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# A Qualitative Investigation of Factors Underlying Slow Development of E-Government in Lao People's Democratic Republic

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**Abstract**
The paper investigates factors underlying the slow development of e-government in Laos. Design of research for the paper was qualitative where document analysis and semi-structured interviews were conducted to learn the status of e-government development and perceptions of citizens towards implementation of e-government programs to enable government offer appropriate e-interfaces to the people through electronic delivery channels. Implementation of e-government programs is affected by many challenges related to ICT which include: inadequate infrastructure; limited capacity; and low accessibility to technologies in general; human capital, and policy on ICT. The paper concludes that factors affecting development of e-government in Lao PDR would be addressed by reviewing policy and inviting the private sector to invest in information, communication and technology industry. The paper has a limitation because of the small sample size of citizens interviewed, however, it is considered that their perceptions represent that of the majority of Lao population. The paper proposes that future research should assess and quantify the magnitude of effect of each factor on the implementation of e-government programs.
**Keywords:** E-Government, E-governance, SWOT Analysis, Lao PDR

## 1. Introduction

Electronic government (shortened to e-government) refers to the use of internet and other digital technologies by government to provide citizens with services and information (Huai, 2011). The concept is regarded as an effective tool for modifying public governance so that citizens are able to participate in affairs of government and service delivery (Ojo, 2014). Therefore, in both developed and developing countries, e-government has been adopted in order to improve public services and to develop a relationship with its citizens and businesses (Elbahnasawy, 2014). Apart from improving efficiency and effectiveness of the public sector, e-government also contributes in creation of a society that is knowledgeable. E-government further ensures that public sector organisations are accountable to citizens through their continued participation and improved access to public services and information. For many developing countries the role of e-government could extend further in fostering governance through reduction of corruption in the public service by eliminating interaction of public officials with citizens. According to Chowdhury and Satter (2013), e-government offers a platform for allowing a government to efficiently facilitate public participation and perform its activities in a clean and transparent manner to both citizens and its agencies.

E-government has emerged as an important tool for public reforms. A new era of e-government is now being associated with the emergence of integrated public services that are offered either online or through one-stop public service centres which allow citizens' access to a wide range of services from the public sector (United Nations, 2016). Literature suggests that many governments prefer the use of ICT to the traditional methods not only to boost public services but also reduce the cost of such services in cases where they were previously spending huge sums of money (Ahmed 2013; Alshehri & Drew 2010; Lee 2010). Notwithstanding the stated benefits of e-government, there is extensive literature stating that in many countries the effective implementation of e-government initiatives is affected by with challenges that are associated with low levels of acceptance, willingness to adopt the initiatives and actual usage (Akkaya, Wolf & Kremar, 2012; Shajari & Ismail, 2013). Despite the already existing literature, the paper focuses on Lao Peoples' Democratic Republic (Lao PDR) because its political system, communism, is different from many developing countries in which previous studies were conducted. While the paper does not focus much on the effect of political systems in development of e-government, its findings are significant to both theory and practice of e-government especially in developing countries because awareness about factors underlying the slow development of e-government in Laos form a basis on which scholars can build theory for improving development of e-government in countries with similar political systems. Secondly, the paper would provide directions for future research that would assess the magnitude of each factor on the development of e-government, thereby helping policymakers in Lao government to realise priority areas requiring intervention. Qualitative research was carried out to get data for understanding factors underlying the slow development of e-government in Lao PDR and main methods for gathering the data were document analysis and semi-structured interviews with senior government officials and

 

selected citizens.

## 2. Literature Review

E-government refers to the use of ICT to facilitate and support activities of government, for example, delivery of public service delivery, dissemination of information and policy-making. It is one of the many concepts that have been introduced in study discipline of Public Administration in the past three decades and it has since become a major tool for reforming the public sector through creation of a platform for disseminating information to citizens and provision of online public services (Heeks, 2006; Ho, 2002; Rabiaiah & Vandijck, 2011; Worrall, 2011). Owing to the role of e-government in facilitating business of that government enters into with both citizens and the private sector, there are different concepts that are attached to e-government and among them are: information economy, knowledge economy, digital revolution, information age, network society and digital-era governance (Castells, 2010; Dunleavy, Margetts, Bastow & Tinkler, 200; Heeks, 1999; Stough, 2006; Westlund, 2006). Several studies have been undertaken from all these perspectives to explore challenges that affect adoption and implementation of e-government (Coursey, Yang, Kasserkert, & Norris, 2007; Ferro & Sorrentino, 2010; Li & Feeney, 2014; Norris & Moon, 2005; Norris & Reddick, 2013). Many researchers emphasise that this emergence of the information society is a challenge to relations between citizens and public sector organisations because it is there to transform the way in which the two sides interact with each other (Heeks, 2006; Jinmei, 2011; Worrall, 2011).

There are several opportunities associated with e-government initiatives that are successfully implemented, for example, new public services, an improved information infrastructure, and more citizen involvement in public affairs. Some scholars have established that development of e-government has several phases. Baum and Di Maio (2000) classifies development of e-government into the following four phases: the presence of the initiative, interaction with users, the transaction of government businesses and transformation of service delivery. In addition, stakeholders of e-government stakeholders may be categorised into external and internal parties. External stakeholders consists of citizens and business whose relationships with government are Government to Citizens (G2C) and Government to Business (G2B), while the internal consists of government employees and government departments whose relationships with each other are Government to Employee (G2E) and Government to Government (G2G) (Rao, 2011).

According to Hasani and Beleraj (2013), e-government is relevant in transforming relations that government has with citizens, private sector. E-government is not limited to the creation of websites for government, e-mail addresses for civil servants, or delivery of public service via the internet. The concept also includes the availability of all relevant infrastructure that would promote ICT usage in government. According to Ndou (2004), infrastructure for ICT includes personal computers, telephone lines, internet access, transmission lines and penetration to all parts of a country. Other factors to consider are the efficiency of the service provider as determined by the speed of internet, citizen's ability to access the internet, and cost incurred by citizens to access particular public services. Further telecommunication networks should be reliable by having service providers that could provide efficient internet services in all parts of the country.

Several researchers found that e-government is affected by several challenges that could result into the failure of e-government initiatives. Literature suggests that stated that one of the factors affecting effective implementation of e-government initiatives is low level at which e-government is adopted in various countries (Dada 2006a, 2006b; Heeks, 2003). Low levels in the adoption of e-government could be attributed to the usual failure of governments in developing countries to properly design and implement projects. Apart from limited capacity in project management, there is also the issue of poor infrastructure in terms of availability of ICT equipment (Ismail, 2008). Development of e-government is directly dependent on ICT infrastructure that might be required in the actual implementation and operational processes. However, developing countries lack the capacity to fully roll out e-government initiatives to all parts of the respective countries because (Basu, 2004). In addition, commitments in other socio-economic programs that are prioritised over e-government prevent many developing countries from deploying resources in e-government (Ndou, 2004). According to Ndou (2004), barriers to implementation of e-government can be summarised into human capital, ICT infrastructure, change management, policy issues, strategy, partnership and collaboration, and leadership role. Shin (2008) suggested that for developing countries to succeed in the implementation of e-government, they need to learn from their counterparts in developed countries. Rana, Dwivedi and Williams (2013) concluded that challenges to successful implementation of e-government in developing countries include the following: limited technological development, lack of resources, limited awareness, legal constraints, and poor management. Out of these challenges, the most influential are related to the infrastructure of ICT, human resources, finances and technological illiteracy. Based on these factors, Laos has one of the low EGDI in the World, for instance, in 2016 United Nations e-government survey (2016), Lao PDR ranked 148 globally in EGDI, with EGDI score of 0.309 compared to 0.4922 of global average (United Nations, 2016). EGDI consists of measurements pertaining to a country’s online services, state of telecommunication infrastructure and human resources. Therefore the rank of

 

Laos' position in the ranking of EGDI implies that the country has a number of challenges that are affecting implementation of e-government.

## 3. Methodology

The main objective of this paper investigates factors underlying the slow development of e-government in Laos, therefore qualitative research was employed in order to get a broader perspective. Qualitative research is "the use of qualitative data, such as interviews, documents, and participant observation to understand and explain social phenomena" (Myers, 1997, p.241). The study used document analysis and semi-structured interviews to obtain data about the status of e-government development and perceptions of citizens towards implementation of e-government programs. Documents that were analysed related to policy and legal framework for e-government in Lao PDR and reports from Lao government and international organisation, for example, United Nations and International Telecommunication Union.

The study was carried out within a two month period (July to August 2017) in which forty interviewees were arranged and among them, there were five managers from National Internet Center and E-Government Center, 10 from government departments and 25 Lao citizens. All participants were notified about the objective of the interview and advised that their participation was voluntary and that their responses would be anonymous and would be treated with confidentiality. During all interviews, the open-ended questions were used and responses were recorded by the researcher in written form. For government officials, different open-ended questions were asked depending on the responsibility of the respondent in the development of e-government. Each interview with an individual participant lasted about an hour. In order to have meaningful findings, data were analysed based on patterns and themes that emerged from participants' responses. Responses were then transcribed and arranged according to the developed pattern and themes. Table 1 summarises demographic characteristics of research's participants.

**Table 1: statistics of respondents' characteristics**

| Category | Frequency | Percentage (%) |
|---|---|---|
| **Gender** | | |
| Male | 26 | 65 |
| Female | 14 | 35 |
| **Age (Years)** | | |
| 20-29 | 14 | 35 |
| 30-39 | 21 | 52 |
| 40-49 | 5 | 13 |
| **Education Level** | | |
| High school | 4 | 10 |
| College degree | 10 | 25 |
| Bachelor degree | 18 | 45 |
| Master's degree | 7 | 17 |
| PhD degree | 1 | 3 |
| **Internet experience** | | |
| Less than 1 year | 2 | 5 |
| 1-3 years | 10 | 25 |
| 3-5 years | 15 | 37 |
| More than 5 years | 13 | 33 |

## 4. ICT Development in Laos

Laos PDR is one of the land-locked countries in Southeast Asia. The country is surrounded by Cambodia, China, Myanmar, Vietnam, and Thailand and acts a link for land transport to all countries in Southeast Asia. In 2015, the total population of Laos is 6.5 million (Lao Statistics Bureau, 2015). There have been a number of institutional and economic reforms that Laos has implemented with a view to improving the well-being of its citizens by building a market-orientated economy since 1986. The reforms have led to the achievement of significant economic growth and macroeconomic stability through the implementation of various economic reforms such as privatization of enterprises that were previously owned by the state. In recent years, Laos has achieved a considerable level of both public and private investment because of favorable economic climate and foreign and economic cooperation with other countries. The reforms accounted for an average growth of more than 6 percent during the period, covering 1990 to 2009, and 7.9% from 2010-2015 (Ministry of Planning and Investment, 2016).

However, Lao PDR is one of the Least Developed Countries (LDCs), which is also land-locked faced with low productive capacity and infrastructure challenges. In terms of ICT development, the E-Government Development Index (EGDI) for Lao PDR is lower compared to the global average. Table 2 shows a comparison

 

of EGDI between Lao PDR and the World in 2016. This requires a government to invest in ICT infrastructure in order to ensure that access to modern technologies improves and that the national capacity for such technologies is built.

**Table 2 Global and Lao PDR E-Government Index (EGDI)**

| | Laos | Global Average |
|---|---|---|
| E-Government Development Index | 0.30 | 0.49 |
| Online Service Index | 0.28 | 0.46 |
| ICT Infrastructure Index | 0.15 | 0.37 |
| Human Capital Index | 0.49 | 0.64 |
| E-Participants Index | 0.27 | 0.46 |

**Source:** United Nations E-government Survey 2016.

Lao's ICT infrastructure is the responsibility of the central government. From 1991 to 2000 ICT increased 31% annually, with the fixed-telephones from 6,373 in 1990 to18, 232 in 2000. In addition, the law on telecommunication has been established. From 2001 to 2005, the government encouraged public-private partnerships to invest in the telecommunication sector. The E-Governance Centre has been set up in the central and the local (provinces). Fiber networks have been increased from 678 km from 2001 to 4,283 km or 69% of all 17 provinces and 134 districts, and 135,212 fixed-telephones have been registered. In addition, at the same time, the mobile phones have been increased from 1,862,112 to 7,190,353. And there have been 678 signal stations. From 2006 to 2010, the telecommunication network has been developed, there has been Express Global Mail Services (EMS) and FedEx internal and external. There were 99 telephone service centers across the country, which 38 service centers operated by Telecommunication-Lao, 58 service centers operated by Lao-Telecommunication, 2 service centers operated by Star Telecom Co. Ltd, and 1 service center operated by Millicom Lao's Company Limited (Ministry of Posts and Telecommunications, 2016).

From 2011 to 2015, the telecommunication services have replaced 7 digits with 8 digit phone number. Telecommunication services were expanded in terms of coverage with an optical fiber system to 20,391km or 118 percent against a set target of 17,192km. This covered most parts of the country and extended services to cover 90 percent of total villages nationwide. The population of subscribed telephone users for both mobile phone and fixed lines rose to 5.2 million, representing 80.8 percent of the national population. Percentage of fixed telephone subscriptions per 100 inhabitants were very low, only a little increased from 1.7 in ICT Development Index (IDI) in 2010 to 17.7 in 2016. The proportion of households with a computer increased from 6.9 in 2010 to 12.3 in 2016, while percentage of households with internet increased from 3.4 in IDI in 2010 to 18.7 in 2016 while the percentage of mobile-cellular subscriptions per 100 inhabitants was increased from 25.2 percent in 2007 to 55.4 percent in 2016 (ITU, 2017). Figure 1 shows IDI in Laos from 2010-2016.

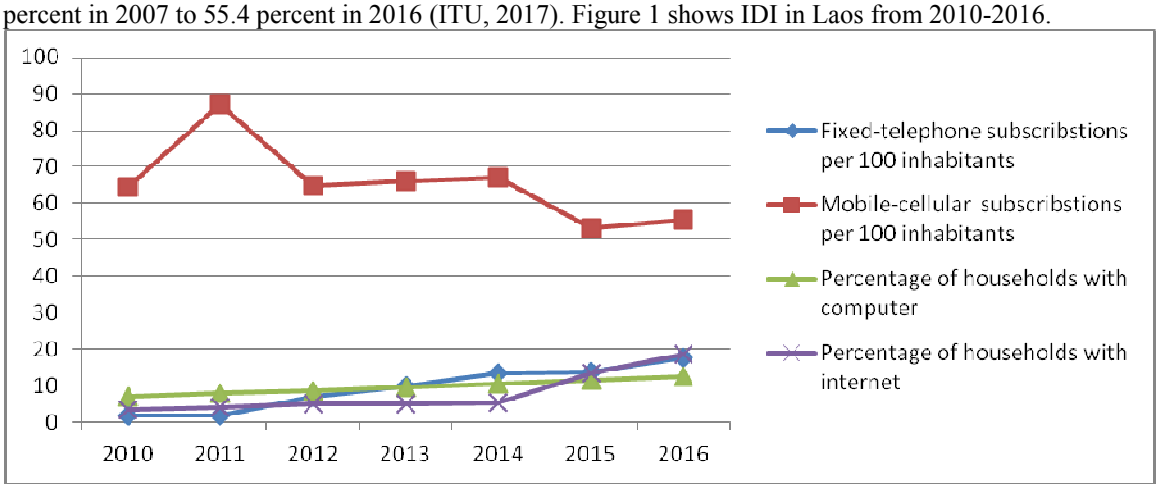


Figure 1: IDI in Laos from 2010-2016.
Source: ITU- World Telecommunication/ICT Indicators database.

## 5. E-Government Development in Lao PDR

Lao PDR commenced e-government activities in 1994, and the goal was to implement to introduce the use of ICT in the central government and also to work towards sharing of information for decision-making among government departments. The initiative resulted in all government departments adopting use of technology in their day-to-day businesses and also promoted the development of internet in Laos, the first email access was set up at the National Polytechnic Institute in December 1994, the first email service in Laos was conceived in 1996, the first local Internet Service Provider (ISP) was established in August 1998 in Vientiane (capital of Laos), by Globe Net and Government News Agency. To improve public services, especially to adopt e-government in Lao

 

PDR, the government launched E-Governance Action Plan in 2006. The plan gave authority to the National Agency of Science and Technology (NAST) in cooperation with a Chinese firm, Alcatel Shanghai Bell (ASB), to implement the country's e-governance project. The aim of the project's aim was to ensure that ICT tools are adopted in the entire public service structures of the country in order to create Simple Moral Accountable Responsible and Transparent (SMART) government which could provide an interface on which citizens would interact with government using electronic means. Lao PDR has undertaken the several steps to uplift ICT infrastructure through communications platform and introducing "starter kit" applications through e-government Phase 1, Phase 2, and Phase 3 projects (NAST).

In November 2005, with the assistance of the Republic of Korea, Lao's NAST developed a roadmap for developing e-governance. In March 2006, NAST developed an action plan for e-governance under technical assistance of the Indian government. In June 2006, the 8th Congress of the Party has identified the E-Government project as one of the 111 priority projects. In September 2006 government assigned NAST to work with Alcatel Shanghai Bell Co., Ltd in drafting the E-Government project and approved its implementation in November 2006 with the Loan from EXIM bank of China. In essence, E-Government Phase 1 built up the initial infrastructure (e-government center and communications facilities) in Vientiane and in each of the 17 provincial capitals. A National Web Portal and Starter-kit applications provided the base for which the government employees can get used to. It has been established telecommunications infrastructure in Vientiane and 16 other provincial capitals, interconnecting several ministries, agencies. Authorities and public institutions in Vientiane through on Synchronous Digital Hierarchy (SDH) metro ring with Ethernet, Gigabit-Capable PON (GPON) and WiMAX access. The IP backbone has also been constructed from provinces to Vientiane Capital, then deploy various IT facilities to ministries, agencies, authorities, and institutions, which set up 5 applications to increase the effectiveness and efficiency. In 2008, the Lao PDR Government started work on Phase 2 according to four main focus points: first, extend telecommunication and information infrastructure: extend and enhance the optical transmission network along used road of No.l3 from north to south; second, facilitate internal and external communication through fundamental applications: set up relevant telecommunication systems to facilitate internal and external communication. Third, strengthen the centralized management capability for multi-media telecommunication among multi-carriers. And fourth, strengthen the centralized monitoring, statistics, and analysis capabilities for voice and internet traffic among multi-carriers. E-government Phase 3 which aims to leverage this infrastructure by integrating the different stakeholders; government ministries and departments, industries and small business, citizens onto a shared but secured platform. The initiative was aimed at enhancing technical capacity in ICT throughout all government structures while at the same time creating a platform on which citizens could carry out government transactions electronically. It could be argued that the initiative brought transparency in the business of Lao government, promoted sharing of information among government departments, and led to meaningful citizen-participation in the affairs of government.

Since the launch of launched E-governance Action Plan (2006), whose aim was to enhance adoption of ICT tools and usage across all structures of government administration a number of initiatives related to e-government followed up. These included the establishment of the following: portal network and the service center; an online project for government projects in 2013; 170 websites for government departments in 2015; and online services by nearly 15% of governments departments. Such e-government initiatives have resulted into the removal of geographical barriers to citizens who could not physically access public offices and extension of public services to various directions in the country. E-government Phase 1 and Phase 2 focused on infrastructure, and Phase 3 is intended to focus on integration.

 

Figure 2 shows the comparisons of EGDI in Lao PDR and rest of the world from 2010 to 2016.

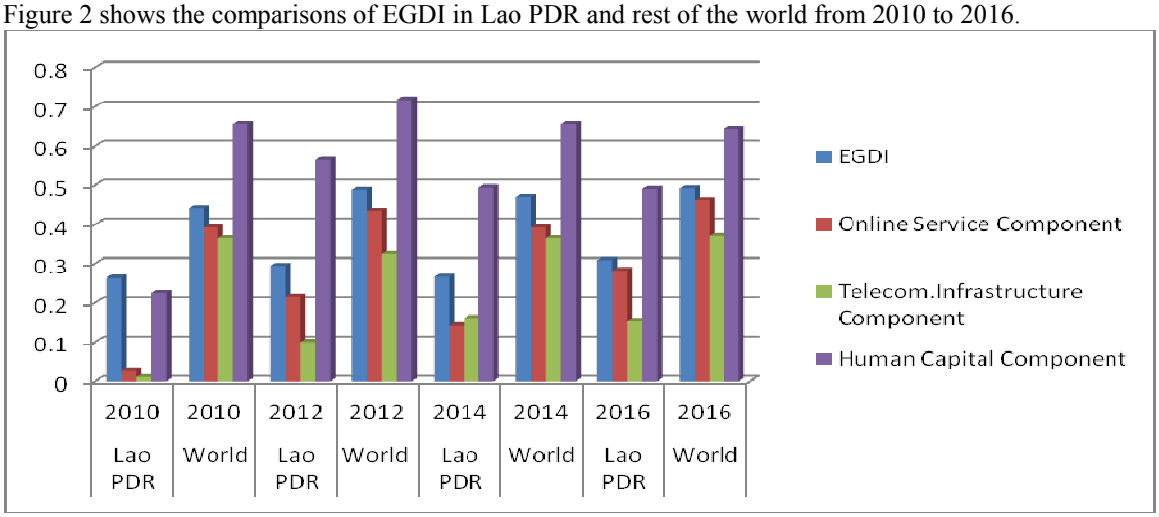


**Figure 2:** EGDI in Lao PDR and the world from 2010 to 2016.

Figure 2 illustrates that EGDI in Lao PDR is low compared to the world. It is an urgent need for the government to improve infrastructure for ICT, citizens' access to modern technology, citizens' knowledge in ICT and technical capacity.

## 6. Findings

Participants indicated that main factors affecting e-government development in Lao PDR are ICT infrastructure, human capital, and policy on ICT. They indicated that the internet services are relatively expensive compared to their income and neighboring countries as well as internet speed is not satisfactory (slow), while some interviewees indicated that the e-government websites are not attractive because they are not regularly updated with information and data. A manager from National Internet Center indicated that part of the reason for high costs for internet services is that as a landlocked country, Lao PDR lacks direct access to submarine fiber optical cables. Lao internets obtain access through resellers in Thailand and Vietnam, which increases the cost to the end user. Also responsible for the high cost is that all Lao ISPs have invested in their own infrastructure. The Lao telecommunications regime does not mandate "open access" to telecommunications infrastructure. As a result, no cost efficiencies are gained through sharing of fiber-optic or wireless links. And the other, computer literacy in Lao PDR is limited. Whilst computer labs are installed in high schools, there is a critical lack of qualified teaching staff. Computer professionals are not attracted to teaching at schools since much higher salaries can be earned in computer engineering jobs in the private sector. As a result, the computer labs in schools are more often used by the school administration than by the students. Another interviewee from E-government Center indicated that the government should improve the existing ICT policies and update them to better suit current circumstance. They felt the country needs a comprehensive policy on ICT to deal with laws, regulations and the procedures to regulate the use of ICT. They also stated that clear regulations are needed to control the use of ICT systems to protect everyone. Some interviewees felt that the internet should be used in an appropriate way in society. They suggested that the government needs to be more aware of the benefits of ICT in daily life, and should encourage the number of skilled people by increasing ICT courses in schools, colleges, universities and government agencies. The government should invest more money on ICT infrastructure and human development on ICT.

The challenges of e-government in Lao PDR need urgent attention which might include developing and implementing more effective and coherent policy interventions to develop ICTs. As for globalization of ICT and since Laos became a member of Association of Southeast Asian Nations (ASEAN) in 1997, the government has carried out a number of e-government projects and spent large sums of money. However, to implement the ASEAN ICT Master Plan which covers the period, 2016 to 2020 and aims at transforming the region's economy through ICT by the year, 2020 (ASEAN ICT Master Plan (2016-2020), 2015), the government, through its responsible ministry regulates the telecommunication sector based on relevant laws and regulatory framework. Promotion of ICT adoption and use is further recognized as an essential initiative in other socio-development plans in which priority goals include the following: achieving 100 percent of internet coverage all over the country; establishing a national policy to regulate broadband infrastructure and services; determining how future plans to expand broadband and access will be formulated. (Ministry of Planning and Investment, 2016). A SWOT analysis on E-government Development in Lao PDR as illustrated in Table 3, can provide a basis for formulating strategies to improve e-government development in Lao PDR.

 

**Table 3 SWOT Analysis on E-government Development in Lao PDR**

| Strengths, Weaknesses, Opportunities, and Threats | |
|---|---|
| **Strengths** | **Weaknesses** |
| - Political stability | - Bureaucracy |
| - ICT Strategic Development Plan 2016-2025 | - Budget limitation |
| - Internet as a pull factor | - Cyber laws not available |
| - People eager to learn IT Skills | - Low level of ICT literacy |
| - Favourable economic climate for investors in ICT | - Shortage of IT skilled people |
| | - Lack of IT standards |
| | - The high cost of internet |
| | - Cost of software licenses |
| | - No transparency |
| | - Corruption |
| | - Digital divide |
| **Opportunities** | **Threats** |
| - Globalization on ICT and e-government adoption | - The threat to national defense |
| - Land link country of Southeast Asia | - Piracy |
| - Integration within ASEAN | - Dependency on technology |

## 7. Conclusion

This paper provided factors underlying the slow development of e-government in Lao PDR. Since Lao PDR launched its e-governance Action Plan in 2006, there have been many projects implemented and achieved progressive achievement such as ICT infrastructure development, human capital has been improved, and more citizens can get access to the technology and government services. Factors underlying the slow development of e-government in Lao PDR include inadequate infrastructure; limited capacity; and low accessibility to technologies in general; human capital, and policy on ICT. The paper concludes that factors affecting the development of e-government in Lao PDR would be addressed by reviewing policy and inviting the private sector to invest in information, communication and technology industry. It is recommended that in order to move ahead with e-government development with other countries, the government may consider concentrating on addressing factors that may result into immediate effect on the development of e-government development in Lao PDR. First, the government and stakeholders should increase the number of ICT training courses in schools, colleges, universities and government institutions. In addition, the public and private sector should encourage and promote Small and Medium Enterprise (SME) to compete using ICT services and products. Efforts should be made to improve and promote online public services. In addition, the government should consider and encourage investments in infrastructure for ICT and only those e-government services that could result in significant returns to investors of ICT related businesses. Furthermore, by increasing the coverage and extending usage of online services, the government may create more services that are user-friendly and centered on citizens through accessibility and participation.

This paper contributes to both theory and policy-making by providing a basis for future in-depth analyses on e-government in Lao PDR and similar developing countries. Knowledge about factors underlying the slow development of e-government in Laos would form a basis on which scholars can build theory for improving the development of e-government in countries whose political and economic environments are similar to Lao PDR. Secondly, the paper would provide directions for future research that would assess the magnitude of each factor on the development of e-government, thereby helping policymakers in Lao government to identify priority areas requiring immediate intervention. The paper has a limitation because of the small sample size of citizens interviewed, however, it is considered that their perceptions represent that of the majority of Lao population. Future research should assess and quantify the magnitude of the effect of each factor on the implementation of e-government programs.

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