

Exploring the Problems, Issues and Challenges of E-government in Kiribati

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ABSTRACT

The use of e-government to deliver public service is a recent phenomenon for the small island developing states (SIDS)¹. This paper uses the Contingency approach to explore e-government in Kiribati. The Contingency approach is chosen for his paper on the grounds that it is able to adequately explain the 'situational factors' that affect the provision and delivery of e-government services in the context of Kiribati. Some of the situational factors present in the small island developing states that affect the provision and delivery of e-government services are poor infrastructure environment, technological environment, political environment, socio-economic conditions and dispersed geographical environment. The findings from this study showed that some of the problems, issues and challenges of e-government in Kiribati are poor internet connectivity, poor infrastructure environment, technical problems in developing and maintaining e-government website, low level of computer literacy rate, low level of computer and internet access, cultural issues and digital divide, lack of awareness on e-government services, privacy and trust issues, and language problems on the e-government website. Some of the ways how these problems can be addressed are development of infrastructure environment, training and development of staff,

¹ UNCED (1992) defines Small Island Developing States (SIDS) as a "distinct group of developing countries facing specific social, economic and environmental vulnerabilities". Since the early 1990s, the phrase 'small island developing states' (SIDS) has been widely used in the academic literature (see Godfrey, 1997 etc.). Most of the Pacific Island countries are classified as SIDS.

integrating e-government dynamics in the school curriculum, financial support, improving the e-government website and increasing awareness on e-government service.

Keywords: *E-government, Service delivery, Contingency Theory, Kiribati, Developing Small Island States, Technology, Culture.*

1.0 INTRODUCTION

One of the main objectives of developing and implementing a well-functioning e-government system is to enhance the efficiency and effectiveness of public service delivery to citizens, businesses and government officials. There are many advantages and disadvantages of using information computer technology in delivering public services. Some the advantages of using e-government services are it reduces corruption, makes public service delivery faster, improves the accessibility (especially those living in remote areas) and transparency of public service delivery (Bailey and Ngwenyama, 2011; Bissessar, 2011). Similarly, there are a number of disadvantages of using the e-government services. Provision of e-government services is costly to government. Government has to upgrade the skills and education level of citizens so that the e-government penetration rate increases. In numerous countries around the world, e-government penetration rate are quite low while e-government provision being high (Bhuiyan, 2010). If the e-government penetration rate is high and people are not skilled to adopt the e-government services then e-government provision becomes useless as people are not yet ready to use these services.

There are a number of theoretical frameworks which have been used in the literature to explore e-government services. For this paper, the Contingency approach is used for two reasons. Firstly, the Contingency approach looks at the numerous 'situational factors' or 'environmental factors' that affect the provision and delivery of e-government services (Zhao *et al.*, 2017; Zhao *et al.*, 2014; Harrison *et al.*, 2012; Shim and Eom, 2008; Weerakkody *et al.*, 2007). In other words, the delivery of e-government services is 'contingent' on the existence of various 'situational factors'. The main research question we are investigating is what 'situational factors' are affecting the provision and delivery of e-government services in Kiribati? The Contingency approach mentions that organizational effectiveness is dependent on the 'fit' between various factors in a society namely; economy, institutions, people's skill, technology and culture (Zhao *et al.*, 2014). In management journals, the contingency approach highlights the importance of the effects of 'environment' (i.e contingency factors) on the performance of organizations.

Secondly, the Contingency approach provides a more holistic explanation on the delivery of e-government services in a country. The Contingency approach is chosen because it relates to the aim of this study which is to explore the 'contingency factors' which hinders the provision and delivery of e-government services. In this paper we

argue that economic, institutions, people's IT skill, technology, and culture affect the level and degree of delivery of e-government services in Kiribati.

According to the Contingency approach of e-government service delivery, the provision of e-government services is affected by a number of 'situational factors'. As argued by Kieser and Kubicek (1983), Lawrence and Lorsch (1967), and Pugh *et al.* (1969), the situational factors differ based on differences in geographical region and economic environment. The changes in the economic environment have greater impact on the small island developing states as compared to large developed and developing countries.

Small island developing states are not as equipped as large developed and developing countries to cushion the negative repercussions of changes in the economic environment (Wescott, 2001). The small island developing states tend to have poor infrastructure and these countries mainly rely on financial aid from the developed and developing countries to improve its infrastructure. Currently, the infrastructure services in Kiribati are poor and communication between the islands spread over 400 km apart is a troublesome task. In large developing countries, the infrastructure services may be poor but not as poor as small island developing states where people do not have access to basic telecommunication and computer facilities. Furthermore, the level of technology acceptance in the small island developing states tends to be very low. Innovative technology is usually introduced first in the large developed and large developing countries that have well developed manufacturing sector *vis-a-vis* small island developing countries. Small island developing states have underdeveloped tradable sector coupled with low levels of purchasing power of the citizens (Wescott, 2001). Therefore, the private sector is less likely to adopt technology in the small island developing states as compared to the large developed and developing countries.

This study needs to be undertaken for three important reasons. First, none of the existing studies have used the Contingency Approach to examine e-government public service delivery in the context of the small island developing countries. Second, there are few studies conducted on problems, issues and challenges of e-government in the Pacific Island Countries. To date, none of the existing studies has explored the problems, issues and challenges of e-government in the context of Kiribati. Thirdly, the economic and socio-cultural environment of Kiribati differs significantly from other developed Pacific Island Countries. These situational factors that affect the problems, issues and challenges of e-government service delivery in Kiribati needs to be thoroughly explored, scrutinized and compared to other Pacific Island Countries in order to fill the gap in the existing literature on e-government.

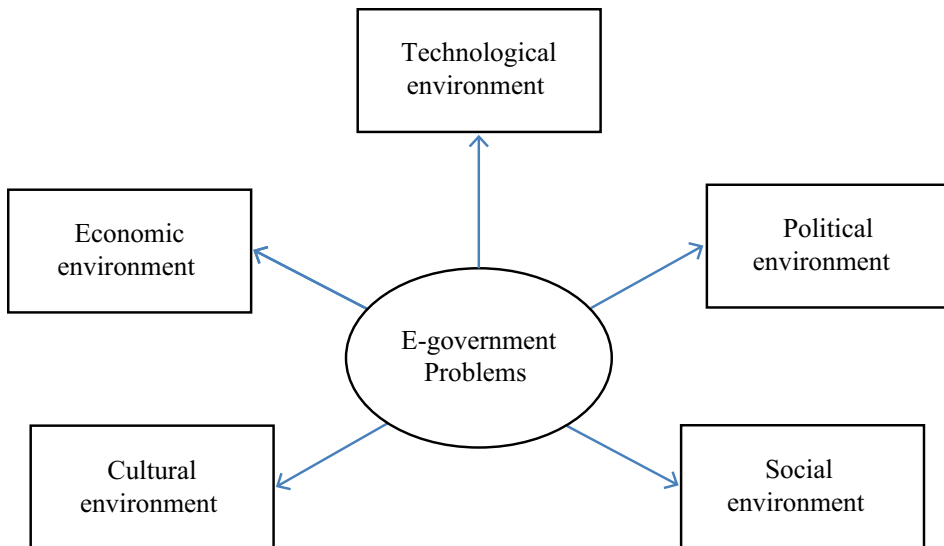
The main research questions are as follows. Firstly, what 'situational factors' are affecting the provision and delivery of e-government services in Kiribati? Secondly, does national culture affect uptake of e-government services in Kiribati? Thirdly, why there is less uptake of e-government services in Kiribati?

This paper is divided into eight sections. Section two outlines the Contingency approach to e-government issues in the small island countries. Section three reviews the literature. Section four provides the research methodology used in this paper. Section five presents and discusses the research findings. Section six and seven outlines the theoretical and practical implications of the paper and finally section eight presents the conclusion and limitations of this study.

2.0 A CONTINGENCY APPROACH TO E-GOVERNMENT ISSUES IN THE SMALL ISLAND DEVELOPING COUNTRIES

The small island developing states are geographically isolated and lack resources for the development and implementation of a successful e-government program. Implementing a successful e-government program requires support from a number of stakeholders. These stakeholders are government, private sector, local citizens and donor agencies. If the support from these stakeholders is not present, it will be very difficult to implement a successful e-government program. According to the Contingency approach, there are a number of contingency factors that affect the implementation of the successful e-government program. Some of these factors are the technological environment, economic conditions, infrastructure environment, political environment, social conditions and geographical environment. The Contingency factors that affect e-government are quite unique in the context of the small island developing countries. Due to differences in these situational factors, the problems and challenges of e-government faced in the small island developing states may be significantly different from the problems, issues and challenges faced by the large developing and developed countries. The Contingency approach to e-government has been widely applied to different disciplines of studies, including, leadership, human resource management, psychology, sociology and economics (Jun and Weare, 2010; Venkatesh *et al.*, 2012).

The Contingency approach was developed in the 1960s in the context of examining organizations and it emphasizes that an organizations development stages are different and the way it develops is determined by technology, organizational structure and availability of key resources in the organisation (Norris, 2006). Some of the key authors that have contributed to the development of this Contingency model are Norris (2006), Kieser and Kubicek (1983), Lawrence and Lorsch (1967), and Pugh *et al.* (1969). Applying the Contingency approach to the area of research on e-government implies that the economic, socio-cultural and political factors present in Kiribati is different from other Pacific Island Countries and the way these factors affect the e-government problems, issues and challenges is also very different. Kiribati has a unique geographical environment, with geographical dispersed small islands and lacks the key resources necessary to implement a successful e-government program (Asian Development Bank, 2015). Unlike other developing countries around the globe, where intra geographical



Source: Created by the Authors (2018)

Figure 1: Contingency Approach and Problems, Issues and Challenges of E-government

disparities and inequalities may exist, the case of Kiribati is vastly different from this. In Kiribati, access to basic facilities, such as, clean water, road, information technology and proper infrastructure are very limited. The tradable sector hardly exists and the country mainly relies on imported commodities for its daily survival. As a result of this, these situational factors have significant impact on the problems, issues and challenges of e-government in Kiribati. The theoretical model is presented in figure one.

Situational Factors and E-government Issues

Technological environment: Technological infrastructure affects the speed of internet service that is provided by the internet service providers. Lack of proper technological infrastructure is a major drawback to the provision and uptake of e-government services. Traditionally, e-government was not part of public service delivery, until recently, with the advancement of information computer technology, many new ways of improving public service delivery has come to light. According to Lin *et al.* (2011) and Warkentin *et al.* (2002), adopting e-government services will require use of different types of information computer technology software and hardware, use of skilled workforce to feed data into this information computer technology and using open technology for initiating new transactions and processing these transactions.

Political environment: The political environment affects the policies, rules, regulations and framework that govern the development, provision and adoption of e-government services. According to von Waldenberg (2004) and Bertot *et al.* (2010),

the political environment has a strong impact on the regulatory framework, transparency codes and standards that guides the e-government initiatives in a country. Kwon *et al.* (2009) and Jun and Weare (2010) argued that political and bureaucratic failures will lead to poor e-government rules and regulations that will bring inefficiency in the design and delivery of e-government services. Ahn and Bretschneider (2011) highlighted that the local government of *Gangnam-gu* in Seoul (South Korea) made use of the advanced e-government systems to gain strong control over bureaucracy in order to enhance government accountability and transparency.

Economic environment: The economic environment affects the e-government readiness and e-government participation indices of a nation. If an economy is booming and has a stable economic environment, the government will have enough financial resources to invest in e-government initiatives. On the contrary, if the economy is in recession, the government may not be able to commit enough financial resources to support e-government initiatives of a nation. According to Moon (2002), the government can provide support for innovative e-government initiatives in the public sphere by implementing e-government website reforms. The government provides financial support to drive the e-government initiatives in all the countries that are using e-government services. Financial support is in the form of providing the software, hardware, human resources and setting up policies and framework for providing e-government services (Bonsón *et al.*, 2012; Bertot *et al.*, 2010; Rose and Grant, 2010; Ferro and Sorrentino, 2010). In order to encourage the citizens to use the e-government services, the government also provides financial support to improve the awareness of citizens on the types of e-government services that are available.

Social and Cultural environment: The national culture, norms and values of society affect the provision and adoption of e-government services. People in some cultures adopt technology very fast while in other cultures, people are slow to adopt changes in technology. The former is referred to as 'early adoptive culture' while the latter is categorized as 'late adoptive culture'. Khalil (2011) found that some of the key determinants of e-government readiness are gender equality in society, collectivism, performance orientation, privacy and trust issues and uncertainty avoidance. According to Alshehri and Drew (2010) cultural inertia is one of the major challenges related to e-government adoption in many developing countries around the world. Some of the countries where cultural inertia plays a key role in e-government adoption are Malaysia (Seng *et al.*, 2010), Brazil (Nasim and Sushil, 2010), Kazakhstan (Bhuiyan, 2010) and Saudi Arabia (Almahroqi, 2012).

3.0 LITERATURE REVIEW

There are numerous problems of e-government identified both in large developed and developing countries in the existing literature. Some of the problems of e-government

are common in the large developed and developing countries. However, the severity of these problems differs based on differences in geographical regions. There are some problems associated with e-government service delivery that may be severe in developing countries while the same problems may be less severe in developed countries. For instance, a number of authors argue that the various 'situational factors' affect the provision and delivery of e-government services in both large and small developing countries (Zhao *et al.*, 2017; Shim and Eom, 2008; Weerakkody *et al.*, 2007). Zhao *et al.*, (2014) argues that 'organizational effectiveness' is dependent on the 'fit' between various factors in a society namely; economy, institutions, people's skill, technology and culture. In management journals, the Contingency approach highlights the importance of the effects of 'environment' (i.e contingency factors) on the performance of organizations.

Gupta and Jana (2003) used the case study of New Delhi Municipal Corporation and found that if the government is to effectively realize the benefits of e-government, there should be proper technology in place. However, the projects currently in India are in its initial stages of development due to the lack of availability of proper technology. Senior citizens who are more likely to use government services in the developed are the ones who are least likely to be connected to e-government services (Yang and Paul, 2005). The technology acceptance of older generation in these countries is low. This problem prevails in a number of developed countries, such as, Australia (Teicher and Dow, 2002; Dugdale *et al.*, 2005), USA (Evans and Yen, 2005), UK (Choudrie *et al.*, 2006; Pina *et al.*, 2009), Norway (Chan *et al.*, 2010), Netherlands (Van Dijk *et al.*, 2008). The main challenge that exists in the developing countries is to encourage the senior citizens to use internet services. In contrast to the large developed countries, lack of accessibility of the internet services to senior citizens is a major issue in the developing countries. Senior citizens in the developing countries lack financial resources to use internet services. The literacy rate of senior citizens in the developing countries is usually lower than senior citizens in the developed countries; therefore, encouraging the senior citizens to use internet services in the developing countries may not be worthwhile (Al-Khatib and Lee, 2011). Ahmad *et al.* (2012) used the Unified Theory of Acceptance and Use of Technology (UTAUT) model and found that lack of e-government adoption in Pakistan is one of the major problems. There are a number of factors attributed to the lack of e-government adoption in Pakistan. Some of these factors are lack of awareness, privacy and trust issues, ease of technology use and social influence. Zhao *et al.* (2012) found that some of the problems, issues and challenges of e-government use in Dubai are language issues on the websites, uptake of e-government services, e-integration and quality of e-government websites and services.

There are few studies conducted on e-government in the small island developing countries. According to Wescott (2001), the governments of the Asia-Pacific region have

slowly started to adopt information computer technology to enhance the transparency and accountability of the government processes. Wescott (2001) also highlighted that e-government can be used as a mechanism to reduce poverty. Sealy (2003) tried to explore the impact of the use of new information computer technologies on the population living in the rural areas and highlighted that the government should find alternative means of delivering information computer technology to the rural areas by using multi-community access centres, information kiosks, tourist information desks and police stations. Bissessar (2010) found that e-government has been implemented in Trinidad and Tobago on an *ad hoc* basis and was poorly monitored. There were three other problems identified in this study and these are lack of access to computers, illiteracy rate and lack of partnerships to support e-government initiatives. Alomari *et al.* (2012) found that some of the factors affecting e-government adoption are trust on e-government services, complexity and perceived usefulness, website design and beliefs. Rahman *et al.* (2016) highlighted some of the problems of e-government in Fiji are poor diffusion of e-government services, poor laws and regulations and human resource management constraints.

A close analysis of the above literature indicates that there are many studies on e-government conducted in the developed and developing countries. Authors have given less emphasis to the problems, issues and challenges of e-government faced by small island developing countries. This paper will fill the gap in the existing literature in two ways. First, none of the existing studies have examined the problems, issues and challenges of e-government in the context of Kiribati. Kiribati is a small island developing country and problems, issues and challenges of e-government use in Kiribati have not been researched on in the existing literature. Second, there are many studies that have discussed about the problems, issues and challenges of e-government use but none of these studies have examined how the situational factors affect problems, issues and challenges of e-government by using the Contingency approach. The novelty of this approach is that it identifies the situational factors that affect provision and uptake of e-government services.

4.0 RESEARCH METHODOLOGY

As mentioned earlier, this paper seeks to answer four research questions. First, why there is less uptake of e-government services in Kiribati? Second, what are the major problems, issues and challenges of provision and delivery of e-government services in Kiribati? Thirdly, does national culture affect the uptake of e-government services in Kiribati? Fourth, what are the 'situational factors' that affect the provision and delivery of e-government services in Kiribati?

There are two major reasons why Kiribati was selected for this study. First, there have not been any studies conducted on problems, issues and challenges of e-government

service delivery in small island states such as Kiribati. Second, due to lack of academic research on e-government service delivery in Kiribati, it is difficult for policy makers to design sound policies on e-government service delivery. This study seeks to provide light on how e-government services can be improved and how the policy makers can tackle various problems, issues and challenges of e-government service delivery. Information was gathered from two groups of stakeholders: firstly, Kiribati government officials who are involved in the design and provision of the e-government services; secondly, the general public who were using or those not using e-government services. Interviews were used as a main method of collecting data. The data gathering and analysis of the interviews was done in two separate time periods. The first period for conducting the interviews was from 2014 to 2015 and the second period was from July to October 2016.

Before the interviews were conducted, a list of Ministries in Kiribati was retrieved from the government website² and appointments were made with the relevant government officials from each of these ministries. Out of the 15 ministries in Kiribati, interviews were conducted in 10 of these ministries. The interviewees were (1) what are some of the problems, issues and challenges you are currently facing while trying to provide e-government services?, and (2) what are some of the ways you think e-government service delivery can be improved? The demographic details of the respondents were as follows. Approximately 85% of the respondents interviewed were females and 15% were males. Out of the total number of interviews conducted for the government officials, 75% had tertiary education. All of the government officials were able to speak in English and respond to our questions.

Similarly, interviews were conducted with the citizens who were using e-government services. A total of 50 citizens of Kiribati were selected and interviewed for this study. Out of these 50 citizens, 25 were males and 25 were females. We tried to achieve gender balance because we wanted to ensure that there is no problem of gender biasness in our study. These 50 citizens who were interviewed were ordinary citizens who were not employed by the government departments.

'Convenience sampling' and 'snowballing technique' were used for collecting information from the citizens who were using or not using e-government services. There were two main reason for using these two research methods. Firstly, it would be difficult to identify users of e-government from a random stratified sampling technique. Secondly, bulk of the population who were using e-government services were living in the two urban areas; namely, *Bairiki* and *Besio*. In such circumstances, it was useful to

² The websites used were :http://www.commonwealthofnations.org/sectors-Kiribati/government/government_ministries/

use 'convenience' and 'snowballing' sampling technique to identify citizens in the urban areas who are likely to use e-government services. One research assistant was hired to do the interviews with citizens who were using e-government services. It was discovered that citizens who were using e-government services in Kiribati could speak English because the information on the e-government website is provided in English language rather than the local language. Therefore, there was no need to change the structured interview schedule in the local language. The interviewees were informed during the interviews that the data collected will be kept confidential and will not be revealed to the third parties. They were also informed that the data collected will only be used for academic purposes and to improve e-government service delivery of Kiribati.

Data Analysis

Following the studies conducted by Panteli *et al.* (2011), DeVaujany *et al.* (2014) and Chinedu Eze *et al.* (2014), thematic analysis was used to analyze the collected data. There were few common themes identified from the interviews. These common themes were used as subtopics for the research findings and discussions section in this paper. According to Braun and Clarke (2006), once the different patterns and themes have been identified from the interviews these themes can be used for discussing the research topic.

5.0 RESEARCH FINDINGS AND DISCUSSIONS

Brief Background of Kiribati

Kiribati is a remote and geographically dispersed island nation that has a population of 112,423 lives on 20 coral atolls (World Bank, 2016). Nearly half of the population of Kiribati resides in the capital while the rest live in the geographically dispersed island atolls. According to Asian Development Bank (2015), Kiribati is extremely vulnerable to outside shocks and climate change. Kiribati has limited natural resources and is an underdeveloped country in the Pacific region. By 1979, when Kiribati gained its independence from the British rule, the commercially viable phosphate that could have helped the economy of Kiribati to boom in the recent decade was exhausted (Asian Development Bank, 2015). Two major sources of revenues for the Kiribati government are from fishing licenses and remittances from seafarers. After the global financial crisis, the remittances from the seafarers have declined. There are a number of factors that is constraining economic development in Kiribati. Some of these factors are lack of skilled workforce, poor infrastructure and the remoteness of the international markets that inhibits trade and economic growth (Asian Development Bank, 2016).

According to the United Nations E-government Knowledge Database (2016), the government development index of Kiribati has increased from 0 in the year 2000

to 0.3122 in the year 2016. This indicates that the government of Kiribati is strongly committed to improving the access of internet services to i-Kiribati.

Overview of E-government Development and Recent Trends on E-government Adoption in Kiribati

Deploying proper telecommunications network is a challenging task for the geography of Kiribati. Connecting the traditionally isolated islands of Kiribati with the rest of the world via satellite is unsuitable. There are some inhabited islands in Kiribati that do not have access to basic satellite networks and fiber-optic infrastructure is unsuitable and too expensive. Statistics shows that Kiribati has one of the smallest numbers of internet users in the Pacific Island Countries. According to the latest statistics produced by the World Wide Web Consortium (2016), the internet penetration rate of Kiribati has increased from 1.8% in 2000 to 12.9% in 2016. The rate at which the internet penetration rate is increasing is very slow. It shows that it will take time for i-Kiribati's to adopt e-government services. According to one of the public sector officials of Kiribati (Interviewee 7):

This year we are working very hard to update the information systems database of public sector employees. The information systems database has records for employee wages, profile and leave. It will take us time to update all the records [...]

According to the above comment, the government of Kiribati is currently working towards achieving the objectives of the Kiribati's Development Plan. One of the key priority areas of the Kiribati's Development Plan is on improving the human resource management practices. Under this priority area, the government of Kiribati is expected to improve the government to employee e-government service. Another public sector official mentioned that (Interviewee 8):

There are a number of ways how the government can improve the electronic services that is provides to the employees. We can have an electronic grievance reporting system whereby the grieved employee can confidentially raise the grievance to the public service office. Currently, there are no such procedures in place and it becomes difficult to resolve conflicts [...]

Similar to other Pacific Island Countries, i-Kiribati relies heavily on mobile technologies for their daily communication needs. With the sale of the state owned telecommunication services to Amalgamated Telecommunications Holding of Fiji, it is expected that the delivery of e-government services will improve (Amalgamated Telecommunications Holdings, 2015). This improvement will result from the advancement in the accessibility of the satellite services. With the improvement in the accessibility of the satellite services, the speed of internet will become much faster than before (Wansink, 2016). The

e-government participation index of Kiribati has increased from 0 in 2003 to 0.2542 in 2016. The increase in the use of e-government services, measured by the e-government participation index shows that citizens are playing a significant role in socially inclusive e-governance system of Kiribati. The role of any e-government participation initiative should be to enhance e-information³, e-consultation⁴, and e-decision making⁵.

Major Issues and Challenges

Poor internet connectivity: Currently, the internet speed in Kiribati is slow and this is constraining the provision and adoption of e-government services. Younger generation, who are computer literate, may be deterred from using mobile and computer devices to access e-government services if there are internet connectivity issues. The average download speed of internet services in Kiribati is 0.15 megabytes per second and the average upload speed is 0.01 megabytes per second (Do Speed Test Corporation, 2016). The poor internet connectivity is one of the major problems constraining the provision of e-government services and this was raised a number of times by the public sector officials who were involved in the design and delivery of e-government services. According to one government official (Interviewee 8):

To provide a high quality of e-government services, we need to have good internet connectivity. If the internet connectivity is poor then it will raise a number of issues for us. For instance, to upload information online requires good internet connectivity. We would not be able to do this in a timely fashion if the internet connectivity is poor [...]

We also questioned some of the public service officials as what were some of the reasons behind poor internet connectivity. The public service official mentioned as follows (Interviewee 8):

Some of the reasons behind poor internet connectivity are technical problems, lack of skilled staff available to address technical issues and quality of the internet connection [...]

A user of e-government services mentioned that (Interviewee 20):

The speed of internet is slow in Kiribati. If we want to open a website or download information from the government website, it takes lot of time. In some instances, the webpage resets because the server is taking too long to respond [...]

³ E-information refers to improving citizen's access to e-government information online.

⁴ E-consultation refers to involving citizens in the decision making process on the delivery of e-services.

⁵ E-decision making refers to involving citizens in the design of e-government services.

According to one of the users of e-government website in Kiribati (Interviewee 25):

I think one of the reasons why e-government services in Kiribati is slow because there are many technical difficulties that keeps on arising in the provision of internet services in Kiribati. I think technical difficulties keeps on arising because there is lack of proper infrastructure, technology and skilled staff available to provide e-government services [...]

Situational factors affect poor internet connectivity in Kiribati. As mentioned above, due to the availability of poor information computer technology, the internet connectivity in Kiribati is slow. With the absence of proper technological infrastructure, it would be difficult to provide quality e-government services. The findings from this study are parallel to the findings of the studies conducted by Lin *et al.* (2011) and Warkentin *et al.* (2002). Similar to the findings of the studies conducted by Lin *et al.* (2011) and Warkentin *et al.* (2002), this study argues that the government of Kiribati needs to invest in different types of information computer technology software and hardware to improve internet connectivity and provide high quality e-government services. However, the achievement of this goal is questionable in the recent decade as there are other high priority development issues that the government is currently struggling with and e-government is a less priority issue for them.

Technical Problems in Developing and Maintaining E-government Website

Managing e-government website is a complex task for the government officials. The government of Kiribati needs to ensure that they are able to get the right information computer technology staff at the right place and in a timely manner. Inability to do so may lead to a number of problems and some of these problems are clearly identified by one of the government officials (Interviewee 8):

If right information computer technology staff is not available for uploading of information on the e-government website, there can be serious technical and legal issues arising that may have implications for the proper functioning of the government. For instance, if incorrect information is uploaded on the e-government website or if the e-government website keeps on giving error message, it would be lead to many problems [...]

Providing a high quality e-government website requires the government to have thorough understanding of the e-government architecture frameworks from both technical and information management perspectives (Ebrahim and Irani, 2005). Another notable factor that contributes to technical difficulties is explained clearly by one of the citizens using internet cafes to access e-government websites (Interviewee 30):

The technical difficulties in the provision of e-government services can arise from a number of areas. One of these key areas is the poor quality of information

computer technology services that is provided by the local internet cafes. Local internet cafes have poor quality of computers that malfunctions when we try to access e-government websites. This wastes our time and financial resources. In such circumstances, it is better to visit the government departments face to face rather than looking for information on government services on the e-government websites [...]

Situational factors do affect the technical problems that arises while developing and maintaining e-government website. Some of the contemporary pressing issues that are affecting the national economy of Kiribati are inflation, high rates of unemployment, trade deficit and climate change. Implementing e-government initiatives is part of promoting good governance system framework of Kiribati. Good governance is important but not as important as addressing high levels of inflation rate, unemployment, climate change issues and trade deficit. This does not necessarily mean that the government of Kiribati has not commitment any financial resources towards promoting e-governance initiatives. The government has been committing financial resources to develop the electronic governance system.

Furthermore, the findings from this study is similar to the findings of the studies conducted by Bonsón *et al.* (2012), Bertot *et al.* (2010), Rose and Grant (2010) and Ferro and Sorrentino (2010). As argued by these authors, the government provides financial support to drive e-government initiatives. Similarly, the Kiribati government provides e-government financial support in the form of providing the software, hardware, human resources and setting up the policies and framework for providing e-government services.

Low level of Computer Literacy Rate

Training and development on the use of information computer technology is weak in Kiribati (Interview 1). There are only a handful of people who can use information computer technology and many of these are graduates from the University of the South Pacific. According to one of the government officials (Interviewee 8):

We have faced many technical problems on numerous occasions because we do not have skilled and qualified staff to handle technical issues related to the development and management of the electronic government database. When we try to recruit graduates, it is difficult to find skilled people who can effectively use information computer technology. Sometimes we are left with no option but to hire graduates from high school [...]

On the other hand, there is a large proportion of the population who are computer illiterate and they may not be able to use the e-government services provided by the

government because they do not have basic computer skills. According to one of the citizens (Interviewee 42):

Many of my friends cannot use e-government services because they do not have basic computer skills. Some of them want to collect data on government for their school-work but they are not able to do so because they cannot use computers [...]

Situational factors affect low level of computer literacy rate present in Kiribati. As discussed above, the government needs to invest more financial resources to train i-Kiribati on the use of information computer technology. This would require setting up computer labs in both primary and secondary education and establishing more computer institutes specializing in providing basic computer skills to i-Kiribati. This finding is similar to the findings of the studies conducted by Bonsón *et al.* (2012), Bertot *et al.* (2010), Rose and Grant (2010) and Ferro and Sorrentino (2010). According to these authors, the government plays a significant role in driving the e-government initiatives and in the case of Kiribati, due to lack of financial resources, it is currently difficult for the Kiribati government to invest heavily in training and development.

Cultural Issues and Digital Divide

Traditionally, there is imbalance of power between men and women in i-Kiribati society. Men have been treated as more powerful than women in both economic and non-economic sense. Women have been treated as minority groups and have less access to resources and lack decision making power, both at the household and national level. However, in the recent decade, there have been some changes noticed in women's participation in the education and public sector. Due to cultural imbalance of power, women are less likely to access e-government services provided by the government as compared to men. Similar to other countries around the world, this phenomenon of digital divide exists in Kiribati as well. According to one of the users of e-government services (Interviewee 46):

Men are more likely to have access to e-government services as compared to women. Some of my friends are computer literate but are married and unemployed. Their job is to look after kids at home. These friends of mine are less likely to use e-government services as their husbands are less likely to share his earnings with the wife [...]

The social and cultural environment is related to the problems related to cultural issues and digital divide that affects the provision and adoption of e-government services in Kiribati. As mentioned above, the Kiribati society is a male dominated society, whereby women are treated as subordinates to men. This leads to the problem of digital divide that is currently experienced by i-Kiribati society. The findings from this study are

similar to the findings of the studies conducted by Seng *et al.* (2010), Nasim and Sushil (2010), Bhuiyan (2010) and Almahroqi (2012). These studies highlighted that due to cultural norms and values of society, citizens in countries, such as, Malaysia, Brazil, Kazakhstan and Saudi Arabia, are less likely to adopt e-government services. Similarly, this study found that Kiribati has a late adoptive culture whereby people are very slow to adopt changes in the information computer technology. As a result of this, it may take i-Kiribati people decades to adopt changes in the information computer technology.

Lack of awareness on e-government services

Lack of awareness on e-government services is another factor that affects the adoption of e-government services in Kiribati. There are many citizens in Kiribati who are not aware of the importance and objectives of using e-government services. According to one of the citizens (Interviewee 50):

Some of us are not really aware of the types of e-government services that are provided by the government. What we know is that if we have any problems related to government services, we go and see the government officials face to face [...]

The economic environment has an impact on the types and number of e-government awareness programs that the Kiribati government can fund at any point in time. This finding is similar to the findings of the studies conducted by Bonsón *et al.* (2012), Bertot *et al.* (2010), Rose and Grant (2010) and Ferro and Sorrentino (2010). As mentioned above, the government of Kiribati lacks the financial resources to conduct successful awareness programs on e-government services. Before the government of Kiribati can undertake this initiative, it has to allocate financial resources for the development of successful e-government programs.

Privacy and trust issues

The Kiribati government has to ensure that the information that its citizens are providing online is safe and secure. Security of private information is crucial if the government of Kiribati wants to encourage its citizens to use e-government websites to communicate with the government officials. According to one of the citizens using e-government website (Interviewee 52):

When we provide information online on the public service office website, we are doubtful about the confidentiality of the information that we are providing online. When we raise complains and issues that are affecting our daily life's, we do not want

it to be revealed to unauthorized sources or third parties. If this happens, then there is no purpose of using e-government websites [...]

Protecting the security and privacy issues on the e-government website is a challenging task for the government. The government needs to hire skilled and qualified information computer technology professionals who can monitor and securely upload information on the e-government website. According to one of the government officials involved in handling e-government website (Interviewee 8):

We need to hire more skilled and technical people who can effectively manage our e-government website. Currently, we lack the technical staff that can make the e-government website more secure [...]

The economic and political environment affects the privacy and trust issues related to the e-government website. Currently, the economic environment of Kiribati is not conducive enough to invest heavily in hiring of skilled and qualified people who can effectively handle trust and privacy issues on the e-government website. Getting political support in order to invest heavily in improving the privacy and trust issues on the e-government website during times of poor economic performance may be difficult (von Waldenberg, 2004; Bertot *et al.*, 2010; Bonsón *et al.*, 2012; Bertot *et al.*, 2010; Rose and Grant, 2010; Ferro and Sorrentino, 2010).

Language problems on the e-government website

Language issue on the e-government website is another major problem that is a hindrance to the adoption of e-government services in Kiribati. Currently, the e-government website of Public Service Office of Kiribati has information provided in both English and local i-Kiribati language. It is difficult for visitors and citizens who do not understand the local language to read and interpret what is given on the e-government website. According to one of the visitors to Kiribati (Interviewee 39):

As a visitor to Kiribati, I was looking for information on migration and travel to Kiribati. I managed to locate the Public Service Office website and the list of ministries in the Kiribati public service. However, it was difficult for me to determine out of the 8 links for the given ministries, which one was for the Ministry of Foreign Affairs and Immigration [...]

The findings from this study are also parallel to the findings of the studies conducted by Ahmad *et al.* (2012) and Zhao *et al.* (2012). These two studies found that one of the major factors that are constraining the development of e-government adoption in Pakistan and Dubai are privacy and trust issues on the e-government website. Similarly,

this study also argues that privacy and trust are some of the concerns that hinder i-Kiribati from adopting the e-government services.

Recommendations

Training and development of staff: Training and development of staff and citizens of Kiribati is one of the ways that the government can encourage more citizens to use e-government services. Additionally, this will also improve the quality of e-government services provided by the government as more skilled and qualified staff will be employed to manage the e-government website. According to one of the government officials (Interviewee 8):

We need both educated staff and workforce who would feel free to use e-government services. If either of this is missing, it would be difficult to develop and provide e-government services and citizens are less likely to adopt e-government services [...]

Integrating e-government dynamics in the school curriculum: This is one of the simplest ways how the awareness and importance of using e-government services can be transferred to the future workforce and citizens of Kiribati. Albeit, the primary and secondary education is free of cost in Kiribati, the resources available to provide high quality primary and secondary education is quite limited (Taom, 2008). Therefore, basics of e-government use can be easily incorporated in the school curriculum with less attention given to integrating advanced e-government dynamics in the school curriculum by eliminating the need to use information computer technology to understand e-government dynamics. According to one of the citizens using e-government services (Interviewee 31):

If we include the issues related to e-government in the school curriculum, it would be easier to encourage the citizens to adopt e-government services. This way they will understand how the e-government encourages transparency and accountability in the delivery of e-government services [...]

Financial support: Providing financial support to small businesses that are involved in information computer technology services is another option available to the government to improve e-government service delivery. As discussed above, there are a number of times when citizens want to use e-government services but the information computer technology services provided by the internet cafes is not up to the standards required to successfully access e-government websites. Government can play a key role in providing financial help to the businesses involved in providing information computer technology services to i-Kiribati.

Improving the e-government website

Government intervention is needed if the problems associated with language issues on the e-government website needs immediate attention. As mentioned above, there are some pages on the public service office website that has information in English while on other pages information is provided in the local Kiribati language. In order to improve this mismatch of information, the government needs to revisit the e-government policies and framework that guides the dissemination of electronic information on the e-government website.

6.0 PRACTICAL IMPLICATIONS OF THIS PAPER

The practical implications of this paper will be discussed in this subsection. In order to improve the provision and delivery of e-government services and to increase the uptake of e-government services in Kiribati, the government should do the following. First, the government should spend capital to develop IT infrastructure. At present, the overall IT infrastructure and internet connectivity in Kiribati is poor and outdated. Second, the government needs to establish a separate IT department to concentrate on providing a hub for e-government system. Thirdly, the government needs to train civil servants on IT skills so that ministries, relevant departments and statutory organisations have the knowhow to develop and upgrade their website and make it user friendly. Fourthly, once the infrastructure is in place, then the government has to increase awareness of public on the availability of e-government services and the benefits of using it. Finally, the Ministry of Education in Kiribati needs to integrate e-government education in the school curriculum so that future generations are well versed with using e-government services.

7.0 THEORETICAL CONTRIBUTIONS OF THIS PAPER

Based on the research findings, this study re-affirms that the Contingency approach is more appropriate to explain the factors affecting the provision and use of e-government in the small island developing states (SIDS). The Contingency approach argues that the e-government service delivery of a country is affected by a number of 'situational factors' and the situational factors differ based on differences in geographical region and economic environment (Zhao *et al.*, 2017; Harrison *et al.*, 2012). The study reveals that the Contingency approach is able to adequately account for the factors such as poor infrastructure environment, poor internet connectivity, low level of computer and internet access, technical problems in developing and maintaining e-government website, low level of computer literacy rate, digital divide, lack of awareness on e-government services, privacy, trust, language and cultural issues affecting the provision and use of

e-government services. This study attempts to fill the gap in the literature on the use of e-government services in the small island developing states and suggests that the Contingency approach should give more emphasis to the 'cultural' issues and how it affects the use of e-government services in any country. The changes in the economic environment have greater impact on the use of e-government services in the small island developing states as compared to large developed and developing countries.

8.0 CONCLUSION, LIMITATIONS AND DIRECTIONS FOR FUTURE RESEARCH

The research findings reveal that poor infrastructure environment, poor internet connectivity, low level of computer and internet access, technical problems in developing and maintaining e-government website, low level of computer literacy rate, digital divide, lack of awareness on e-government services, privacy, trust, language and cultural issues affecting the provision and use of e-government services. The study also found that the Contingency approach is more appropriate to explain the problems and challenges of e-government service delivery in Kiribati. One of the limitations of this study is that it is not possible to make generalization from this study because it is based on only one country and therefore the findings from this study cannot be generalized to all Pacific Island Countries or other parts of the world. The paper recommends that more studies on e-government in the small island developing countries should be conducted so that the findings from this study can be compared with the findings from other studies. Future researchers should conduct similar studies on other small island developing states as there are only few studies conducted on e-government in the small island developing states.

BIBLIOGRAPHY

- Ahmad, M. O., Markkula, J., & Oivo, M. (2012). Factors influencing the adoption of e-government services in Pakistan. In *European, Mediterranean & Middle Eastern conference on information systems* (pp. 118–133).
- Ahn, M. J., & Bretschneider, S. (2011). Politics of E-Government: E-Government and the Political Control of Bureaucracy. *Public Administration Review*, 71(3), 414–424.
- Almahroqi, O. T. (2012). *Factors Influencing Citizen's Adoption Of E-Government Services In Saudi Arabia* (Doctoral dissertation, RMIT University)
- Alomari, M., Woods, P., & Sandhu, K. (2012). Predictors for e-government adoption in Jordan: Deployment of an empirical evaluation based on a citizen-centric approach. *Information Technology & People*, 25(2), 207–234.
- Alshehri, M., & Drew, S. (2010). Challenges of e-government services adoption in Saudi Arabia from an e-ready citizen perspective. *Education*, 29(5.1).
- Al-Khatib, H., and Lee, H. (2011). E-government Systems Success and User Acceptance in Developing Countries: The Role of Perceived Support Quality. *International Journal of E-business and E-government Studies*, 3(2), 69–78.
- Amalgamated Telecommunications Holdings. (2015). *Annual Report of Amalgamated Telecommunications Holdings*. Retrieved from: <https://www.tfl.com.fj/public/pdf/ATH%20Annual%20Report%202015.pdf>

- Asian Development Bank. (2015). Asian Development Bank Member Fact Sheet. Manila, Philippines. <https://www.adb.org/sites/default/files/publication/27774/kir-2015.pdf>
- Bailey, A., & Ngwenyama, O. (2011). The challenge of e-participation in the digital city: Exploring generational influences among community telecentre users. *Telematics and informatics*, 28(3), 204–214.
- Bannister, F., & Connolly, R. (2015). The great theory hunt: Does e-government really have a problem?. *Government Information Quarterly*, 32(1), 1–11.
- Bertot, J. C., Jaeger, P. T., & Grimes, J. M. (2010). 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(3), 264–271.
- Bhuiyan, S. H. (2010). E-government in Kazakhstan: Challenges and its role to development. *Public Organization Review*, 10(1), 31–47.
- Bissessar, A. M. (2010). An institutional review of planning budgeting and monitoring in the Caribbean: Challenges of transformation. *International Journal of Public Sector Management*, 23(1), 22–37.
- Bissessar, A. M. (2010). The challenges of e-governance in a small, developing society: the case of Trinidad and Tobago. In *Comparative E-Government* (pp. 313–329). Springer New York.
- Bonsón, E., Torres, L., Royo, S., & Flores, F. (2012). Local e-government 2.0: Social media and corporate transparency in municipalities. *Government information quarterly*, 29(2), 123–132.
- Braun, V., and Clarke, V. (2006). Using Thematic Analysis in Psychology. *Qualitative Research in Psychology*, 3(2), 77–101.
- Central Intelligence Agency. (2016). *Kiribati Economy: Overview*. New York, USA.
- Chan, F. K., Thong, J. Y., Venkatesh, V., Brown, S. A., Hu, P. J., & Tam, K. Y. (2010). Modeling citizen satisfaction with mandatory adoption of an e-government technology. *Journal of the Association for Information Systems*, 11(10), 519–549.
- Chinedu Eze, S., Duan, Y., & Chen, H. (2014). Examining emerging ICT's adoption in SMEs from a dynamic process approach. *Information Technology & People*, 27(1), 63–82.
- Choudrie, J., Weerakkody, V., & Jones, S. (2005). Realising e-government in the UK: rural and urban challenges. *Journal of Enterprise Information Management*, 18(5), 568–585.
- DeVaujany, F. X., Carton, S., Mitev, N., & Romeyer, C. (2014). Applying and theorizing institutional frameworks in IS research: A systematic analysis from 1999 to 2009. *Information Technology & People*, 27(3), 280–317.
- Dugdale, A., Daly, A., Papandrea, F., & Maley, M. (2005). Accessing e-government: challenges for citizens and organizations. *International Review of Administrative Sciences*, 71(1), 109–118.
- Ebrahim, Z., & Irani, Z. (2005). E-government adoption: architecture and barriers. *Business process management journal*, 11(5), 589–611.
- Evans, D., & Yen, D. C. (2005). E-government: An analysis for implementation: Framework for understanding cultural and social impact. *Government Information Quarterly*, 22(3), 354–373.
- Ferro, E., & Sorrentino, M. (2010). Can intermunicipal collaboration help the diffusion of E-Government in peripheral areas? Evidence from Italy. *Government Information Quarterly*, 27(1), 17–25.
- Gupta, M. P., & Jana, D. (2003). E-government evaluation: A framework and case study. *Government information quarterly*, 20(4), 365–387.
- Harrison, T. M., Guerrero, S., Burke, G. B., Cook, M., Cresswell, A., Helbig, N., & Pardo, T. (2012). Open government and e-government: Democratic challenges from a public value perspective. *Information Polity*, 17(2), 83–97.
- Jun, K. N., & Weare, C. (2010). Institutional motivations in the adoption of innovations: The case of e-government. *Journal of Public Administration Research and Theory*, muq020.
- Khalil, O. E. (2011). e-Government readiness: Does national culture matter?. *Government Information Quarterly*, 28(3), 388–399.

- Kieser, A., and Kubicek, H. (1983). *Organisation*. Berlin: de Gruyter.
- Kwon, M., F. S. Berry, and R. C. Feiock. (2009). Understanding the adoption and timing of economic development strategies in US cities using innovation and institutional analysis. *Journal of Public Administration Research and Theory*, 19:967–88.
- Lawrence, P.R., and Lorsch, J.W. (1967). Differentiation and Integration of Complex Organisations. *Administrative Science Quarterly*, 12, 1–47.
- Lin, F., Fofanah, S. S., & Liang, D. (2011). Assessing citizen adoption of e-Government initiatives in Gambia: A validation of the technology acceptance model in information systems success. *Government Information Quarterly*, 28(2), 271–279.
- Moon, M. J. (2002). The evolution of e-government among municipalities: rhetoric or reality?. *Public administration review*, 62(4), 424–433.
- Nasim, S., & Sushil. (2010). Managing continuity and change: a new approach for strategizing in e-government. *Transforming Government: People, Process and Policy*, 4(4), 338–364.
- Norris, D. F. (Ed.). (2006). *Current issues and trends in e-government research*. IGI Global.
- Panteli, N., Yan, L., & Chamakiotis, P. (2011). Writing to the unknown: bloggers and the presence of backpackers. *Information Technology & People*, 24(4), 362–377.
- Pina, V., Torres, L., & Royo, S. (2009). E-government evolution in EU local governments: a comparative perspective. *Online Information Review*, 33(6), 1137–1168.
- Pugh, D.S., Hickson, C.R., Hinings, C.R., and Turner, C. (1969). The Context of Organizational Structures. *Administrative Science Quarterly*, 14, 91–114.
- Rahman, M. H., Naz, R., & Singh, G. (2016). E-government prospects and challenges in Fiji. *Electronic Government, an International Journal*, 12(2), 186–200.
- Rose, W. R., & Grant, G. G. (2010). Critical issues pertaining to the planning and implementation of E-Government initiatives. *Government Information Quarterly*, 27(1), 26–33.
- Rose, J., Persson, J.S., Heeager, L.T. and Irani, Z., (2015). Managing e-Government: value positions and relationships. *Information Systems Journal*, 25(5), pp.531–571.
- Seng, W. M., Jackson, S., & Philip, G. (2010). Cultural issues in developing e-government in Malaysia. *Behaviour & Information Technology*, 29(4), 423–432.
- Shim, D.C. and Eom, T.H., (2008). E-government and anti-corruption: Empirical analysis of international data. *Intl Journal of Public Administration*, 31(3), pp.298–316.
- Taom, J. (2008). Kiribati National Education Summit Outcomes: Education Sector Strategic Plan. Kiribati National Education Summit, 21st to 24th January, Tarawa, Kiribati.
- Teicher, J., & Dow, N. (2002). E-government in Australia: Promise and progress. *Information Polity*, 7(4), 231–246.
- Unette Sealy, W. (2003). Empowering development through e-governance: creating smart communities in small Island States. *The International Information & Library Review*, 35(2–4), 335–358.
- United Nations. (2018). Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States (OHRLS). Retrieved from the United Nations Internet website: www.un.org/special-rep/ohrlls/ohrlls/default.htm.
- United Nations, (2016). United Nations E-government Knowledge Database. Two UN Plaza-Room DC2-1712, New York, NY 10017.
- Van Dijks, J. A., Peters, O., & Ebbers, W. (2008). Explaining the acceptance and use of government Internet services: A multivariate analysis of 2006 survey data in the Netherlands. *Government Information Quarterly*, 25(3), 379–399.
- Venkatesh, V., Chan, F. K., & Thong, J. Y. (2012). Designing e-government services: Key service attributes and citizens' preference structures. *Journal of Operations Management*, 30(1), 116–133.
- Von Waldenberg, W. (2004). Electronic government and development. *European Journal of Development Research*, 16, 417–432.

- Wansink, K. (2016). Kiribati—Telecoms, Mobile and Broadband—Statistics and Analyses: Executive Summary. Paul Budde Communication Limited.
- Warkentin, M., Gefen, D., Pavlou, P. A., & Rose, G. M. (2002). Encouraging citizen adoption of e-government by building trust. *Electronic markets*, 12(3), 157–162.
- Weerakkody, V., Jones, S., and Olsen, E. (2007). E-government: a comparison of strategies in local authorities in the UK and Norway. *International Journal of Electronic Business*, 5(2), 141–159.
- Wescott, C. G. (2001). E-Government in the Asia-pacific region. *Asian Journal of Political Science*, 9(2), 1–24.
- World Bank. (2016). World Bank Database. Retrieved from: <http://data.worldbank.org/country/kiribati>
- World Wide Web Foundation. (2016). Kiribati Internet Users. <http://www.internetlivestats.com/internet-users/kiribati/>
- Yang, J., & Paul, S. (2005). E-government application at local level: issues and challenges: an empirical study. *Electronic Government, an International Journal*, 2(1), 56–76.
- Zhao, F., José Scavarda, A., & Waxin, M. F. (2012). Key issues and challenges in e-government development: An integrative case study of the number one eCity in the Arab world. *Information Technology & People*, 25(4), 395–422.
- Zhao, F., Naidu, S., Singh, G., Sewak, A., Chand, A., & Karan, M. (2017). An empirical study of e-government diffusion in Fiji: a holistic and integrative approach. *Public Management Review*, 1–23.
- Zhao, F., Shen, K. N., & Collier, A. (2014). Effects of national culture on e-government diffusion—A global study of 55 countries. *Information & Management*, 51(8), 1005–1016.

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