual level phenomenon, hence it would not be accurate to measure or predict individual behaviour using the national measurement instrument. Hofstede [76] himself conceded that his national level measurement was not able to predict individual level behaviour. Srite and Karahanna [71], Tarhini [26], and Tarhini et al. [72] successfully followed McCoy et al. [73] recommendation to measure culture at an individual level using Hofstede's cultural dimensions. Therefore, culture as a social behaviour, should be studied at an individual level to capture the individual behaviour and values that connect culture with ICT use, acceptance, and success.

### 3.2. Digital Divide

International Telecommunication Union [15] defined the digital divide as “*the gap among individuals, households, and businesses at different socio-economic levels with regard to both their opportunities to access ICTs and their use of the Internet for a wide variety of activities*”. This includes distinctions between different geographical areas [15]. The digital divide includes imbalances both in physical access to technology, as well as in the resources and skills needed to effectively use such technology.

The International Telecommunication Union's [15] latest data demonstrates the telecommunication infrastructure and access differences. Table 5 shows the comparison of telecommunication infrastructure and access between least developed, developed, and developing countries. Five types of telecommunication infrastructure and access indicators which were used as the measurement are fixed-telephone line subscriptions per 100 inhabitants, mobile-cellular telephone subscriptions per 100 inhabitants, internet bandwidth bit per Internet user, percentage of households with a computer, and a percentage of households with Internet access [15]. In Table 5, Luxembourg is ranked first with an IDI Access Sub-Index of 9.54. This means that Luxembourg possesses a very advanced ICT infrastructure and a very high ICT household penetration. Almost all of its citizens are online. Eritrea ranked 176, is the last in the survey with an IDI Access Sub-Index of 1.38.

This means that it possesses a very poor ICT infrastructure and lowest ICT penetration. Less than 2% of its citizens have access to the internet. From the table, the disparity between countries is clearly shown. In terms of regions, the Africa continent lags behind in providing ICTs infrastructure, while the most connected continent is Europe. As of economic grouping, it is fair to say that evidence of a wide disparity exists between developed and least developed nations. Majority of the population in the least developed countries live without any PC at home but this is compensated by high penetration rates of mobile phones by individuals [15].

Table 5: ITU-IDI Telecommunication Infrastructure & Access Index Ranking of Countries

Economy	2017 Rank	IDI Access-Sub-Index 2017	2016 Rank	IDI Access-Sub-Index 2016
Luxembourg	1	9.54	1	9.54
Iceland	2	9.38	2	9.32
Hong Kong	3	9.22	3	9.16
France	11	8.64	13	8.55
Singapore	12	8.61	12	8.56
United States	17	8.27	17	8.18
Bahrain	22	8.14	27	7.92
United Arab Emirates	24	8.11	23	8.07
Australia	26	8.00	28	7.90
Canada	30	7.93	30	7.86
Macao, China	36	7.83	35	7.73
Brunei	44	7.47	47	7.25
Italy	47	7.33	48	7.23
Russian	50	7.23	54	7.12
Saudi Arabia	52	7.21	49	7.20
Mauritius	58	7.04	61	6.78
Malaysia	62	6.93	67	6.67
Ghana	120	4.36	122	4.20
Burundi	172	2.14	171	2.04
Chad	173	2.01	173	1.84
Congo (Dem. Rep.)	174	1.68	174	1.79
Central African Rep.	175	1.57	176	1.20
Eritrea	176	1.38	175	1.32

Table 6: Relevant Literature on Digital Divide

Research	Nation	Variables	Key findings
[96]	USA	Access; geographical location; age; income; education; use.	Individual income, education, and age have a close association with the usage of information technologies.
[97]	UK	Internet access; location; income.	The regions of high household Internet access in the UK experience a high quality of local government websites than in the regions where the household Internet access is poor.
[98]	Holland	Gender; age; education and ethnic group; PC access.	PC possession is determined by age and gender.
[99]	Switzerland	Age; gender; education level; access; social-media; media use.	There is a strong skewness of Internet use in the age group of 65+ years. The strong predictor for Internet use is encouragement by family and friends.
[100]	India	ICT access; computer literacy; rural urban students.	Up to 69.70% of urban students and 20.66% of rural students use computers.
[106]	Asian Countries	Income; population size; education; ICT infrastructures.	ICT adoption is determined by infrastructures, income education, and income.
[107]	Sub-Saharan Africa	ICT infrastructures; human capital; GDP per capita.	ICT infrastructures give impact on internet adoption significantly.
[108]	USA	IT penetration; economic; demographic; environmental.	National income has a positive association with IT penetration. The extent of the effect differs between economics and demography.
[109]	USA	Access divide; proficiency divide; demographic.	Access divide depends upon on county type. Proficiency is influenced by the type of connection.
[110]	USA	Education; age; internet experience; income.	Education influences the probability for one to make mistakes.
[111]	Cross- Country	GDP per capita; ICT infrastructures; population.	Urban population and age are impacting ICT adoption in developing nations whereas, in developed countries, education and GDP are found to be the important factors influencing ICT adoption.
[103]	USA	Demography; access; computer and internet skill.	Online information search, internet usage, education income, and age are significant predictors of e-government use.
[104]	USA	Age; gender; age; race education; housing density.	Internet use is influenced by all of the independent variables. When individual and regional characteristics are controlled, peer effects have a stronger influence.
[105]	Germany	Demography; county type.	County type, education, income, and age are very significant in determining internet use.
[112]	Singapore	Digital capability divide; access divide; digital outcome divide.	Digital access divide and gender significantly impact computer self-efficacy.



[113]	USA	Household income; employment status; age; education level; internet experience.	The most important factors determining e-government use are perceived ease of use, employment, education, and income.
[114]	Malaysia	ICT access; ICT skills; gender; rural regions	Results show low ICT access and skills among rural students.
[115]	USA	Smartphone access divide; socio demography; use divide.	Smartphone users are more active online, engage in socio-political activities and adopt digital technologies than non-smartphone users.
[116]	Holland	Age; gender; education; access; internet use; internet experience.	When Internet matures, it replicates known, economic, social and cultural associations of the offline world.

As shown in Table 6, the majority of the relevant literature on the digital divide that exists today was conducted in developed countries [75]. Very few empirical research conducted in developing countries could be found. Access to ICT infrastructure was the main variable and key focus of researchers when measuring the digital divide. However, Srinuan [74] and Rahman [75] argued that technological determinism is not adequate in explaining the issue of the digital divide. DiMaggio and Hargittai [57], Bertot [77], Helbig et al. [78], and Rahman [75] posited that the digital divide should be considered and studied in different dimensions instead of categorizing and measuring digital divide on “haves” and “have-nots” of ICT. Studies that look at the effect of multi-dimensions of the digital divide on e-government success are almost non-existent. The only study that specifically investigated the effect of the digital divide using several variables on e-government success was Rahman [75].

### 3.3. Information System Success

The Oxford Dictionary [79] defined success as “*the accomplishment of an aim or purpose*” or “*the good or bad outcome of an undertaking*”. Success means different things to different individual and it is very well depending upon what we perceive as meaningful and it can be seen in different angles [80]. Similarly, determining IS success is complicated and difficult to achieve [81].

To measure IS success, researchers have proposed and developed several models. A good example is the development of the Technology Acceptance Model (TAM) [82].

Most of the initial attempts were not very accurate because of the complexity, interdependent, and multi-facet nature of IS success [83].

The first study which used the word ‘success’ to evaluate IS, is DeLone and McLean [84]. Determinants of the factors which contribute to IS success were the main motivation behind DeLone & McLean IS success study. This model has been cited extensively and published in several peer-reviewed journals [87]. To address the absence of unifiability in IS success definition in previous IS literature, DeLone and McLean [84] developed IS success model [84] which aimed to organise the various extant research and present a unified view of IS success concept comprehensively [82]. Upon extensive review of IS-related publications between the year 1981 to 1987, DeLone and Mclean [84] created a taxonomy of IS success [82, 84]. The six variables of IS success identified were information quality, system quality, user satisfaction, use, individual impact, and organizational impact [84]. This original IS success model variables are interdependent. Scholars of IS have mostly used DeLone and McLean (D&M) IS Success Model in their research. It remains the most popular and extensively researched model among IS scholars. The D&M IS Success Model has been thoroughly examined and validated by many researchers. DeLone and McLean updated the model in 2003 to meet the criticism and suggestions given by other scholars. It strengthens the model and made it much more robust. In the 2003 updated model, the quality possesses three dimensions which are Information Quality, System Quality, and Service Quality. However, in 2016, DeLone and McLean modified the 2003 model to include two additional changes as shown in Figure 1. The first modification was the changing of “Net Benefits” to “Net Impacts” to imply both positive and negative results to enable the

model to recognise the two outcomes that could arise. Positive outcomes would result in more “Use” and greater “User Satisfaction.” In contrast, negative outcomes would discourage “Use” and lead to lower “User Satisfaction”. The second modification was the inclusion of feedback loops to address requests for maintenance. In the latest update of the model, the feedback arrows as illustrated in Figure 1 are moving from “User Satisfaction” and “Use” back to “System Quality”, “Information Quality”, and “Service Quality.” Below is the illustration of the D&M IS Success Model.

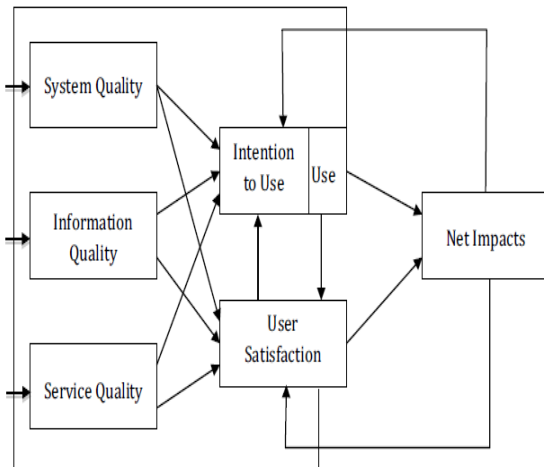


Figure 1: DeLone & McLean IS Success Model [86]

	reviewed and updated from the original model by adding service quality and Net Benefits.
[86]	The authors modified the updated 2003 D&M IS Success Model to include two additional changes. The first modification was the replacement of “Net Benefits” to “Net Impacts” to imply both positive and negative results and the second modification was the addition of feedback loops.
[88]	After the proposal of the original IS success model, Pitt et al. (1995) suggested to include service quality as one of the dimensions of the original IS success model of DeLone and McLean (1992). The authors recommended SERVQUAL to be used as an instrument to measure service quality.
[89]	These authors tested part of the original IS success model and replaced the construct “Use” with “Usefulness”. They posited that researchers should have been studying “Usefulness” not “Use”.
[90]	The re-specified and slightly extended version of DeLone and McLean’s (1992) model was discussed in this study.
[91]	The purpose of this study was to use a quasi-voluntary IS context to empirically and theoretically evaluate DeLone and McLean’s [84] and Seddon and Kiew’s [89] models.
[102]	Recently published papers relating to IS success were reviewed to modify the original D&M IS Success Model .

Table 7: Essential IS Success Studies Adapted & Expanded from Almalki [87]

Author	Key Contributions
[82]	90 empirical studies that used DeLone and McLean’s (2003) model and its six dimensions – system quality, information quality, service quality, use, user satisfaction, and net benefits were empirically and theoretically examined. These studies were examined based on certain criteria and the results summarised.
[83]	To explain the phenomenon why users accept some IS more than others, the Technology Acceptance Model (TAM) was proposed. Information Systems Acceptance might be a step to success.
[84]	This is the first study to identify and create a taxonomy for IS success dimensions. The aims were to address and bring clarity to IS success definitions.
[85]	Perhaps, the most essential study in the IS literature. The contributions and critics of the original D&M IS Success Model of 1992 were

#### 4. DISCUSSION AND RECOMMENDATION FOR FURTHER RESEARCH

From the reviews discussed in Part 3, the researchers can conclude that literature on Culture and IS Success is generally missing in IS and Culture literature. Though the effect of cultural factors on IS has long been an interest of scholars, it is therefore surprising not to find readily available literature on the influence of culture on e-government success. Leidner and Kayworth’s [60] categorisation of IS Culture research themes failed to include Culture and IS Success probably as they could not come across such studies. Even the popular D&M IS Success Model too was criticized for disregarding the effect of culture on IS success. Scholars like Mardiana et al. [92] recommended the integration of cultural values to the model to strengthen its explanatory power. Mardiana et al. [92] and Rahman [75] called on researchers to investigate the effect of culture on e-government successes as the individual level of cultural dimension study is mostly overlooked by IS culture researchers. In IS research,

the majority of the cultural effect on IS literature is mostly based on the national level. Using the national level's instrument of measuring individual values implies the individual citizen's association and citizenship of a country, explains the nature of cultural values they embody [26]. This approach is wrong. Among the reasons why this approach is not appropriate is the reliance on historical findings of cultural attributes of countries and difficulties in determining the cultural factors responsible for the differences between samples from different countries [26]. Hofstede's research is the most popular cultural research and widely cited by scholars of social science and other research disciplines [26, 93, 94]. His model and definition remain the most popular and highly cited in peer-reviewed journals, yet, he conceded that individual behaviour was not predicted by his national-level analysis.

As shown in Table 6, most of the research on the digital divide were focused on ICT access despite measuring some demographic factors. ICT access was the main dimension used to measure the digital divide instead of approaching their studies multi-dimensionally. Besides, most of these studies were conducted in developed countries. Scholars such as DiMaggio and Hargittai [57], Bertot [77], Helbig et al. [78], and Rahman [75] argued that digital divide should be considered and studied in different dimensions instead of categorizing and measuring it on "haves" and "have-nots" of ICT. Rahman [75] claimed that the digital divide is a worldwide phenomenon and should be studied in developing countries too. Studies that specifically investigate different dimensions of the digital divide effects on e-government successes, in particular, are currently very scarce. Only a handful of studies such as Rahman [75] investigated the effect of the digital divide on e-government success using several variables.

Despite the widespread attention given to IS Success and DeLone and McLean IS success concept, in particular, studies that principally examines e-government success is very rare [95]. DeLone and McLean [86] acknowledged lacked of unlimited research measuring e-government success particularly from a citizen's point of view. They added that the available literature on e-government success were focused on employees, e-government systems, and e-government web sites. And therefore, a call on researchers to focus on the development of

e-government success measures was made. Scholars of IS success have unanimously concluded that determining IS success factors are among the vital areas of study that requires careful attention [117, 118].

## 5. THE DISTINCTION BETWEEN THIS STUDY AND CURRENT LITERATURE

The first factor that makes this study different from the current literature is the proposal to amalgamate cultural dimensions and the digital divide factors to investigate their effects on e-government success. This proposed approach of investigating e-government has received limited attention from IS researchers so far. And to the best of the researchers' knowledge, no prior or current research have investigated e-government as proposed by this paper.

Secondly, this paper is the first to suggest investigating cultural influence on e-government success at an individual level. Previous IS cultural studies were mostly focused on the influence of culture on IS development, adoption, implementation, use, management and strategy, and etc. either at national or organizational levels. Therefore, the authors posit that the individual levels of cultural studies will predict the individual behaviours accurately.

Lastly, this article encourages researchers to study the digital divide multi-dimensionally instead of the current approach which focuses on the access divide. The disparity in technological access alone is not sufficient to measure the digital divide phenomenon. As the digital divide is a global phenomenon, the authors encourage investigations to be made in developing countries as well.

To strengthen the explanatory power of the D&M IS Success Model, this study proposes modifying the model to include culture, digital divide, and other variables of interests.

## 6. CONCLUSION

In reference to the literature reviewed thus far, it is appropriate for the authors to posit that there is a clear need for a comprehensive and multi-dimensional approach to empirically investigate reasons why e-government systems are not succeeding in the developing countries. The measurement of ICT access as the sole determinant

of the digital divide is not an adequate representation of the digital divide. Other dimensions of the digital divide, like capability divide, innovativeness divide, and socio-demographic divide too should be included in measuring the digital divide. Could it be the low e-government success rate in developing countries was caused by their respective cultures? It is important for future researchers of e-government success in developing countries to consider investigating cultural dimensions in their study of e-government success. Though Hofstede's cultural dimensions are widely used and dominant in IS culture literature, they should be measured at the individual level when used to avoid the "ecological fallacy trap". Lastly, to thoroughly investigate e-government success in developing countries, authors recommend future researchers to consider developing a model that amalgamates the digital divide and Hofstede's individual level cultural dimensions with D&M IS Success Model to empirically investigate their effects on e-government success.

The practical contribution of this study is the provision of an extensive culture, digital divide, and e-government success literature that could serve as a useful data repository for researchers, governments, and other e-government stakeholders. Moreover, to date, little attention is given to the influence of culture on e-government success. The real impact of culture on ICT success in developing countries is not well understood. This study has contributed to the body of knowledge of culture and ICT interactions. Lastly, this study contributes to the comprehensive explanations of the digital divide as a multi-dimensional and socio-economic phenomenon instead of focusing on the access divide itself.

## 7. ACKNOWLEDGEMENT

The authors would like to thank Universiti Kebangsaan Malaysia for the publication grant provided for this research.

## REFERENCES:

- [1] UN. E-Government Survey 2016, "E-Government in Support of Sustainable Development", New York: United Nations, 2016.
- [2] Elkadi, H., "Success and Failure Factors for E-Government Projects: A Case from Egypt", *Egyptian Informatics Journal*, July, Vol. 14, No. 2, 2013, pp. 165-73.
- [3] Ojha, S., and I.M. Pandey, "Management and Financing of E-Government Projects in India: Does Financing Strategy Add Value?", *IIMB Management Review*, Vol. 29, No. 2, 2017, pp. 90-108.
- [4] Heeks, R., "Most E-Government-for-Development Project Fail: How Can Risks be Reduce?", *iGovernment Working Paper Series*, No. 14, Institute for Development Policy and Management, 2003.
- [5] Heeks, R., and Stanforth, C., "Understanding E-Government Project Trajectories from An Actor-Network Perspective", *European Journal of Information Systems*, Vol. 16, No. 2, 2007, pp. 165-177.
- [6] UN, "Gearing E-Government to Support Transformation Towards Sustainable and Resilient Societies", *United Nations E-Government Survey*, 2018, pp. 7-20.
- [7] Gunawong, P., and P. Gao, "Understanding E-Government Failure in The Developing Country Context: A Process-Oriented Study", *Information Technology for Development*, Vol. 23, No. 1, 2017, pp. 153-178.
- [8] Akther, M.S., Onishi, T., and Kidokoro, T., "E-Government in A Developing Country: Citizen-Centric Approach for Success", *International Journal of Electronic Governance*, Vol. 1, No. 1, 2007, pp. 38-51.
- [9] Hofstede, G.J., and Minkov, M., "Cultures and Organizations: Software of The Mind. 3rd Edition", McGraw-Hill, New York, NY, 2010.
- [10] Sabri, A., Sabri. O., and B. Al-Shargabi, "A Cultural E-Government Readiness Model", *Intelligent Information Management*, Vol. 4, No. 5, 2012, pp. 212-216.
- [11] World Bank, "Definition of E-Government", 2015, [online]: <http://web.worldbank.org/Wbsite/External/Topics/Extinformationandcommunicationandtechnologies/Extgovernment/0,ContentMDK:20507153~menuPK:702592~pagePK:148956~piPK:216618~theSitePK:702586,00.html>.
- [12] Chatfield, A.T., and J.M. Alanazi, "Collaborative Governance Matters to E-Government Interoperability: An Analysis of Citizen-Centric Integrated Interoperable E-Government Implementation in Saudi Arabia", *International Journal of Public Administration in The Digital Age (IJPADA)*, Vol. 2, No. 3, 2015, pp. 24-44.
- [13] Chen, J.V., Jubilado, R.J.M., Capistrano, E.P.S., and D.C. Yen, "Factors Affecting Online Tax Filing - An Application of The IS Success

- Model and Trust Theory”, *Computers in Human Behavior*, 43, 2015, pp. 251–262.
- [14] Layne, K., and Lee, J., “Developing Fully Functional E-Government: A Four Stage Model”, *Government Information Quarterly*, Vol. 18, No. 2, 2001, pp. 122-136.
- [15] ITU, International Telecommunication Union Measuring the Information Society, 2017, [online]: <https://www.itu.int/en/ITUD/Statistics/Documents/.../misr., 2017>.
- [16] Hofstede, G., “Culture and Organizations: Software of The Mind”, McGraw Hill, London, 1991.
- [17] Hall, E., “The Silent Language”, *Garden City*, NY, 1973.
- [18] Trompenaars, F., “Riding the Waves of Culture: Understanding Diversity in Global Business”, Irwin, New York, 1993.
- [19] Schwartz, S.H., “Are There Universal Aspects In The Structure And Contents Of Human Values?”, *Journal of Social Issues*, 50, 1994, pp.19-45.
- [20] Mat Nayan, N., Badioze Zaman, H., and Tengku Sembok, T.M., “Measurement Model To Evaluate Success of E-Government Applications Through Visual Relationship”, In *Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)*, 7067, 2011, pp. 295-304.
- [21] Mohd Idris, S.K.H., and N. Sahari, “Identifying Barriers to The Adoption of E-Government Services In Malaysia”, *Prosiding PERKEM IV*, 1, 2011, pp. 211-217, [online]: <http://www.ukm.my/fep/perkem/pdf/perkemVI/PERKEM2011-1-2A6.pdf>.
- [22] Bertot, J.C., Jaeger, P.T., and J.M. Grimes, “Using ICTs To Create A Culture of Transparency: E-Government and Social Media as Openness and Anti-Corruption Tools for Societies”, *Government Information Quarterly*, 27, 2010, pp. 264-271.
- [23] Srivastava, S.C., Teo, T.S.H., and Devaraj, S., “You Can’t Bribe a Computer: Dealing with the Societal Challenge of Corruption Through ICT”, *MIS Quarterly*, Vol. 40, No. 2, 2016, pp. 511-526.
- [24] Ameen, A.A., and Ahmad, K., “Information Systems Strategies to Reduce Financial Corruption. In: Benlamri R., Sparer M. (Eds) Leadership, Innovation and Entrepreneurship as Driving Forces of the Global Economy”, *Springer Proceedings in Business and Economics*, Springer, Cham, 2017.
- [25] Nam, T., “Examining The Anti-Corruption Effect of E-Government and The Moderating Effect of National Culture: A Cross-Country Study”, *Government Information Quarterly*, 2018, pp. 273-282.
- [26] Tarhini, A., “The Effects of Cultural Dimensions and Demographic Characteristics on E-learning Acceptance”, (PhD Thesis), Computer Science, BURU, 2013, pp. 1-190.
- [27] Levy, Y., and Ellis, T.J.A., “Systems Approach to Conduct an Effective Literature Reviewing Support of Information Systems Research”, *Informing Science Journal*, 9, 2006, pp. 181-212.
- [28] Webster, J., and Watson, R.T., “Analyzing The Past to Prepare for The Future: Writing A Literature Review”, *MIS Quarterly*, Vol. 26, No. 2, 2002.
- [29] Leidner, D.E., and Kayworth, T., “A Review of Culture In Information Systems Research: Toward A Theory of Information Technology Culture Conflict”, *MIS Quarterly*, 30, 2006, pp. 357-399.
- [30] Dagwell, R., Weber, R., and Kling, R., “Systems Designer’s User Models: A Comparative Study and Methodological Critique”, *Communications of the ACM*, Vol. 26, No. 11, 1983, pp. 987-997.
- [31] Keil, M., Tan, B.C.Y., Wei, K.K., Saarinen, T., Tuunainen, V., and A. Wassenaar, “A Cross-Cultural Study on Escalation of Commitment Behavior in Software Projects”, *MIS Quarterly*, Vol. 24, No. 2, 2000, pp. 299.
- [32] Ruppel, C.P., and Harrington, S.J., “Sharing Knowledge Through Intranets: A Study of Organizational Culture and Intranet Implementation”, *IEEE Transactions on Professional Communication*, Vol. 44, No. 1, 2001, pp. 37-52.
- [33] Peterson, D.K., and C. Kim, “Perceptions on IS Risks and Failure Types: A Comparison of Designers from the United States, Japan, and Korea”, *Journal of Global Information Management*, 2003.
- [34] Downing, C.E., Gallagher, J.M., and Segars, A., “Information Technology Choices in Dissimilar Cultures: Enhancing Empowerment”, *Journal of Global Information Management*, Vol. 11, No. 1, 2003, pp. 20-39.
- [35] Al-Ghatani, S.S., “Computer Technology Adoption in Saudi Arabia: Correlates of Perceived Innovation Attributes”, *Information Technology for Development*, Vol. 10, No. 1, 2003, pp. 57-69.

- [36] Loch, K.D., Straub, D.W., and Kamel, S., "Diffusing the Internet in The Arab World: The Role of Social Norms and Technological Culturation", *IEEE Transactions on Engineering Management*, 50(1), 2003, pp. 45-63.
- [37] Miller, S., Batenburg, R., and Wijngaert, L. van de., "National Culture Influences on European ERP Adoption", *ECIS*, 2006, [online]: <http://aisel.aisnet.org/ecis2006/100>.
- [38] Agourram, A., and I. Ingham, "The Impact of National Culture on the Meaning of Information System Success at The User Level", *Journal of Enterprise Information Management*, Vol. 20, Issue 6, 2007, pp. 641-656.
- [39] Lu, X.H., and Heng, M.S.H., "Cultural Influence on IS Practices in China: A Literature Analysis", *J. Global Inf. Technol. Manage.*, Vol. 12, No. 4, 2009, pp. 6-24.
- [40] Yoon, C., "The Effects of National Culture Values on Consumer Acceptance of E-Commerce: Online Shoppers in China", *Information & Management*, Vol. 46, No. 5, 2009, pp. 294-301.
- [41] Jackson, S., "Organizational Culture and Information Systems Adoption: A Three-Perspective Approach", *Information and Organization*, Vol. 21, No. 2, 2011, pp. 57-83.
- [42] Khalil, O., "E-Government Readiness: Does National Culture Matter?", *Government Information Quarterly*, 28, 2011, pp. 388-399.
- [43] Nistor, N., Lerche, T., Weinberger, A., Ceobanu, C., and Heymann, O., "Towards the Integration of Culture into the Unified Theory of Acceptance and Use of Technology", *British Journal of Educational Technology*, Vol. 45, No. 2, 2012, pp. 36-55.
- [44] Kaba, B., and K.M. Osei-Bryson, "Examining Influence of National Culture on Individuals' Attitude and Use of Information and Communication Technology: Assessment of Moderating Effect of Culture Through Cross Countries Study", *International Journal of Information Management*, Vol. 33, No. 3, 2013, pp. 441-452.
- [45] Azam, M., and Quaddus, "Examining the Influence of National Culture on Adoption and Use of Information and Communication Technology: A Study from Bangladesh's SME Perspective", *The International Technology Management Review*, Vol. 3, No. 2, 2013, pp. 116-126.
- [46] Bagchi, K., Hart, P., and Peterson, M.F., "National Culture and Information Technology Product Adoption", *Journal of Global Information Technology Management*, Vol. 7, No. 4, 2014, pp. 29-46.
- [47] Zhao, F., Shen, K.N., and A. Collier, "Effects of National Culture on E-Government Diffusion - A Global Study of 55 Countries", *Information and Management*, Vol. 51, No. 8, 2014, pp. 1005-1016.
- [48] Olasina, G., and Mutula, S., "The Influence of National Culture on the Performance Expectancy of E-Parliament Adoption", *Behaviour and Information Technology*, Vol. 34, No. 5, 2015, pp. 492-505.
- [49] Zhao, F., Scheruhn, H.J., and Von Rosing, M., "The Impact of Culture Differences on Cloud Computing Adoption", *Human Computer Interaction: Applications and Services*, Springer, Vol. 8512, 2014, pp. 776-85.
- [50] Rufin R., Belanger F., Molina C.M., Carter L., and Figueroa J.C.S., "A Cross-Cultural Comparison of Electronic Government Adoption in Spain and USA", *Int. J Electron Gov. Res*, Vol. 10, No. 2, 2014, pp. 43-59.
- [51] Nguyen, N.A., "A Cross-Cultural Study on E-Government Services Delivery", *Electronic Journal Information Systems Evaluation*, Vol. 19, No. 2, 2016, pp. 121-134.
- [52] Lavezzolo, S., Rodríguez-Lluesma, C., and M.M. Elvira, "National Culture and Financial Systems: The Conditioning Role of Political Context", *Journal of Business Research*, Vol. 25, April, 2018, pp. 60-72.
- [53] Husted, B.W., "The Impact of National Culture on Software Piracy", *Journal of Business Ethics*, Vol. 26, No. 3, 2000, pp. 197-211.
- [54] Shore, B., Venkatachalam, A.R., Solorzano, E., Burn, J. M., Hassan, S.Z., and L.J. Janczewski, "Softlifting and Piracy: Behavior Across Cultures", *Technology in Society*, Vol. 23, No. 4, 2001, pp. 563-581.
- [55] Kanungo, S., Sadavarti, S., and Y. Srinivas, "Relating IT Strategy and Organizational Culture: An Empirical Study of Public Sector Units in India", *Journal of Strategic Information Systems*, Vol. 10, No. 1, 2001, pp. 29-57.
- [56] Doherty, N.F., and I. Perry, "The Cultural Impact of Workflow Management Systems in the Financial Services Sector", *The Services Industry Journal*, Vol. 21, No. 4, 2001, pp. 147-166.
- [57] DiMaggio, P., and Hargittai, E., "From the 'Digital Divide' to 'Digital Inequality': Studying Internet Use as Penetration Increases", *Princeton: Center for Arts and Cultural Policy Studies*, Woodrow Wilson

- School, Princeton University*, Vol. 4, Issue 1, 2001, pp. 4-2.
- [58] YiHua, S., Pearson, J.M., and L. Crosby, "Organizational Culture and Employee's Computer Self-Efficacy", *Information Resources Management Journal*, Vol. 16, No. 3, 2008, pp. 42-58.
- [59] Alavi, M., Kayworth, T.R., and Leidner, D.E., "An Empirical Examination of the Influence of Organizational Culture on Knowledge Management Practices", *Journal of Management Information Systems*, Vol. 22, No. 3, 2005, pp. 191-224.
- [60] Leidner, D.E., and Kayworth, T., "A Review of Culture in Information Systems Research: Toward A Theory of Information Technology Culture Conflict", *MIS Quarterly*, Vol. 30, No. 2, 2006, pp. 357-399.
- [61] Walsham, G., "Cross-Cultural Software Production and Use: A Structural Analysis", *MIS Quarterly*, Vol. 26, No. 4, 2002, pp. 359-380.
- [62] Cao, Lan, and Elias, N.F., "Validating The Is-Impact Model: Two Exploratory Case Studies in China and Malaysia", *PACIS 2009 Proceedings*, 2009, pp. 67.
- [63] Martinsons, M.G., Davison, R.M., and Martinsons, V., "How Culture Influences IT-Enabled Organizational Change and Information Systems", *Communications of the ACM*, Vol. 52, No. 4, 2009, pp. 118.
- [64] Wanyama, I., and Q. Zheng, "Organizational Culture and Information Systems Implementation: A Structuration Theory Perspective", *2nd IEEE International Conference on Information and Financial Engineering*, 2010, pp. 507-511.
- [65] Pookulangara, K., and Koesler, "Cultural Influence on Consumers' Usage of Social Networks and Its' Impact on Online Purchase Intentions", *Journal of Retailing and Consumer Services*, Vol. 18, No. 4, 2011, pp. 348-354.
- [66] Kanungo, S., and Jain, V., "Organizational Culture and E-Government Performance", *International Journal of Electronic Government Research*, Vol. 7, No. 2, 2011, pp. 36-58.
- [67] Casado-Lumbreras, C., Colomo-Palacios, R., Soto-Acosta, P., and S. Misra, "Culture Dimensions in Software Development Industry: The Effects of Mentoring", *Scientific Research and Essays*, Vol. 6, No. 11, 2011, pp. 2403-2412.
- [68] Heinzl, A., and D.E. Leidner, "Information Systems and Culture: The World Might Be Flat, But It Is Culturally Rich", *Business and Information Systems Engineering*, Vol. 4, No. 3, 2012, pp. 109-110.
- [69] Wisna, N., "Organizational Culture and Its Impact on The Quality of Accounting Information Systems", *Journal of Theoretical and Applied Information Technology*, December, Vol. 82, No. 2, 2015, pp. 266-271.
- [70] Hwang, K., and Choi, M., "Effects of Innovation-Supportive Culture and Organizational Citizenship Behavior on E-Government Information System Security Stemming from Mimetic Isomorphism", *Government Information Quarterly*, Vol. 34, No. 2, 2017, pp. 183-198.
- [71] Srite, and Karahanna, "The Role of Espoused National Cultural Values in Technology Acceptance", *MIS Quarterly*, Vol. 30, No. 3, 2006, pp. 679-704.
- [72] Tarhini, A., Hone, K., Liu, X., and Tarhini, T., "Examining the Moderating Effect of Individual-Level Cultural Values on Users' Acceptance of E-Learning in Developing Countries: A Structural Equation Modeling of An Extended Technology Acceptance Model", *Interactive Learning Environments*, Vol. 25, No. 3, 2017, pp. 306-328.
- [73] McCoy, S., Galletta, D., and King, W., "Applying TAM Across Cultures: The Need for Caution", *European Journal of Information Systems*, Vol. 16, No. 1, 2007, pp. 81-90.
- [74] Srinuan, C., "Understanding The Digital Divide: Empirical Studies of Thailand", Goteborg, *Chalmers University Of Technology*, Thesis For The Degree of Doctor Of Philosophy, 2012.
- [75] Rahman, A., "Toward A Comprehensive Conceptualization of Digital Divide And Its Impact On E-Government System Success: Evidence from Local Governments in Indonesia", *Thesis for the Degree of Doctor of Philosophy*, Curtin University, 2015.
- [76] Hofstede, G.H., "Culture's Consequences: International Differences in Work-Related Values", *Sage Publications*, Inc., 1984.
- [77] Bertot, J.C., "The Multiple Dimensions of the Digital Divide: More than The Technology 'Haves' and 'Have Nots'", *Government Information Quarterly*, Vol. 20, No. 2, 2003, pp. 185-191.
- [78] Helbig, N.C., Gil-Garcia, J.R., and E. Ferro, "Understanding the Complexity in Electronic Government: Implications from the Digital Divide Literature", *AMCIS 2005 Proceedings*, 2005, 139.

- [79] Oxford Dictionary "Definition of Success", *Oxford Dictionaries*, 2018, [online]: <https://en.oxforddictionaries.com/definition/success>.
- [80] Cottrell, S., "Skills for Success: Personal Development and Employability", 3rd Edition: Palgrave Study Guides, 2015, pp. 27-33
- [81] Petter, S., DeLone, W., and McLean, E.R., "Information Systems Success: The Quest for the Independent Variables", *Journal of Management Information Systems*, Vol. 29, No. 4, 2013, pp. 7-62.
- [82] Petter, S., DeLone, W., and McLean, E.R., "Measuring Information Systems Success: Models, Dimensions, Measures, and Interrelationships", *European Journal of Information Systems*, Vol. 17, No. 3, 2008, pp. 236-263.
- [83] Davis, F.D., "Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology", *MIS Quarterly*, Vol. 13, No. 3, 1989, pp. 319-340.
- [84] DeLone, W.H., and McLean, E.R., "Information Systems Success: The Quest for the Dependent Variable", *Information Systems Research*, Vol. 3, No. 1, 1992, pp. 60-95.
- [85] DeLone, W.H., and McLean, E.R., "The DeLone and McLean Model of Information Systems Success: A Ten-Year Success: A Ten-Year Update", *Journal of Management Information Systems*, Vol. 19, No. 4, 2003, pp. 9-30.
- [86] DeLone, W.H., and McLean, E.R., "Information Systems Success Measurement", *Foundations and Trends in Information Systems*, Vol. 2, No. 1, 2016, pp. 1-116.
- [87] Almalki, O., "A framework for E-Government Success from the User's Perspective", PhD Thesis, *University of Bedfordshire*, 2014.
- [88] Pitt, L.F., Watson, R.T. and C.B. Kavan, "Service Quality: A Measure of Information Systems Effectiveness", *MIS Quarterly*, 19, 1995, pp. 173-187.
- [89] Seddon, P.B., and Kiew, M.Y., "A Partial Test and Development of the DeLone and McLean Model of IS Success In J.I. DeGross, S.L. Huff, & M.C. Munro (Eds.)", *Proceedings of the International Conference on Information Systems*, 1996, pp. 99-110.
- [90] Seddon, P.B., "A Respecification and Extension of The DeLone and McLean Model of IS Success", *Information Systems Research*, Vol. 8, No. 3, 1997, pp. 240-253.
- [91] Rai, A., Lang, S.S., and Welker, R.B., "Assessing the Validity of IS Success Models: An Empirical Test and Theoretical Analysis", *Information Systems Research*, Vol. 13, No. 1, 2002, pp. 50-69.
- [92] Siti Mardiana, Tjakraatmadja J.H, and Aprianingsih, A., "DeLone-McLean Information System Success Model Revisited: The Separation of Intention to Use - Use and the Integration of Technology Acceptance", *Models International Journal of Economics and Financial Issues*, 2015, Vol. 5, (Special Issue), 2015, pp. 172-182.
- [93] Søndergaard, M., "Research Note: Hofstede's Consequences: A Study of Reviews, Citations and Replications", *Organization Studies*, Vol. 15, 1994, pp. 447-456.
- [94] Nakata, C., "Beyond Hofstede: Culture Frameworks for Global Marketing and Management", *Palgrave Macmillan*, 2009.
- [95] Wang, Y., and Y. Liao, "Assessing E-Government Systems Success: A Validation of The DeLone and McLean Model of Information Systems Success", *Government Information Quarterly*, Vol. 25, No. 4, 2008, pp. 717-733.
- [96] Hindman, D.B., "The Rural-Urban Digital Divide", *Journalism and Mass Communication Quarterly*, 2000, pp. 549-560.
- [97] Kuk, G., "The Digital Divide and The Quality of Electronic Service Delivery in Local Government in The United Kingdom", *Government Information Quarterly*, Vol. 20, No. 4, 2003, pp. 353-363.
- [98] van Dijk, J., and K. Hacker, "The Digital Divide As A Complex and Dynamic Phenomenon", *The Information Society*, Vol. 19, No. 4, 2003, pp. 315-326.
- [99] Friemel, T.N., "The Digital Divide Has Grown Old: Determinants of A Digital Divide Among Seniors", *New Media and Society*, Vol. 18, No. 2, 2016, pp. 313-331.
- [100] Sampath Kumar, B.T., and S.U. Shiva Kumara, "The Digital Divide in India: Use and Non-Use of ICT by Rural and Urban Students", *World Journal of Science, Technology and Sustainable Development*, Vol. 15, Issue 2, 2018, pp.156-168.
- [101] Pascual, P.J., "E-Government Manila: E-ASEAN Task Force & UNDP-APDIP", 2003.
- [102] DeLone, W.H., and McLean, E.R., "Information Systems Success Revisited", *IEEE Computer Society*, 2002, pp. 2966-2976.
- [103] Belanger, F., and Carter, L., "The Impact of the Digital Divide on E-Government Use",



- Communications of the ACM*, Vol. 52, No. 4, 2009, pp. 132-135.
- [104] Agarwal, R., A. Animesh, and K. Prasad, "Social Interactions and the Digital Divide: Explaining Variations in Internet Use", *Information Systems Research*, Vol. 20, No. 2, 2009, pp. 277-294.
- [105] Schleife, K., "What Really Matters: Regional Versus Individual Determinants of the Digital Divide in Germany", *Research Policy*, Vol. 39, No. 1, 2010, pp. 173-185.
- [106] Quibra, M., S.N. Ahmed, T. Tschang, and M.L. Reyes-Macasaquit, "Digital Divide: Determinants and Policies with Special Reference to Asia", *Journal of Asian Economics*, Vol. 13, 2003, pp. 811-825.
- [107] Oyelaran-Oyeyinka, B., and K. Lal, "Internet Diffusion in Sub-Saharan Africa: A Cross-Country Analysis", *Telecommunications Policy*, 2005.
- [108] Dewan, S., and F.J. Riggins, "The Digital Divide: Current and Future Research Directions", *Journal of the Association for Information Systems*, Vol. 6, No. 12, 2005, pp. 298-337.
- [109] Stern, M.J., A.E. Adams, and S. Elsassser, "Digital Inequality and Place: The Effects of Technological Diffusion on Internet Proficiency and Usage Across Rural, Suburban and Urban Counties", *Sociological Inquiry*, Vol. 79, No. 4, 2009, pp. 391-417.
- [110] Hargittai, E., "Hurdles to Information Seeking: Spelling and Typographical Mistakes During Users' Online Behavior", *Journal of the Association for Information Systems*, Vol. 7, No. 1, 2006, pp. 52-67.
- [111] Billon Doherty, N.F., and I. Perry, "The Cultural Impact of Workflow Management Systems in The Financial Services Sector", *The Services Industry Journal*, Vol. 21, No. 4, 2009, pp. 147-166.
- [112] Wei, K.K., Teo, H.H., Chan, H.C., and B.C. Tan, "Conceptualizing and Testing a Social Cognitive Model of The Digital Divide", *Information Systems Research*, 22 (1), 2011, pp. 170-187.
- [113] Sipior, J.C., Ward, B.T., and Connolly, R., "The Digital Divide and T-Government in The United States: Using The Technology Acceptance Model to Understand Usage", *European Journal of Information Systems*, Vol. 20, 2010, pp. 308-328.
- [114] Mohamed, H., Judi, H.M., Nor, S.F.M., and Z.M. Yusof, "Bridging Digital Divide: A Study on ICT Literacy Among Students in Malaysian Rural Areas", *Australian Journal of Basic and Applied Sciences*, Vol. 6, No. 7, 2012, pp. 39-45.
- [115] Park, E.A., and Lee, S., "Multidimensionality: Redefining The Digital Divide in The Smartphone Era", *info*, Vol. 17, No. 2, 2015, pp. 80-96.
- [116] van Deursen, A.J.A.M., and J.A.G.M. van Dijk, "The Digital Divide Shifts to Differences in Usage", *New Media and Society*, 2014.
- [117] Abusamhadana, G.A., Elias, N.F., Mukhtar, M., and Asma'Mokhtar, U.M., "User Engagement Model In Information Systems Development", *Journal of Theoretical and Applied Information Technology*, Vol. 97, No. 11, 2019, pp. 2908-2930.
- [118] Abusamhadana, G.A., and Elias, N.F., "Users Engagement Success Factors in Information Systems Development", *Journal of Theoretical and Applied Information Technology*, 2018, Vol. 96, No. 5, pp. 1213-1226.