AMERICAN UNIVERSITY OF BEIRUT

E-GOVERNMENT IN LEBANON: THE CASE OF WEBSITES OF LEBANESE MUNICIPALITIES

by

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AN ABSTRACT OF THE THESIS OF

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Despite the enormous literature on e-government and the factors of adoption of e-government, existing frameworks in this context have been limited to developed countries. This paper highlights the importance and benefits of e-government adoption in local governments, leading to faster and easier public services provision by citizens. It also identifies the interrelated factors which lead to failure or success in e-government. Today, Lebanese some citizens suffer from redundancy during standard operating procedures (SOPs) and when accessing public services because of red tape that dominates traditional public administration. Therefore, improving the functions of municipalities is a crucial step for citizens to gain the trust of their local government; yet, there is little to no data available on e-government practices in Lebanon. Thus, this work will study the efficiency of websites in Lebanon at the local level, particularly in municipalities. It will use a mixed approach by observing the content of the websites of 211 municipalities. The websites will also be evaluated using content analysis, and will be selected using nonprobability sampling, representing 26 districts in Lebanon. In addition, interviews will be conducted with municipalities which have websites in order to better understand the challenges faced and the different factors that influenced the initiation and development of these websites. The research problem that I am trying to address here is summarized in the following questions: What is the importance of e-governance? How can it be adopted? If available, are websites efficient in Lebanese municipalities? If not, what are the ways in which municipality websites can improve? My analysis revealed the main challenges which some municipalities face when initiating and developing their websites, some factors were not identified in the literature. It also helped me to identify the set of factors that can lead to failure or success of e-government in Lebanon. This helped me to give some possible recommendations which can help with mitigating some of the challenges. My analysis also revealed that my work can be improved and move forward in many directions that are worth pursuing as future work.

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CHAPTER 1

INTRODUCTION

Electronic government (e-government) is the use of information and communication technologies (ICTs) by government. E-government is part of a bigger movement toward public sector reform, which is driven by technology and information systems. Technology has the potential to take government in new directions and transform governance (Carrizales 2008). Through technology, citizens have better access to public information, and are able to use public services more efficiently by simplifying and improving transactions between government and constituents.

The majority of e-government research has focused on highly populated municipalities (Carrizales 2008). There was a relative dearth of research focusing on small populated municipalities. The findings of this research paper contribute to the research on e-government by highlighting the practices in small populated municipalities in Lebanon, and some of the factors which contribute to the efficiency of those practices, as well.

The main research question of this thesis is: *What are the factors that make e-government efficient in local municipalities in Lebanon?*

This research focuses on the development of e-government among municipalities in Lebanon. Not much research has been done on evaluating the efficiency of the websites of the Lebanese municipalities. In Lebanon, for example, some citizens suffer from the redundancy and red tape when obtaining official documents and/or getting access to public services at the local level. In addition, some

citizens are not informed about the potential projects that their municipalities may be involved in; thus, they cannot provide their feedback to the municipality. In this thesis I examine various adoption factors which influence the efficiency of e-government at the local level in Lebanon. The websites of local governments are considered an application to provide public information to citizens, and help them get public services easier and faster. Therefore, improving the functions of municipalities which include but are not limited to: paying bills, filing complaints, and broadcasting the latest updates regarding public services, is a crucial step for citizens to save their time. The citizens can do so without running back and forth to multiple offices and various doors of the municipality. Plus, delivery of municipal governmental services through IT applications, allows citizens to pay transactions online. Underestimating the importance of websites in Lebanon definitely deprives citizens from the power of web in making their lives easier and faster. So, evaluating the success and effectiveness of e-government is very important for local governments to know if they are doing the right task in e-government. The objective of this research study is to highlight the factors which influence the efficiency of websites of the local governments in Lebanon.

In order to answer the above research question, I reviewed the literature about e-government and the importance of implementing e-government strategies in the public sector. I used a mixed methodology of content analysis and interviews. These methods were convenient to answer my research problem regarding the efficiency of e-government in local municipalities in Lebanon. Analyzing the content of the websites was important in terms of identifying quality of information posted and users' satisfaction. Furthermore, I conducted interviews with staff in Lebanese municipalities in order to better understand the adoption factors influencing the efficiency of the

websites. Identifying these factors is crucial for policymakers in order to find convenient solutions and increase efficiency of e-government in Lebanese municipalities.

To be able to answer the above question this thesis is divided into four chapters.

Chapter one presents a literature review about e-government and the outcomes of e-government in the public sector. E-government guarantees efficiency, transparency, civic engagement and effectiveness of the public sector.

Chapter two presents the conceptual framework of this thesis using Delone and Mclean (2004) theoretical framework and e-government maturity model developed by Layne and Lee (2000). Delone and Mclean (2004) framework presents the various adoption factors which influence the efficiency of the websites. Layne and Lee model presents the different stages of e-government depending on the technological advancements.

Chapter three constitutes a content analysis of Lebanese municipalities and e-government. I collected data for the number of municipalities in each governorate in Lebanon, number of websites pertaining to municipalities in each governorate and the number of population of each governorate. The number of population of each governorate is used as an indirect indicator for the efficiency of e-government in Lebanon. This chapter reviews the literature about municipalities in Lebanon and the concept of decentralization in the Lebanese context. This gives an overview of the municipalities' bylaws, prerogatives, and their interaction with the central government. This chapter also covers e-government in Lebanon and the latest initiatives done to support e-government, in addition to some of the factors influencing e-government adoption by citizens.

Chapter four discusses the findings of the interviews conducted with: staff in municipalities in Lebanon, president of NGO “Sakker el Dekkene”, and staff involved with implementing BALADI CAP—a five year USAID-funded activity that provides organizational capacity assessments and capacity-building assistance to local municipalities in Lebanon. These interviews reflect various factors which influence the efficiency of the websites within the Lebanese context based on the conceptual framework in this thesis. Furthermore, this chapter recommends two approaches: top-bottom approach—directed from the central government towards municipalities, whereas a bottom-up approach—directed from municipalities to the central government in order to increase the efficiency of e-government in Lebanese municipalities.

Finally, the conclusion summarizes the whole thesis. It also highlights the gaps filled, limitations of this study and further implications.

CHAPTER 2

LITERATURE REVIEW OF E-GOVERNMENT

2.1. The Emergence of E-government

To better understand the role of ICT we need to review the literature**,** it is very useful to start this thesis by displaying an overview of the evolution of public administration, and how the public sector improves its public services provision using ICT. Using Information and Communication Technology in the public sector guarantees efficiency, accountability, and empowerment of citizens (Cruz-Valle at al. 2016). So, in order to reflect the importance of adopting e-government strategies in the public sector, it is definitely noteworthy to start by showing how e-government influences the public sector in a positive way.

With the arrival of the internet, firstly, e-government focused mainly on internal and managerial operations in different departments. Later, it shifted to focus on empowering citizens through engaging them in the decision-making process. E-government encourages flexibility, coordination between different parties, teamwork, and citizens' empowerment. Furthermore, with the adoption of e-government strategies, delivery of public services are not anymore standardized; rather, they are customized according to citizens' needs and interests (Kei Ho 2002).

Public organizations witness a paradigmatic shift in public service delivery; a shift from the traditional bureaucratic model to e-government; e-government is a concept that was introduced into public administration in the 1990s (Carrizales 2008). The problem with traditional public administration is that it totally surpasses the citizens' specific interests and needs. Indeed, human relations framework to

organizations theory, claims that ignoring the needs of citizens is inefficient and unproductive, leading to the creation of "bureaupathologies" (Rosenbloom 1983). To overcome this problem of traditional public administration and to catch-up with the information and technology advancements, it is definitely important to integrate information and communication technologies in the public sector. Integrating these technologies makes delivery of public services easier and faster. Many positive outcomes are associated with e-government practices and initiatives. Melitski (2003) supports concept of e-government by claiming that use of internet-driven innovations are of paramount importance for providing citizens an easy and equitable access to government information and services.

E-government refers to the use of information and communication technology in public administration. It changes a centralized bureaucratic government into a modern, efficient, transparent and citizen-oriented government (Haldenwang 2004). This is supported by Andersen (2004) who claimed that e-government is the way to deliver cost-effective and efficient services to citizens using internet-driven innovations and information and communication technologies, and whereby governments exploit their resources at their best. D. West (2004) also added that use of internet-driven innovations by governments allows a two-way communication between government and citizens. Pascual (2003) backed up this two-way communication by proposing that e-government allows access and delivery of government services to benefit citizens while strengthening government's drive toward effective governance and increased transparency.

Indeed, citizens are given the freedom to access public services at their convenience. E-government has a dualistic effect; i.e. it focuses internally on the administrative reform and externally on the relations between the state and citizens (Haldenwang 2004, 62-63).

For instance, Meer et al. (2014) asserted that e-government facilities are not only about interacting with citizens; rather, these facilities encourage citizens to engage in the policymaking process. Tesu (2012) also stated that governments implementing electronic services (e-services) enable citizens to participate in the decision-making process. Indeed, these technologies are of paramount importance in achieving: better delivery of public services to citizens, empowering citizens through faster access to government services, and increasing transparency and accountability of government (Basu 2004).

The various definitions of e-government in the literature reflect the different functions and opportunities that technology gives national and local governments (Carrizales 2008). According to Graafland-Essers and Ettedgui (2003), e-government operates on three different levels: government to government, government to businesses, and government to citizens. Moon (2002, 425) differentiates functions of e-government based on four different criteria: (1) a more secure and efficient interaction among governmental agencies, (2) delivery of public services via web, (3) application of e-commerce for improving efficiency of government transactions, and (4) digital democracy to ensure transparency and accountability of government. Pacual (2003) highlights that e-government serves four distinct client groups: businesses, citizens, government agencies, and employees of government agencies. E-government services are designated as government to citizens, government to government, government to

employees, government to businesses. Unlike Moon (2002), however, Pascual (2003) does not involve a digital democracy criterion in her classification.

Carrizales (2008) conceptualizes e-government using the approaches above as the basis for a framework of four distinct functions, these functions can occur at the same time and are not necessarily progressive:

1. E-organization

E-organization is the first function of e-government, it is one of the first stages during development of e-government. Carrizales (2008, 13) defines e-organization as the adoption of technology such as e-mail and intranets for improving the internal efficiency and effectiveness of government agencies. It also refers to the use of technologies and Internet for better communication between various public agencies. Fountain (2001, 62) stated that "using Internet within the bureaucracy leads to greater rationalization, standardization, and use of rule-based systems". Fountain also argued that enabling citizens to have an access to all levels of government from a single portal, and transforming the rigid structures within a bureaucracy via Internet to build "virtual agencies"—"virtual agency is one in which networked, computerized information systems and interorganizational networks rather than bureaucratic agencies become the locus of government"—within the public sector which exploit the opportunities of "digital governance" entirely and properly (2001, 20).

Heeks (1999, 34) claimed that having computerized public services increases government capacity by substituting deficiencies in the bureaucracy, preventing red tape, promoting accountability, ensuring equal treatment when dealing with the public, guaranteeing faster operations, producing accurate and necessary information, and preventing corruption through accurate record keeping.

Different forms of e-organization have been introduced into governments. For instance, early aspects of e-organization allowed municipalities to maintain records via computer, ensure online availability of pay dates and holiday information, promote online communication via emails, and allowing government staff to have municipal e-mail accounts. With recent developments, employees are allowed to make online requests for benefits statements, and state and federal agencies can access municipal information via the Internet (Carrizales 2008, 13). E-organization promotes better interactions between various levels of government, eventually providing better governmental services to citizens and business (Carrizales 2008, 14).

2. E-services

Electronic services (e-services) is the second function of e-government. Carrizales (2008, 15) defined e-services as the use of technology for ensuring external government efficiency and effectiveness in providing public services. Cloete (2003) said that, accepting the use of technology in public service delivery, is crucial for maintaining good governance. According to Horrigan (2004), online service delivery applications' primary goal is to provide the public with information and communicate with public officials.

According to Carrizales (2008, 14), there are different forms of e-services that have been recognized. Early applications of e-services allowed municipalities to post information via municipal websites, availability of downloadable forms, and request of information through e-mail or by having access to online government forms. Later developments allowed citizens and/or businesses to complete online requests for permits or licenses, provide geographical information systems (GIS) online, pay municipal taxes online, and report violations and complaints online. More applications

of e-services from municipal governments have aimed to improve online services in order to improve expectations of citizens regarding efficiency of government websites.

3. E-partnering

The third function of e-government is e-partnering, which is the most unnoticed in the context of e-government because it doesn't deal with the public directly. Carrizales (2008, 14) defines e-partnering as the adoption of technology by governments to increase the efficiency and effectiveness of external government when dealing with other organizations, such as: businesses, other municipal governments, and public and nonprofit organizations, among others. For instance, Singapore started a project, Government Electronic Business, to initiate an e-procurement project. This project assisted about 150 institutions and modernized the procurement system in Singapore (Devadoss, Pan and Huang 2002). Pascual (2003) emphasized that e-procurement gives opportunities of new markets to local businesses through improving the government electronic procedures.

Carrizales (2008, 14) stated that early projects in e-partnering allowed governments to post links to nonprofit organizations and businesses on their websites, and on which online information is posted about contracting and bidding and citizens are given the opportunity to submit online requests for proposals. Moreover, e-partnering practices allowed online bidding for government contracts, availability of GIS online programs at off-site locations, and providing government employees with online courses.

4. E-democracy

E-democracy is the final function of e-government, is defined here as the use of technology to involve citizens in the decision making process. Although e-democracy is

the least one practiced but one of the most mentioned in the literature (Carrizales 2008, 15). E-democracy allows the government to be more transparent and open, which increases accountability and reduces corruption of government (Holzer and Kim 2004). Online discussion platforms give the opportunity to citizens to share their views on political issues "*without requiring participants to share space and time*", which increase access to political discussions (Malina 1990). Although Weber (2002) argued that governments may not be fully incorporating information technologies to support e-democracy, municipalities have already started disclosing information of paramount importance to government decision making and for two way communication. Some early online practices of e-democracy are: announcement of municipal board meetings and publishing of minutes, disclosure of budget information, and availability of downloadable forms related to voter registration. Later developments in e-democracy require changes in organizational transformation, that's why they are considered more challenging to be achieved. Using more advanced developments, citizens are able to participate in online platforms through the website of a municipality, public officials are able to engage in online policy forums, and voting on local elections and referendums can occur online.

After reviewing the literature on how the public sector shifted towards adopting technologies in order to achieve an efficient delivery of services to citizens (Basu 2004), and since we focus in this thesis on the importance of adopting websites or web portals as an application of e-government, it is very useful to state the various benefits/outcomes of e-government.

2.2. The Outcomes of E-government

There are many benefits associated with adopting e-government strategies in the public sector. These benefits could be categorized according to perspectives: citizen-centric and government centric. Citizen-centric e-government projects took into consideration the demographic factors of citizens, and so government implemented e-government strategies which satisfied needs and interests of citizens. Whereas, government-centric e-services focused mainly on improving the country economically by adopting the most significant technology, aiming to achieve high economic returns. These two categories could be interrelated and not mutually exclusive. For the purpose of this thesis, e-government services were defined as the creation of websites, which enhanced the quality and delivery of public services, and increased the efficiency of public administration (Norris and Moon 2005).

Furthermore, Tesu (2012, 45) accentuated the importance of providing online services to citizens—citizens had better access to services and governments had more clarity on the most important services to citizens through rethinking organizations and processes—leading to improvements in delivery of those public services. The same author also revealed the evolution of the goals of e-government from: efficiency, to effectiveness, to reach nowadays both of them in an open and transparent society. E-government had the potential to improve public services, information transparency, and the engagement of civic participation of the public sector management (Bolivar-Rodriguez and Pedro 2014). Durrant (2002) emphasized e-government as "a permanent commitment by government to improve the relationship between the private citizen and the public sector through enhanced, cost-effective and efficient delivery of services, information and knowledge".

Pilemalm (2016) focused on goals specifically related to citizens, i.e. citizens were empowered when they were involved in the development of e-services, and engaged in the policymaking process. Involving citizens in the policymaking process was an important measure to implement citizen-centric e-services (Frohlich 2017). Citizens were able to give their public opinions easily and highlighted their interests and needs, hence citizens were able to complain deficiencies in the public sector and defended their public rights openly. Thus, e-democracy prevailed upon the implementation of e-government initiatives (Siddiquee 2016). These initiatives also increased trust in government (Kloby 2012).

Furthermore, the scholars below declared that the goals of e-government was not limited to providing better access to services and improving those services. They focused enormously on the outcomes of implementing e-government initiatives in the public sector. Some of these goals focused on the development at the organizational, individual and country levels. In order to answer the research question stated in the beginning of the thesis, it was very useful to review the literature about the outcomes of e-government.

2.2.1. E-government and Efficiency

Provision of public services became faster and easier to be accessed by citizens (Vintar and Nograsev 2015). Furthermore, vast savings in terms of time and money promoted in the public sector through simplifying administrative procedures upon the implementation of information technologies (Cruz-Valle et al. 2016). Indeed, efficiency was the central outcome of e-government in attempts to streamline and transform government; Snellen (2007) argued that the original role in e-government was "the

enhancement of the internal effectiveness, efficiency, and economy of the executive functions of public administration". In this regards, Zuboff (1985) stated that the development of websites led to efficiency in public services provision. Indeed, development of websites increased the efficiency of municipalities in making access to public services easier and faster. The availability of an online environment for e-government enhanced knowledge of local government, policy, and community through the provision of information, and promoted participation through information about activities or events offline as well as through communication online (Ciborra, 2005). According to Ciborra (2005), integrating e-government applications is of paramount importance for increasing the efficiency of the government and improving its performance.

Consequently, policies should encourage governments to redesign its internal procedures through implementing ICTs, ICTs definitely improves the efficiency of the government (Ciborra 2005). Indeed, integrating ICTs lead to organizational transformation—abolished redundancy in procedures and encouraged flexibility in organizational processes in the public sector (Vintar and Nograsev 2015). E-government helped in administrative simplification and cutting red tape in governments. Indeed, redundant steps were removed through automating and computerizing the existing governmental procedures (Chadwick and May 2003). To add, West (2004) claimed that using ICTs in the public sector made the government more effective in public services provision. The same author added that integrating ICTs in the public sector guarantees effectiveness and efficiency in public services provision. E-government reduced costs using ICTs which boosted the national economic growth (Gable 2015).

2.2.2. E-government and Transparency

Through integrating e-government, public information became easily accessible to citizens, urging government institutions to behave in an open and transparent environment to decline corruption (Zerban 2015). Disclosing financial information on websites to citizens fortified communication between governments and citizens and promoted transparency and accountability (Galera-Navarro et al. 2016). Allowing free access of public information to citizens fought corruption and increased transparency (Andersen, 2008). This was reinforced and sustained by the "Open Government Partnership" (OGP), urging government institutions to increase their transparency and accountability through reforming the public sector (Frohlich 2017). Actually, citizens believed that the development of web pages was an important application by which governments promoted transparency and efficiency, and decreased corruption (Cruz-Valle et al. 2016). To add, Bertot et al. (2010) claimed that integrating ICTs in the public sector is very important to ensure transparency of public institutions and to reduce corruption. The same author claimed that a good government shares as much information as possible to citizens, and using ICTs governments are able to share public information to citizens in order to reduce corruption and ensure accountability. Integrating ICTs made internal administrative reforms by which these reforms reduced and lowered the chances for bribery and corruption. As cited by Bertot et al. (2010), "many nations with transparency laws have directly tied the implementation of these laws to the implementation of ICT-based initiatives, often through e-government." Integrating ICTs in the public sector reduced chances for corruption acts and improved relationships between government employees and citizens. Citizens are able to follow

upon their applications online without reliance on bribery and personal connections to have faster and easier access to public services (Bertot et al. 2010).

However, the success of these ICTs as anti-corruption means relies on the acceptance of government officials to adopt and implement them. Indeed, government officials play an important role in reaching the outcomes of e-government (Heeks 2005). Some studies have suggested that trust in e-government can be built through increased responsiveness to user needs and inquiries and through increased transparency. Using ICTs and giving citizens access to public information is of paramount importance to ensure transparency and accountability of public organizations (Gauld et al. 2009). According to Bhatnagar (2003), ICTs are able to promote transparency through providing information on the rules of governments and the rights of citizens, information about decisions and actions implemented by governments, promoting access to government actions and expenditures, disseminating data on the performance of the government and having access to government procedures like applications for permits, and status of online transactions. Furthermore, the same author claimed that ICTs allow identifying elected public officials and civil servants for corruption and disclosing of investments of elected officials and civil servants. To add, Bertot et al. (2010) said that using ICTs to ensure transparency of the government definitely leads to a sustained culture of transparency. ICTs also allow interactions between different stakeholders in the society and such interconnectedness between the different societal actors promote transparency (Cho and Choi 2004).

2.2.3. E-government and Trust

Glibert (2004) emphasized the importance of the concept of trust in government in increasing the rate of adoption of e-services by citizens. That's why quality of information is of paramount importance to build trust with the public—information displayed on the website should be accurate, consistent, updated, and reliable information, in addition systems should protect citizens'' personal and financial information when transacting with the government online. Alomari et al. (2014) have also reinforced the principle of trust in government in adopting e-services by citizens—citizens are afraid to share their personal information and their bank accounts because of mistrust in their governments in terms of privacy and security when using e-government. As a result, building trust with the public is a crucial step towards encouraging citizens to use e-services, and thereby aiming to improve e-government. Other scholars have entailed citizens should build trust not only with their government; rather they should trust the adopted e-government initiative in terms of its privacy and security (Belanger and Carter 2005).

Trust in government institutions is crucial to urge citizens to use e-services (Sharma and Pokharel 2016). It also achieved democratic governance through networking and coordinating with different stakeholders in the society (Zerban 2015), in addition it achieved socially desirable outcomes including: trust in government organizations, equity among citizens by decreasing reliance on personal connections, and least but not last participatory democracy by engaging citizens in the decision making process (Deng et al. 2018). E-government strategies encouraged crowdsourcing of innovative resolutions from different stakeholders (citizens, non-profit organizations, private sector…) to solve existing administrative challenges within the public sector

(Pilemalm 2016). They also improved cooperation, coordination, and information-sharing across different levels of government, removing bottlenecks and improving internal administrative processes (Wirtz et al. 2017).

2.2.4. E-government and Civic Engagement

Kang and Gearhart (2010) stated that websites of governments promote civic engagement. Websites provides access to public information, public services, and "*opportunities for citizens' direct public and political participants—a proper conduit for civic engagement*." These authors also added that when promoting information about public meetings, websites can be an appropriate communication channel for citizens' civic involvement including discussion about and participation in various city activities related to local issues, and citizens' participation in political activities (e.g., participation in voting and hearings). There could be specific categories on the website which promote civic involvement and political participation. Indeed, websites of local governments could contain information, services, and democratic features which encourage and promote civic engagement. These authors also added that successful civic engagement depends on the communication between government and its constituents, and websites of local governments ensure such a communication.

Jeffres and Lin (2006) argued that websites of local governments should include "*mass communication functions: surveillance, coordination of activities, socialization, and entertainment to fulfill the goals of civic engagement. They can provide the venue where citizens monitor the government, dialog with city officials, and get informed about the city, resulting in sharing significant social benefits*." As cited by Kang and Gearhart (2010), promoting access to tax information and communication with public

officials in the website was positively associated with attitude toward civic engagement. As reported by Navarro-Cegarro et al. (2012), civic engagement relied upon citizen awareness on and knowledge of various aspects of government – what government did and who did what, and this knowledge could be made accessible and clear through e-government websites. But, these authors also found out that many civil servants cut back on technology investments by either publishing information or sending emails without using other forms of communication (e.g. transactions) due to the global economic crisis. As cited by Navarro-Cegarra et al. (2012), a local government website makes the interactions between citizens and civil servants easier, and developed measures linked to e-governance and direct relationship between citizens and policymakers.

2.2.5. E-government and Democracy

Lee et al. (2011) stated that e-government allows citizens to participate actively in the decision-making process rather than passively having access to information and services. To add, Tolbert and Mossberger (2006) said that adopting ICTs in the public sector is of paramount importance for promoting participatory democracy. These two authors also added that the purpose behind adopting e-government is to promote democratic practices for citizens through their access to public information and public services. Macintosh et al. (2003) claimed that governments, through web-based technologies, educate young citizens about the importance of their participation in democratic methods. They can also involve young people in decisions which are related to local issues in order to improve the quality of their lives through online discussions. To add, Saebo et al. (2010) claimed that information technologies promote new

opportunities for citizens to participate in political discussions. Such eParticipation initiatives strengthen democracy and citizen engagement. E-participation initiatives allow input citizens on a defined topic, open communication between government and citizens, empowerment of citizens through allowing them to participate in developing policies and solutions.

There are various technologies that have been used to promote these initiatives—including voting systems, websites, blogs, discussion forums, in addition to wikis and chat rooms. Furthermore, Mahrer and Krimmer (2005) supported the importance of e-government in increasing citizens' participation in democratic processes. E-government is used as a tool to directly engage citizens in developing policies and solutions for existing issues.

However, as cited by Mahrer and Krimmer (2005), e-government projects focus mainly on administrative reforms without considering the importance of democracy. Such an approach to e-government is an impediment for a successful implementation of e-government initiatives. Chadwick and May (2003) claimed that e-government is important in terms of facilitating public services provision for citizens. However, citizens' participation in policymaking and decisions leads to a loss of power for the members of the political elite. Transparency for the political system is very important for citizens to have access to public information. But, when voters decide on everything, this is a dangerous idea to let the internet control the role of the political representatives. This would cause the total destruction of the political system.

2.2.6. Smart Cities

Furthermore, as claimed by Chourabi et al. (2012), implementation of ICTs in the public sector is significant to change non-smart cities into smart cities. Toppeta (2010) define a smart city as: *"combining ICT and Web 2.0 technology with other organizational, design and planning efforts to dematerialize and speed up bureaucratic processes and help to identify new, innovative solutions to city management complexity, in order to improve sustainability and livability*." Smart cities initiatives can be very general in nature within the context of e-government or through a defined project. Most smart cities are adopted by governments and by the intensive use of ICTs to better serve citizens (Chourabi et al. 2012). To add, Nom and Pardo (2011) said that the aim behind these smart cities is to ensure the flow of information between different societal stakeholders, in addition to ensuring a better quality of lives for citizens. Furthermore, Schaffers et al. (2011) asserted that the use of ICTs extensively is very important to enhance administrative processes and procedures and help to seek out innovative solutions. According to claims said by Allwinkle and Cruickshank (2011), "Smart City Thinking" websites are adopted by governments in developed countries to ensure easier and faster access to public services, in addition to supporting citizens' participation in democratic processes. These authors also added that ICTs are tools of social capital, forming networks between different stakeholders in the society to find solutions and to make their lives easier.

So, smart cities are those which implement ICTs in order to increase social capital, and cities have to be innovative in developing "*integrative e-government service models*." "*Those e-government service models have the enterprise architecture and business models capable of building the capacity to co-design services* (Allwinkle and

Cruickshank 2011). The use of ICTs are being now extensively used to create the notion of "creative cities" (Landry 2008). The authors go further and claim that these technologies are expected now to work even "smart-er", not just in the way they make it possible for citizens to have efficient access to public services, but in generating environments that produce innovation and creativity.

Stating the aforementioned benefits of adopting e-government was very important to explain why governments adopt e-government applications. To sum up, e-government services enhanced the quality and delivery of public services, and increased the efficiency of public administration (Norris and Moon 2005). Although there was a great amount of empirical literature on e-government based on surveys of state governments, large municipalities, and countries, there was a relative dearth of research focusing on small local governments (Xu and Asencio 2015). This literature review showed the necessity of development of websites by municipalities, by which they improved local governments and led to efficient public services provisions (Faguet et al. 2014). Certainly, municipalities were able to listen directly to the demands and needs of citizens (Brinkerhoff and Johnson 2009).

So, the adoption and development of websites were definitely important for municipalities to provide efficient public services to citizens (Brancati 2004). The aforementioned literature review about the importance of adopting e-government within municipalities was very useful in order to understand how development of websites at the local level was of paramount importance for citizens to have faster and efficient access to public information and services. Building on that, the chapter below gave the theoretical framework to be adopted throughout the thesis, e-government maturity

model, and the conceptual framework of this thesis. The websites of the Lebanese municipalities were studied based on this conceptual framework.

CHAPTER 3

THEORETICAL FRAMEWORK AND CONCEPTUAL FRAMEWORK

The below framework was developed to explain several factors which influenced the adoption of ICTs and efficiency of e-government. Indeed, e-government was about introducing ICTs for efficient public services provision to citizens. Based on the latter, this thesis explained the efficiency of e-government using the theoretical framework below developed by Delone and Mclean in 1992 and updated in 2003. In addition to the demographic factors and other factors derived from the literature about e-government. Explaining and understanding these factors were essential to understand the failure or success of e-government in Lebanon. Some factors were more influential than others, while other factors were absent or present.

3.1. Delone and Mclean Information Technology Success Model

Delone and Mclean information technology success model provides various measures of the success of information systems. Also, the model suggests interdependencies between its different components. A model, proposed by Delone and Mclean in 1992, claimed that a successful information system focused on three main components: systems quality, information quality, and user satisfaction. Then, the model was updated in 2003 and included six dimensions: information quality, system quality, service quality, use, user satisfaction and net benefit. Firstly, systems quality took into account and measured technical success of a certain system or an e-service.

Secondly, information quality measured semantic success. Information quality was studied based on the completeness, relevancy, and consistency (Delone and Mclean 2003). "*Web content should be personalized, complete, relevant, easy to understand, and secure if we expect prospective buyers or suppliers to initiate transactions via the Internet and return to the site on a regular basis* (Delone and Mclean 2003)." Furthermore, Maureen (2000) supported the importance of the quality of the information posted on web-based technologies. Information should be complete, consistent, and reliable. This is important not only for intraorganizational use, but also for usage by other stakeholders.

To add, Ballou and Tayi (1999) have also emphasized the significance of information quality. The quality of information determines the success or failure of ICTs applications. Moreover, Redman (1998) added that information and data posted on websites of local governments should be accurate. The accuracy level in information is related to customer satisfaction, decreased costs, and effective decision making. In addition, when the information posted is accurate and reliable leads to increase in trust in government by citizens. Redman also added that inaccurate information leads to "*information ecology*" which is inconvenient for the information age.

Wang and Liao (2008) confirmed the importance of high-quality information including sufficient and up-to-date information posted on websites of governments. In addition to security and privacy protection which is related to the quality of the services on the websites. Therefore, governments should include measures for information and service quality of their websites. To add, citizens' satisfaction was an added value which plays a crucial role in the success of e-government initiatives. As mentioned by Wang and Liao (2008), the quality of the information and services of the e-government

systems are critical factors in encouraging citizens to use the system. Thus, the improvement of e-government projects, which intersect government, citizens and businesses, rely on a constant flow of reliable and consistent information (Corrales and Westhoff 2006). They also added that to make citizens feel satisfied, it is of paramount importance to develop e-government systems that have high-quality information and services.

So, in the context of e-government, information quality has a considerable effect on users' satisfaction and the perceived net benefit of users. "*In order to increase citizen-perceived net benefit, e-government authorities need to develop government to citizens e-government systems with good information quality, system quality, and service quality, which, in turn, will influence citizen system usage behavior and satisfaction evaluation, and the corresponding perceived net benefit* (Wang and Liao 2008)."

3.2. E-government Maturity Model

In this regard, as stated by Layne and Lee (2001) governments passed through stages when it came to the adoption of e-government—each stage involved a different level of technological progress and simplification of administrative processes. It was important and useful to highlight the evolutionary theory of e-government which focused on the different stages of websites progressiveness. Those stages included: catalogue, transaction, vertical integration, and horizontal integration. Layne and Lee (2001) also described these stages of websites development. These stages explained the structural changes of municipalities when they advanced toward Internet-based government and how e-government practices became incorporated with traditional

public administration, entailing essential modifications in the form of government. This four-stage growth model was established primarily based on the experiences and observations of some authors pertaining to e-government practices in the United States of America.

The model involved four steps which were: catalogue, transaction, vertical integration, and horizontal integration, and each step stated the extent to which the municipal websites are adopting e-government; i.e. whether the websites presented general information or included online services. Definitely, including online services meant that the websites were progressive which helped citizens to have faster and efficient services and information. The first stage of the e-government maturity model was catalogue which involved the initial steps of e-government whereby the municipality was present on the web and there were downloadable forms, and general information. But, in this stage, there was no presence of online services. Transaction was the second stage which included online services and forms and databases which supported online transactions. This stage was more progressive than the previous stage. The third stage was vertical integration which entailed that the different levels of governments are connected for various public services which were similar in functionality. Reaching this level needed more efforts, resources, and more coordination and collaboration between the different levels of government. The fourth stage was horizontal integration which was the connection of the different levels of governments for different public services whereby citizens had a real one-stop shop. The last two stages—vertical and horizontal integration—represented an ideal situation for citizens where they had online access to all public services and the government functions are very transparent.

Each stage included an additional advancement in municipality's website and each progressive stage reflected easier and faster access to public services by citizens than its previous stage (Garcia et al. 2007).

Table 3.1. E-Government Stages.

Stage 1: One-way communication/information dissemination (Yes/No)
. website: information posting
.website: downloadable forms
Stage 2: Two-way communication (Yes/No)
.online payments
. requests for services
Stage 3: Vertical integration (Yes/No)
Stage 4: Horizontal integration (Yes/No)

3.3. Other Factors

The literature also focused on the influence of demographic factors on the adoption of e-government services. As stated by Dimitrova and Chen (2006), demographic characteristics included: the size of the population, economic status of

citizens, age of citizens, level of their education and their social status. The lack of capabilities and skills to use information technology by the elderly was considered a hindering factor in the adoption of e-government, leading to digital divide between citizens (Hajar and Idris 2016). A low level of income hindered citizens from accessibility and usage of e-services (Alomari et al. 2014). Furthermore, religion constituted a major issue in some Arab countries, where they believed that subscription to internet negatively influenced their religious beliefs, so they preferred nor to subscribe to the internet neither to adopt e-government services (Alomari et al. 2014). Furthermore, Stier (2015) added that government capacity and the political environment play as important factors in determining e-government performance. To add, the dominant view is that "*a less democratic government is less likely to advance e-government because the government might not support transparent and interactive relationship with citizens (Stier 2015).*"

Furthermore, Corrales and Westhoff (2006) added that government web-based technologies increase information-sharing and communication between various stakeholders in the society. Thus, the author added that democratic political regimes use the internet proactively, while authoritarian states develop policies that are restrictive and anti-internet preferences. However, the same author claimed that because implementation of information technology leads to economic development, market-oriented autocracies also implement information technology to promote economic gains. As supported by Knutsen (2012), autocracies states adopt information technologies when the potential economic gains of these technologies are enormous.

Stier (2015, 34) added that an effective administrative environment is very important for the successful implementation of e-government programs. Government

capacity is defined as the *"quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies."* Government capacity constitutes a critical factor in determining the success of e-government programs (Stier 2015, 37).

3.4. Conceptual Framework

First, I started this section by operationalizing my variables for the sake of this research study:

E-government practices in this research stood for websites of the municipalities in Lebanon, and the purpose of adopting these practices was to make access to public services and/or information easier and faster. Efficiency in this thesis stood for the availability of e-services on the websites, and I used the component "quality of information" derived from the Delone and Mclean model and users' satisfaction to assess the efficiency of the websites of Lebanese municipalities. For the purpose of this thesis, "quality of information" posted on the website was used in terms of the last information posted (updated information regularly) and the absence or presence of these information: future projects, accomplished projects, and absence or presence of downloadable forms related to applications for citizens within the Lebanese context.

Second component used was users 'satisfaction and it was studied by checking web traffic of municipalities to check estimates of daily users. I focused particularly on the efficiency of websites of municipalities in Lebanon. The below table (table 2.2) presents the conceptual framework to study the efficiency of websites of the Lebanese municipalities.

Table 3.2. Conceptual Framework.

Adoption Factors	Web Design Process	Organizational Structure	External Factors
Information Quality	Updated Information	Support of Municipal Council	Legal constraints
Communication Channels	Complete Information	Managerial Commitment	Rules and Demands
Resources	Relevant Information	Size of the Municipality	Citizens' Satisfaction
Online Services	Budget/costs		Socioeconomic conditions of the Citizens
Networking	Availability of Online Services		Religion (Arab World)
			Age of Citizens
			Political Issues

Within the e-government context, citizens use websites to search information and conduct transactions. So, websites are web-based technologies that lend itself to be studied using Delone and Mclean model. Thus, for the purpose of this thesis, this model is adapted to the website success measurement in the e-government context. In accordance with Delone and Mclean information technology success model, this thesis proposes a conceptual framework of e-government systems efficiency, which suggests that information quality and user satisfaction are efficiency variables in e-government systems. The websites of Lebanese municipalities are evaluated based on information quality in terms of up-to-date information, presence of downloadable forms, and

presence/absence of e-services option on the websites. The presence of information and downloadable forms without the e-services option mean that municipalities are still in stage 1 of e-government. On the other hand, the availability of e-services option for citizens is an indicator that these websites have reached stage 2 of e-government (Table 3.1).

According to Delone and Mclean success model, users' satisfaction is one of the six dimensions which determine the success of an information system. So, identifying traffic of websites in terms of daily unique users is essential to check users' satisfaction. A high number of daily visitors is an indicator for users' satisfaction, while a low number of daily visitors proposes inefficiency of these websites. Thus, according to Delone and Mclean, if the websites present high-information quality and high service quality, then users are more encouraged and motivated to visit the websites, and vice versa. So, assessing the quality of the information and services on the websites of municipalities is an indicator for users' satisfaction. But, checking the traffic on the websites of municipalities in Lebanon ensures this relationship between information quality, users' satisfaction and efficiency of e-government.

CHAPTER 4

A CONTENT ANALYSIS OF LEBANESE MUNICIPALITIES AND E-GOVERNMENT

4.1. Brief Background on Decentralization in Lebanon

First, it was noteworthy to understand decentralization in Lebanon and how it evolved throughout history. Haase and Antoun (2015) stated that the administrative structures of the central government in Lebanon were highly centralized because most of the public issues were directly managed by the national government, and this was the case since the ratification of the Lebanese Constitution on May 23, 1926. While the local administrative structures appeared upon the formation of the Council of Welaya in 1833. The council of Welaya was responsible for governing issues in Beirut. The relationship between central government and local administrative structures was complex during the Ottoman Empire, the French mandate, and the current Lebanese Republic. During the Ottoman Empire, Ottomans relied heavily on centralization from 1516 to 1877. The appearance of municipal governments in 1877 urged the Ottomans to declare the Vilayet Municipal Law, which legally recognized the presence of municipalities governed by municipal councils, which were responsible of managing and improving the local conditions.

By the end of the World War Ⅰ and the collapse of the Ottoman Empire, the French government controlled Lebanon in 1920, whereby the French government implemented a centralized system under the authority of the French High Commissioner. On the other hand, the municipal law kept most of the basic elements

that were present in the Vilayet Municipal Law. But, municipalities did not exercise their jurisdictions due to the control and supervision of the central government. Later, and throughout history, and after Lebanon's independence, central government realized the importance of giving authority to local entities, and so they did so but under the control of the central government.

4.1.1. Prerogatives and Bylaws of Governorates

According to data derived from the Lebanese government portal and the Central Administration of Statistics (CAS) in Lebanon, Lebanon is divided into 6 governorates (Mouhafazat) which are: South, North, Nabatieh, Mount Lebanon, Beqaa, and Beirut. The Mohafazat were divided into 26 districts, except for Beirut, then each district was further divided into municipalities (Table 4.1).

Table 4.1. Administrative Division in Lebanon.

Governorates	**Districts**
Beirut	
Mount Lebanon	Aley Baabda Chouf Jbeil Keserwan Matn
North Lebanon	Batroun Bsharri Koura Tripoli Zgharta
Bekaa	West Beqaa Rachaya Zahle
South Lebanon	Jezzine Saida Tyre
Nabatiyeh	Nabatiye Hasbaya Marjeeyoun Bint Jbeil

The governorates were created by the central government, and they were not independent, plus the Governor of the Mohafazat was appointed by the Council of Ministers upon the recommendation of the Minister of Interior and Municipalities. The Governor had many duties, according to Articles 4 to 26 of Decree-Law 116 of 1959, including the following:

- "*Enactment of laws and regulations*
- *Implementation of political directives from the central government and informing the government of the general political situation in the muhafaza*
- *Administration of all matters relating to personal status, and inspecting and controlling all central government bureaus and civil servants in the muhafaza*
- *Insuring public security, personal freedom, and private property*
- *Coordination of events, when required, in collaboration with internal security forces placed under his command*."

4.1.2. Prerogatives and Bylaws of District Commissioner

According to Decree-Law 116 of 1959, Districts represented the second-level of geographical subdivisions in Lebanon after governorates. These districts enjoyed neither a legal personality nor a financial autonomy, and twenty-one of the districts were administered by a District Commissioner, who was a grade-two civil servant appointed by the Council of Ministers upon the recommendation of the Ministry of Interior and Municipalities.

The responsibilities of the district commissioner was approximately similar to those of the Governor, except that the district commissioner didn't represent all ministries in

Lebanon. The responsibilities of the district commissioner, according to Articles 27 to 46 of Decree-Law 116 of 1959, included the following:

- "*Supervision of the general situation in the district and informing the government of the developments through the Governor*
- *Administration of the regional offices of various ministries in the qada, as well as controlling and supervising employees*
- *Implementation of rules and regulations and preserving public security and order*
- *Supervising the agricultural sector, granting hunting and building licenses, imposing health measures, and appointing certain low-level employees*".

4.1.3. Municipalities in Lebanon

This thesis focused only on municipalities within Lebanon as I mentioned in the conceptual framework. So, it was useful to point out the bylaws of municipalities in Lebanon, prerogatives of the municipal council members, and their financial resources according to the law. Before addressing e-government application across Lebanese municipalities, it was highly important to have knowledge about municipalities in terms of their institutional, legal, and financial capabilities because the aforementioned capabilities influenced e-government adoption in a way or another according to the prior literature.

I started by defining a municipality, according to article 1 of Decree-Law number 118, enacted in 30/6/1977, stating that: *"The municipality is a local administration exercising, within the scope of its work, the powers entrusted thereto by the law. The municipality shall hereby enjoy legal personality as well as financial and administrative independence."* This definition indicated that municipalities in Lebanon had legal,

financial, and administrative independence, meaning that municipalities in Lebanon were not hindered by legal challenges when it comes to e-government adoption, in contrast to the legal challenges highlighted by the literature on e-government adoption.

As stated in articles 49 to 52 of 1977 Decree-Law regarding the responsibilities and duties of the municipal council; the council was granted many responsibilities and duties:

- *"Budgeting, including opening, and transferring of approbations*
- *Deciding on revenues and expenditures*
- *Taking up loans to implement projects with feasibility studies*
- *Setting the fees to be collected as specified in the law*
- *Issuing terms of reference for works and services*
- *Issuing terms of reference for selling municipal properties*
- *Accepting and refusing grants*
- *Urban planning, setting up gardens, and public squares*
- *Setting up markets, museums, hospitals, clinics, public libraries*
- *Contributing to the expenditure of public hospitals*
- *Contributing to the expenditure of public projects"*

The aforementioned responsibilities reflected the various prerogatives of the municipal council in terms of budgeting, taking decisions related to revenues and expenditures, and the permission by law to take up loans to implement projects. Relating these prerogatives to the e-government context, municipalities in Lebanon were given various opportunities as stated in the laws which facilitate an easy adoption and implementation of e-government applications in terms of legal and institutional

capabilities, as long as the municipal council and the president agree on and support the adoption of e-government applications.

Article 86 of the same Decree-Law stated the different sources of funds for municipalities including: fees and taxes collected directly, fees collected by the central government on behalf of municipalities and then distributed to each municipality, financial aids and loans, and donations. So, such various sources of funds indicated that municipalities in Lebanon do not suffer from financial constraints. There are multiple sources of funds which can be exploited to adopt web-based technologies. However, it was noteworthy to mention that small municipalities in Lebanon depend 90% on Independent Municipal Fund (IMF) (Harb and Atallah 2015). The Ministry of Finance collects taxes and fees and deposit them in the Independent Municipal Fund (IMF), where then the Ministry of Finance distributes those deposited money to municipalities by the end of each year based on a formula outlined in Decree 1917. This reflected to a certain degree the lack of collaboration and communication between central and local governments, which was one of the factors mentioned in the literature above negatively influencing adoption and implementation of e-government at the local level.

Furthermore, the literature revealed that the size of the municipality played an important factor in the success or failure of e-government adoption because small municipalities tended to be not innovative in terms of using websites to interact with citizens. Actually, this was supported by Claver-Cortes et al. (2008) by stating that the size of a municipality (in terms of population) was an important demographic feature of technology implementation and adoption. It was speculated that this may be so because larger municipalities allocated greater financial and personnel resources to the adoption and use of technology (Moon and Norris 2005). In terms of web-based technology

adoption, studies suggested that there were several levels of web adoption and proposed that the size of an organization was—in principle related to the level of web adoption (Teo and Pian 2004). Indeed, as highlighted by Solh (2012), some municipalities in Lebanon were created with a very small number of population. 70% of municipalities had a registered population of less than 4000 (LCPS 2012). It was also confirmed that the number of municipalities was considered too big for an estimated overall population residing in Lebanon to be 4,259,000 and the Lebanese diaspora was between 8-14 million (World Bank 2012). Some municipalities in Lebanon have united into municipal unions, through which municipalities became more innovative in terms of web-based technology (Solh 2012). Consequently, the central government should reinforce decrees forcing small municipalities to form unions and preventing the formation of new municipalities, facilitating adoption and use of web-based technologies through the allocation of more resources and actively directing these resources towards the adoption and use of websites to become more efficient in terms of public services provision.

After diving in depth into the bylaws of municipalities, I realized based on the literature the factors which influenced negatively or positively the adoption and use of web-based technologies. So, it was noticed from the literature above about decentralization in Lebanon and through relating this literature to the e-government context, in theory municipalities in Lebanon enjoyed various legal, administrative and financial capabilities mentioned in the bylaws. However, in practice, there were political hindrances from the central government by which some municipalities enjoyed more financial resources than others. In addition to the absence of laws which prevented the formation of new small municipalities, and forced municipalities to form unions. Realizing the negative and positive sides of the bylaws of municipalities in Lebanon in

terms of adoption and use of web-based technologies was essential to either confirm or disconfirm these realizations when conducting interviews with staff within municipalities in Lebanon, or even to realize new factors specific to the Lebanese context different than the ones mentioned previously in Table 4.1. But, before showing the findings of the interviews, we needed a brief review on e-government in Lebanon at the national level before digging deep into municipalities. Unfortunately not much was written in the literature about e-government in Lebanon at the national level; whereas the Lebanese municipalities were not studied at all in terms of e-government.

4.2. Overview of e-government in Lebanon

I have mentioned previously in the e-government literature that one of the many benefits of e-government was to reduce corruption. Still, Lebanon scored 136 of 175 countries on the Corruption Perceptions Index (Fakhoury and Aubert 2015). In fact, Lebanese citizens relied greatly on nepotism *(wasta)* to facilitate transactions, and many citizens bribed public employees to complete their transactions faster, getting rid of all the unnecessary steps when completing their transactions (Harfouche and Robbin 2012). Therefore, e-government applications can decrease reliance on both *wasta* and bribery, in addition to having better and faster access to public services (Alawadhi and Morris 2009).

According to Chatfield (2009), with regards to e-government development based on the e-government maturity model (table 3.1) although Lebanon established a governmental portal that served as a single entry point to all other public agencies; yet,

Lebanon is still in stage one of e-government where Lebanon provides one-way flow of information to citizens. However, Lebanon scored 0.5646 on e-government development index in 2016; the score was above the world average (0.4922) and region average (0.5132) but below sub-region average (0.5815) (United Nations 2017). Scoring above the world average means that Lebanon is progressing in terms of e-government which is a promising endeavor to citizens (Al-Nuaim 2009). Lebanon undertook a series of initiatives between 1998 and 2012 to develop a vision, policy, and strategy for e-government through administrative reforms (Fakhoury and Aubert 2015).

For example, in 2002 and 2003, the Office of the Minister of State for Administrative Reform (OMSAR), developed respectively an e-government vision and a National e-Strategy (Economic and Social Commission for Eastern Asia 2009). Fakhoury and Aubert (2015) added that the e-government strategy underwent revision in 2008, aiming to achieve greater economic and social benefits, as well as quality-of-life improvements for Lebanese citizens. One of the main pillars adopted in this e-government strategy was e-Citizen which seeks to deliver services to the citizen in a fast, reliable and easy to understand and use service. E-citizen will enable citizens to: pay taxes online, submit passport applications online, submit applications for permits, obtain copies of education records and certificates, register life events – births, deaths, marriages, name changes, access public services facilities such as health and retirement information, file job applications and provide citizens with mechanisms to better understand government and to communicate with government (OMSAR 2007).

Furthermore, this national e-government strategy aimed to upgrade the government website into a more interactive portal which allows downloading of forms or their

submission electronically. This project was outsourced to the private sector in a Public-Private Partnership arrangement.

Consequently in 2013, a new portal (www.dawlati.gov.lb) became available and introduced the e-government initiative. The goal of this portal was to increase efficiency of government by providing citizens with easy access to information and services, ensuring more transparency of government agencies. Furthermore, this portal decreased paperwork and visiting government offices back and forth to complete certain transactions.

Currently, it provided PDF forms that can be completed electronically and then printed, and e-services through both its website and mobile apps. In addition, the Ministry of Finance has recently launched a website (eservices.finance.gov.lb) which allows taxpayers to submit formal statements, check their profiles, check the amount of tax dues, and receive notifications. Both organizations and individuals can perform their annual tax declarations using the Internet. E-taxation was the first e-service introduced in 2013 by the Ministry of Finance, allowing taxpayers to do and follow upon their tax transactions; it also launched an e-service which enabled them to check the amounts on tax dues on built property. Citizens can also pay this tax through the website. A law pertaining to the approval of e-signature has not been passed yet. So, citizens who use the online tax payment, they should login to the website of the Ministry of Finance (www.finance.gov.lb), then access the e-services option, fill in the application related to the service and send it electronically. Citizen receives via email a tracking number and the date of appointment set to submit the necessary documents for obtaining an E-pin. So taxpayers need to visit the Ministry of Finance just once to subscribe to the service "E-payment". Then, after registration, citizen access e-services option using the E-pin in

order to obtain the receipt reference. Then he logins to any online bank, choose "Ministry of Finance Tax Payment", select the type of tax, insert the receipt reference and the amount in Lebanese Pounds, click "Check Payment" and choose the current account in order to execute the transaction. The amount will be debited from his account upon transaction execution and a message will be sent to his email address notifying the success or failure of the electronic settlement. In addition, citizen can pay on behalf of others from anywhere in the country or abroad, and there is an immediate acknowledgement of payment in from of Cyber Receipt – Taxpayer counterfoil generated online at the time of payment to ensure a secure and safe payment.

According to the aforementioned achievements in e-government in Lebanon, Lebanon is developing in terms of e-government applications. Here comes the importance of highlighting the factors which influence adoption and use of Information and Communication Technology (ICTs) in e-government, these factors were addressed in the beginning of this thesis while reviewing the literature on e-government in general. One of these factors were citizens' acceptance and usage of e-services and web-based technologies. However, in Lebanon, only 15% of citizens express some acceptance to use public e-services (Harfouche and Robbin 2012). According to Fakhoury and Aubert (2015) regarding active citizenship, non-technical, individual characteristics, including citizens' active citizenship and the extent to which they trust government, are significant factors influencing their choice to use e-government services. Fakhoury and Aubert (2013) stated that the Lebanese government disregarded the participation of citizens with the e-government process, ignoring their needs and demands throughout the e-government process will definitely demotivate them from using e-government, making the Lebanese citizens passive citizens and not active in the process of e-government. In

contrast, Oghassabian—Minister of State of Administrative Reform—stated that the formulated e-government strategy launched by OMSAR in 2007 was based on inputs from different stakeholders of government, academia, civil society and the private sector (OMSAR, 2007). It could be that the inputs from citizens were not taken seriously when implementing the strategy, denying the importance of active citizenship in terms of e-government adoption.

In fact, UNDP report in 2009 indicated that more than 62.7% of the total population do not trust the Council of Minister (Harfouche and Robbin 2012). Congruently, a research was done in Lebanon about the extent to which the public accept e-services which indicated that most of the public do not trust public e-services in terms of privacy and security concerns (Harfouche and Robbin 2012). Not only limited to that, Fakhoury and Aubert (2013) suggested that the reasons behind the lack of trust is due to the complex nature of the Lebanese political, economic and social system in addition to the influx of the Syrian refugees to Lebanon during the crisis since 2013. This corroborates with the notions of the trust framework previously mentioned in the literature on e-government. Glibert (2004) emphasized the importance of building trust in government to increase the rate of adoption of e-services by citizens. Trust in government is a critical factor to urge citizens to use e-services (Sharma and Pokharel 2016). Although Lebanese citizens do not trust the government, they greatly demand for e-services and express high intentions to use them (Harfouche and Robbin 2012). So, based on the aforementioned literature on e-government within the Lebanese context, the problems of trust and active citizenship are considered critical factors in the adoption of e-government in the Lebanese case at the national level, it is not about financial resources nor technical concerns.

As also suggested by Fakhoury and Baker (2016), lack of trust in Internet in Lebanon is another critical factor preventing them from adopting e-services. The same scholars added that Lebanese citizens doubt security and privacy of governmental computers, that's why they are reluctant to share their private information when using e-services. In Lebanon, primarily OMSAR and the Cybersecurity Bureau have adopted initiatives tackling privacy and security issues with regards to e-government. However, private and public administrations should collaborate in order to develop a national cybersecurity strategy and secure government cyberspace (Fakhoury and Baker 2016).

And because availability and access to Internet is greatly related to e-government adoption by citizens, it is very important to show a brief review on the availability and access to Internet in Lebanon and to briefly review the Lebanese telecommunications government. Unfortunately, data regarding the former was totally absent in the literature, the reason I searched for data in reports issued by the Ministry of Telecommunications in Lebanon, International Telecommunication Union (ITU) and Internet World Stats (WTS), Economist Intelligence Unit (EIU) and Department of Economic and Social Affairs of United Nations. The adopted data below are compared in different sources to ensure their accuracy. It is useful first to understand briefly the Lebanese telecommunications government. The Telecommunications Regulatory Authority (TRA) is responsible for liberalizing, regulating, and developing the telecommunications sector. In theory the TRA is independent from the government, but in reality, dominant Lebanese political groups possess a great deal of influence over the institution, often rendering it powerless. So, in practice, the government sets prices and issues permits for the number of subscriptions allowed, there is little competition in the

industry where the Lebanese government maintains a monopoly over the internet (Kechichian 2017).

According to the International Telecommunication Union (ITU), an estimated 76 percent of individuals used the internet in Lebanon as of 2016, a marked increase from 52 percent in 2011. The country has 53.43 mobile broadband subscriptions per 100 inhabitants, ranking Lebanon 73rd out of 192 countries worldwide, which is a significant decrease from its rank of 57th in 2014. This indicates that more than half of the total population have access to Internet. Concerning the price of Internet subscription, as claimed by a report written by Melki et al. (2012), Internet subscription prices are set by the government. Although the broadband service is poor, it has grown since 2011 after state efforts to cut costs. Also, in July 2014, a decree by the Ministry of Telecommunications lowered fees on broadband by 44 to 68 percent. Mobile phone providers offered a 500 megabyte bundle at the fixed price of US$10 for both fixed and prepaid mobile users. However, Internet Service Providers (ISPs) cannot lower prices unless a decree is issued by the Ministry of Telecommunications.

However, these were considered minor efforts regarding the speed and the high cost of mobile internet. For some, internet access over mobile networks was totally unavailable (Melki et al. 2012; Kechichian 2017). Actually, the decline in prices as well as the increase in capacity triggered the increase in internet usage and in the increased demand for e-services. However, Lebanese citizens have some of the worst internet speeds in the world. Civil society activists have used social media to protest against the high cost of mobile internet (The Daily Star 2017). In an effort to renovate the telecom infrastructure in Lebanon, the “Lebanon 2020 Digital Telecom Vision” project, launched by former telecommunications minister Boutros Harb in 2015, was set to

increase the speed of internet connections up to 100 megabits per second (Mb/s), compared to the current 8 Mb/s; however with the change in administration, there was no mention of the project in 2016 and its website is no longer active. Actually, the greatest barrier to faster growth in broadband was believed to be state control (OGERO) on the Internet (The Economist Intelligence Unit 2012).

After briefly reviewing e-government in Lebanon at the national level and realizing the main factors which influence its adoption by citizens, which was very useful as a background information on e-government at the national level. It is important to note that e-government within the Lebanese context was not much studied and e-government at the local level was not studied at all.

4.3. Content Analysis of Websites of Municipalities in Lebanon

4.3.1. Research Methods and Data Collection

According to Bryman (2012), content analysis is a "very transparent research method" for collecting documents and checking their content. This ensures reliable and accurate information, and it allows replication of the research by other researchers. Also, it is a highly flexible method and it doesn't require ethical considerations. It is a non-reactive method by which the researcher is not taken into account with the participants. Furthermore, content analysis allows researchers to collect information which is not easy to get access to. *"The coding scheme and the sampling procedures can be clearly set out so that replications and follow-up studies are feasible. It is this transparency that often causes content analysis to be referred to as an objective method of analysis."*

In order to check the presence of websites and the quality of the available websites, I used first the Lebanese e-government portal (www.dawlati.gov.lb) to make sure that it presented timely and updated information; indeed, the portal was regularly updated. I searched the directory and navigated through the categories of the public sector to check the following specific data on municipalities: emails, phone numbers, web address, address of the municipality. I checked each municipality, one by one, for the presence of a web address on the portal, which allowed me then to check the content of 211 websites—chosen randomly from various governorates. To ensure reliability of information, I contacted via phone 30 municipalities randomly selected—their phone numbers were taken from the portal—and asked respondents about their web addresses, if available. Really, this ensured the reliability of information posted on governmental portal.

Observing and analyzing websites as a secondary data was useful for fulfilling the purpose of this thesis and gave me information about the content of the websites in terms of information and services, and the statistics on the websites in terms of visitors and downloads. This allowed me to choose my sample of municipalities representing different sizes, different districts and with different stages in the e-government maturity model mentioned previously in the literature (Table 4.1).

It was important first to know the distribution of the municipalities across the various governorates because I studied adoption of websites by geographic location. Table 3.1 shows the administrative division in Lebanon, the data regarding the number of governorates and districts in Lebanon were the same in different sources rendering the data reliable in this study. Navigating through the Lebanese government portal allowed me to find the web addresses of the municipalities in Lebanon. These web

addresses allowed me to navigate through the websites in order to assess them based on the quality of the presented information and the presence or absence of e-services. According to data from different sources in the literature, it showed that the number of municipalities in Lebanon slightly differ between 1109 (Lebanese government portal), 1026 (The Economist Intelligence Unit 2012), 1107(Central Administration Statistics of 2007). The number of municipalities on the Lebanese government portal was not stated automatically, I had to count them one by one by navigating through the 26 various districts, and then navigated through each district to manually count the listed municipalities, and repeated the same process twice to ensure reliability in data (Figure 4.1).

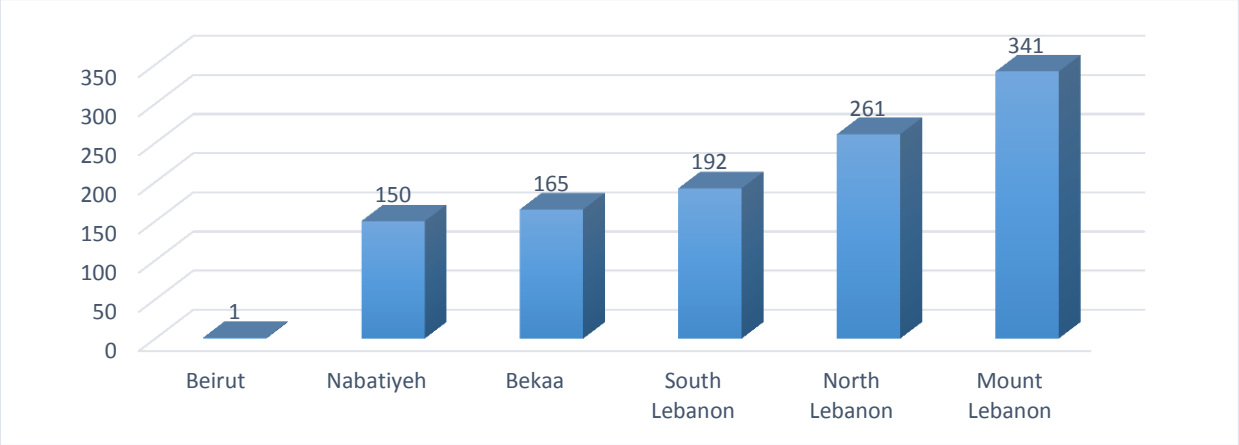

Figure 4.1 Number of Municipalities in Governorates

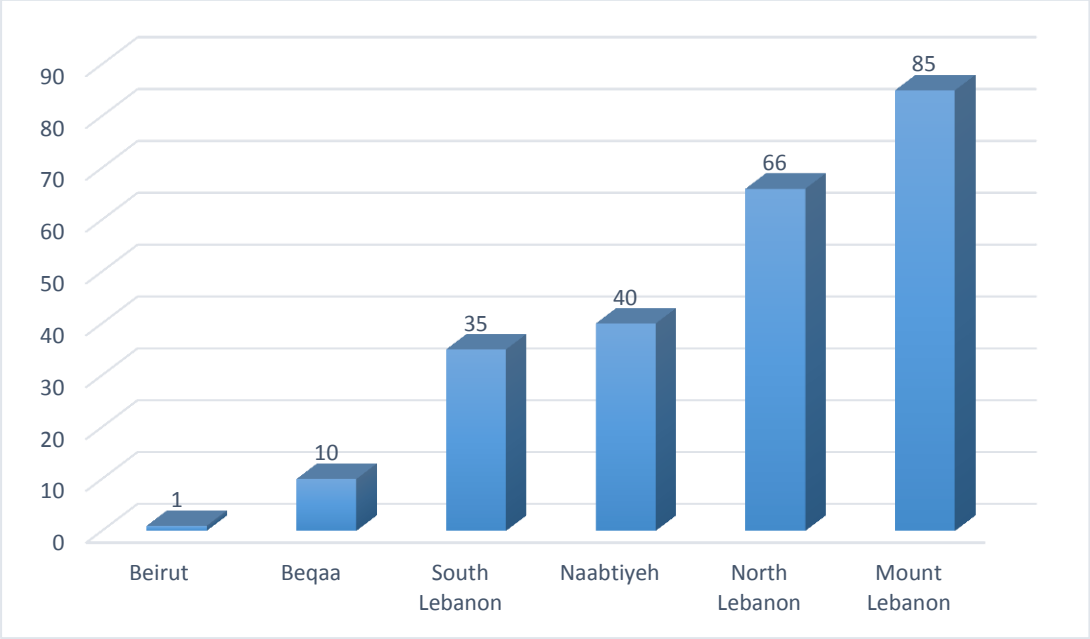

Figure 4.2 Number of Websites in Each Governorate

4.3.2. Results

Figure 4.1 shows the number of municipalities distributed across the governorates. Next, and after navigating through the government portal looking for web addresses for 1109 municipalities, to check for the number of municipalities with websites. 237 out of 1109 municipalities have web addresses across the various governorates.

Figure 4.2 showed that Mount Lebanon had the highest number of municipalities with web presence. Comparing figures 4.1 and 4.2 showed that Mount Lebanon with the highest number of municipalities also had the highest number of websites. In addition, North Lebanon ranks the 2nd largest position in number of municipalities, where it also ranked the 2nd largest position on web presence. South Lebanon had a greater number of municipalities that Beqaa and also a greater number of websites than Beqaa. In contrast, this didn't apply to governorates of Nabatiyeh and Beqaa. Although Beqaa has 165 municipalities and South Lebanon with 192

municipalities larger than the number of municipalities in Nabatiyeh; yet, Nabatiyeh had a greater number of websites than Beqaa and South Lebanon. These findings were discussed in the next chapter of this thesis.

The size of a municipality (in terms of population) was an important characteristic of technology implementation and adoption (Claver-Cortés et al., 2008). It was stated that this may be so because larger municipalities allocated greater financial and personnel resources to the adoption and use of technology (Moon and Norris, 2005). In order to understand the effect of the size of the population on web-based technologies in the Lebanese case, Figure 4.3 showed the distribution of governorates based on number of websites of municipalities and the size of the population. Because the number of municipalities is very big and their sizes are not huge in comparison to other countries, the reason behind I chose the size of governorates and not the size of the municipality. The size of the governorate is an indirect indicator for determining the efficiency of websites.

The total number of population in Lebanon was 6,000,000 million in 2016 (The Economist Intelligence Unit, 2016). This number was approximately the same in different sources. Figure 4.3 showed the size of the Lebanese population in each governorate and the number of municipalities with websites in each governorate. This allowed me to understand the effect of size on web-based technologies adopted by municipalities. According to the literature I mentioned previously, the size played an important role in municipalities' adoption of websites and other ICTs applications.

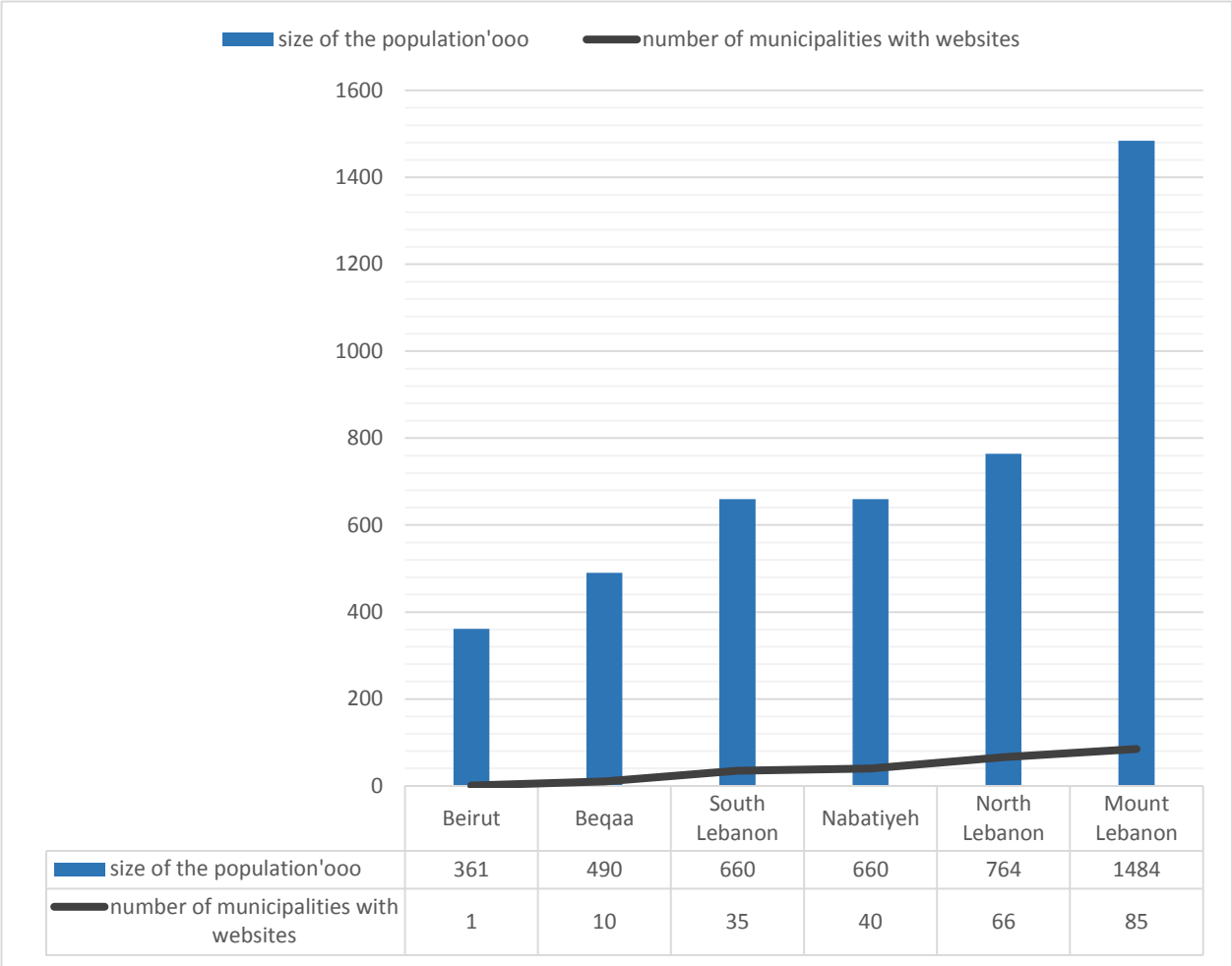

Figure 4.3 Distribution of Websites of Municipalities According to Size of Governorate

Figure 4.3 shows that Mount Lebanon with the highest number of population equals to 1,484,000, the municipalities in this governorate had adopted more websites than the other governorates. In addition, Beqaa with the 2nd position in terms of the lowest size of population, had also a small number of municipalities who have developed websites. South Lebanon and Nabatiyeh with equal number of population equals to 660,000; yet, Nabatiyeh had a more number of municipalities with websites. North Lebanon with a size of population equals to 764,000 has 66 municipalities with

websites and North Lebanon was the 2nd largest governorate in terms of size of population. The same thing for Nabatiyeh, South Lebanon, and North Lebanon. Actually, the size of the population in each governorate affected municipalities' development of websites also in the Lebanese context.

So, based on the findings above, I realized that the number of municipalities which had presence on the web in each governorate, and explained adoption of websites in terms of size of the population and geographical distribution in terms of governorates. Next, navigating through 211 websites out of 237 websites due to time limitation, in order to check the quality of the information: presence of downloadable forms, last information post, future projects, and budgets, in addition to the availability of e-services option. The results were assessed based on Layne and Lee (2000) model explained in the literature. I navigated through the websites of approximately 211 municipalities for a period of time of 10 days. The websites were chosen randomly from the six governorates. After checking the websites and looking for the presence of downloadable forms, e-services, and quality information in terms of updates and projects accomplished and to be accomplished.

Because the purpose of this thesis is to see the extent to which the websites are efficient. Table 4.2 presents the e-government stages and the websites whether they are in stage 1, stage 2, stage 3, or stage 4.

Table 4.2. E-government in Practice.

	number of websites of municipalities	
Stage 1: One-way communication/information dissemination (Yes/No)		
last information posted by November 2017	179 (Yes)	32 (No)
downloadable forms	99 (Yes)	80 (No)
Stage 2: Two-way communication (Yes/No)		
.online payments	-	211 (No)
. requests for services	-	211 (No)
Stage 3: Vertical integration (Yes/No)	-	
Stage 4: Horizontal integration (Yes/No)	-	
	Total number=211	

As shown in table 4.2, 179 websites out of 211 presented outdated information related to the municipality in terms of budgets and projects on the website (2016 and beginning of 2017) and 32 did not post any updated information on the website. 99 out of the 179 websites had downloadable PDF forms, but cannot be filled online. These forms are printed and then filled by hand. The data in table 6.1 showed that 99 out of 211 websites were in an advanced level of stage 1, while 80 of the 179 websites were in the beginning of stage 1. None of the websites had the option to fill online services or to transact electronically. The websites reflected a one-way communication through posting information and downloadable forms.

Table 4.3 showed the percentage of municipalities with websites with only updated information and downloadable forms by their governorates distribution. Mount Lebanon had the greatest percentage of 32%. In contrast, South of Lebanon had the smallest percentage of 11.1%. Mount Lebanon also scored the greatest percentage of

12.8% with websites having both update information and PDF forms. Nabatiyeh scored 12% and South Lebanon scored 10%. North Lebanon scored the smallest percentage of 8%. Municipality of Beirut had a website regularly posting information lately in 2018 and presence of downloadable forms.

Table 4.3. Percentage of Municipalities in Stage 1 of E-Government.

Governorates	Percentage of municipalities with last information posted minimally by November 2017	Percentage of municipalities with both updated information and PDF forms
Beirut	100%	100%
Beqaa	N/A	N/A
South Lebanon	11.1%	10%
Nabatiyeh	13.9%	12%
North Lebanon	24%	8.3%
Mount Lebanon	32.9%	12.8%
Total without Beirut	82.9%	44.1%

Mount Lebanon scored the highest percentage in both features of stage 1. Yet, none of the municipalities' websites reflected a two-way communication.

Users' satisfaction

In order to have a more accurate measure, I used www.siteworthtraffic.com to check web traffic on the websites with downloadable forms in terms of percentage of visitors and percentage of people who actually visited the page pertaining to forms (Figure 3.4). The average number of daily users for websites in each governorate ranged between 3 and 111 users. Municipality of Beirut scored the highest number of users. The remaining governorates scored less than an average of 80 daily users. The percentage who visited the webpage containing downloadable forms was very small ranging between 0.5 and 6.33 %.

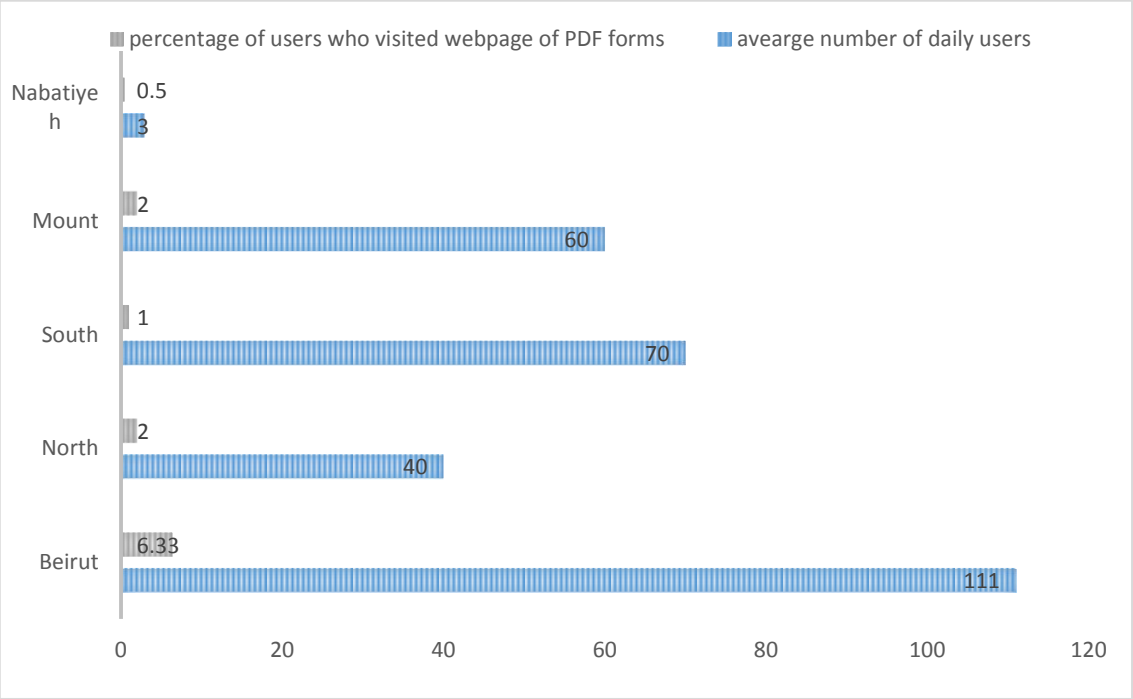

Figure 4.4 Web Traffic

For example, the website of municipality of Beirut reaches roughly 111 unique users each day (figure 4.4).

Figure 4.5 below showed the percentage of traffic sources for municipality of Beirut in the last three months: December, January and February. 11.9% represented direct search for the website. 67.36% represented those who used keywords to visit the website. 14.34% used social media to visit the website. 6.33% visited the webpage pertaining to the PDF downloadable forms.

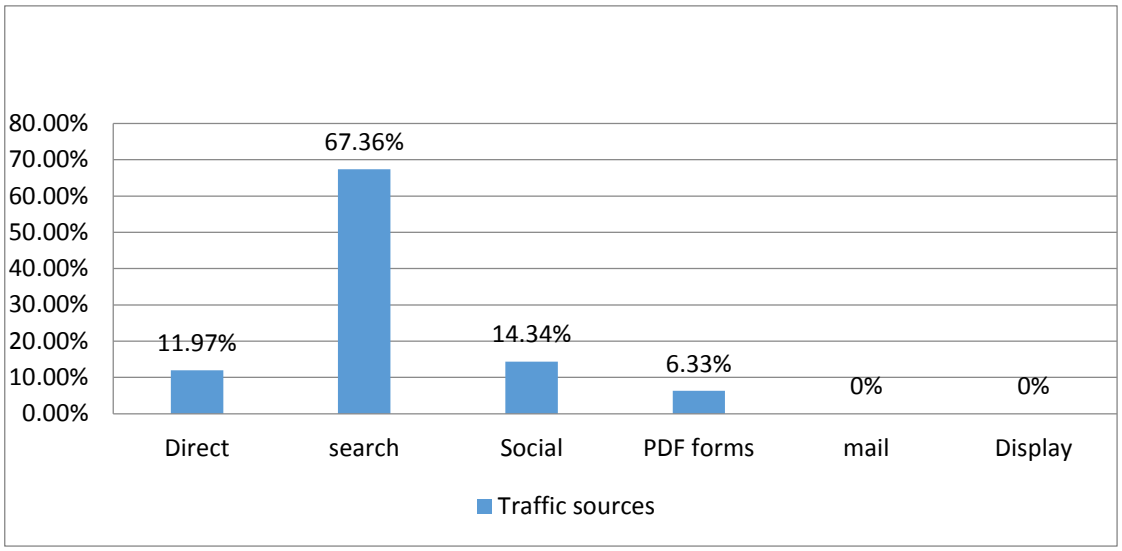

Figure 4.5 Traffic Sources

In this thesis, I explained e-government by focusing mainly on the efficiency of the websites of municipalities, but it was interesting and useful to briefly state that some municipalities had launched mobile applications in addition to their presence on the web. I knew first that municipality of Jezzine had a mobile application when reviewing the latest updates on municipalities. So, I downloaded the App on my mobile phone to explore the features and the content of the App. Indeed, the App involves e-services

(stage 2 of table 3.1). While downloading the App, other Apps for other municipalities in Lebanon were recommended to me by the phone.

Table 4.4 showed the municipalities who launched mobile applications, all the governorates had one municipality which already implemented e-services through the App. Surely, the number was considered small with respect to the big number of municipalities; still, these municipalities had progressed from stage 1 into stage 2 (Table 3.1) using mobile Apps. Yet, the websites of these municipalities were still in stage 1. Because of the absence of e-signature law, these applications have the option of e-services for citizens, citizens can pay related fees to applications via the banks easily and safely.

Table 4.4. Municipalities with Websites and Mobile Applications.

Governorates	Municipality
Beirut	Beirut
South Lebanon	Jezzine
North Lebanon	Zgharta
Nabatiyeh	Bint Jbeil
Mount Lebanon	Qarnayel

3.4. Analysis of E-government in Municipalities in Lebanon

Referring back to figures 4.1 and 4.2, Mount Lebanon governorate has the largest number of municipalities and the largest presence of its municipalities on the web. But, this was not always the case, the bigger number of municipalities in a

governorate didn't mean that this governorate automatically had more presence on the web (municipalities' websites) and it was more efficient. Again efficiency as explained in this thesis referred to the bigger number of websites by each governorate and the quality of each website in terms of the services provided. Only Mount Lebanon and North Lebanon showed a relationship between the number of municipalities and the number of websites corresponding to these municipalities. In contrast, the other governorates did not show this relationship at all (Figures 4.1 and 4.2).

Figure 4.3 showed that Mount Lebanon with the highest number of population, municipalities in this governorate adopted more websites than the other governorates. Congruently, North Lebanon ranked the 2nd after Mount Lebanon in terms of its size and adoption of websites by the municipalities within North Lebanon. The same thing applied to Beqaa governorate. So, the size of the population in each governorate affected municipalities' development of websites in the Lebanese context. This matches my conceptual framework and the influence of the size of the municipality on e-government adoption and the efficiency of the websites as stated by researchers. In the case of Lebanon, the size of the governorate in terms of population played a role in increasing the adoption of websites by municipalities. The highest the number of population in the municipality, the more efficient the website is. The high number of population means more direct taxes collected and so more revenues for the municipality. More revenues means a larger budget and thus more financial resources to develop a website or to keep the website updated. This confirms the conceptual framework about the importance of financial resources to develop websites and to keep the websites updated.

Indeed, observing information quality in terms of the last information posted on websites of 179 websites showed that 82.9% of these websites post regularly on the website and have recently posted on their websites. While 44.1% have downloadable forms which can be printed and filled online in addition to posting regularly on the website. None of the websites had the option of e-services (Tables 4.2 and 4.3). This implies that most of the websites are still in stage 1 of providing citizens with information. It is a one-way communication. Although the municipality of Beirut, as mentioned by the interviewee, is aiming to adopt the option of E-payment on the website.

Indeed, traffic of websites confirmed this where all the governorates had less than 80 daily users of the websites of municipalities except for Municipality of Beirut which reached 111 unique users each day. Less than 10% of users visited the page pertaining to downloadable available forms in all governorates. This confirmed users' willingness and acceptance to use services adopted on the websites as a major factor in the success of e-government. Even if the municipalities have downloadable forms and e-services, this doesn't guarantee that users will download the forms and use the services on the websites. So, working with citizens is important to encourage them to adopt these services.

The results confirmed Delone and Mclean (2004) information technology success model. The quality of the information posted on the websites was not very up-to-date and relevant in all municipalities. In addition, quality of services was very low in most of the municipalities due to the absence of e-services option. The absence of e-services option will not benefit people in having easier and faster applications. So, according to Delone and Mclean (2004), low information and service quality indicates

dissatisfaction of citizens. Indeed, the websites of municipalities are rarely visited by citizens due to the low quality in terms of information and service. The websites represented stage 1 of e-government. Indeed, websites who have downloadable forms are more visited than the ones who don't have downloadable forms. This also matches with Delone and Mclean (2004) information technology success model that information quality and service quality are two important dimensions for encouraging and motivating citizens to use the websites. In the case of Lebanon, both information and service quality were low. Such low qualities in information and services would be explained from different perspectives.

Based on the aforementioned duties and responsibilities of the governor and district commissioner, I realized that the responsibilities of both the district commissioner and the governor were somehow similar in nature, and both are appointed by the Council of ministers which definitely led to more political involvement in the process of decentralization. Electing district commissioners directly by citizens was highly recommended to ensure public participation and democracy and to reduce corruption, ensuring equal distribution of financial resources and funds to the various districts and municipalities and not based on political concerns. Indeed, denying the opportunity for citizens to elect local public representatives led to corruption, by which citizens were not allowed to hold appointed public officials accountable (Seabright, 1995). It was much easier for citizens to hold local elected public officials accountable (Devas, 1997).

Actually the Municipal Act of 1977 in Lebanon reflected the large oversight done by district commissioner, governor, and the Minister of Interior and Municipalities. Oversight of municipalities by the central government was necessary to

prevent corruption. Even if the local public institutions were autonomous, still they should be controlled and supervised by central government mainly in developing countries, ensuring a good performance by local authorities (Kalash, 1997). The exercise of central control over local decentralized authorities prevented corruption and irrelevant expenditures (Weingast, 2008). However, the greatly oversight done by appointed public representatives—similar in responsibilities and duties— over municipalities led to more political interferences and increased unnecessary demands and rules. Actually, these three control bodies had the right by law to certify decisions made by municipalities related to planning, budgeting, financial accounts and other financial and administrative concerns. Indeed, supported by the literature above and relating the latter to the e-government context, political issues and excessive demands and rules were among the external factors which influenced e-government adoption in local governments (Table 3.2).

CHAPTER 5

UNSERSTANDING E-GOVERNMENT IN MUNICIPALITIES THROUGH ACTORS

5.1. Interviews Research Method

And to further develop and understand these factors I conducted semi-structured interviews with administrative staff in Lebanese municipalities from different districts. As suggested by Bryman (2012), semi-structured interviews allowed the interviewer to ask already prepared open-ended questions and to ask instant questions based on the replies of the interviewees, which allowed me to gather more information on the topic. I conducted semi-structured interviews with staff to share the views of those staff on factors influencing the adoption and development of websites in Lebanon. The main purpose of conducting interviews with the staff was to prevent gaps that could exist if only the input from the literature was to be used.

And because the reasons for e-government success or failure varied from situation to situation (Rose et al. 2015); therefore, I identified key factors that influenced the adoption and implementation of local government websites within the Lebanese context and compared them to the existing factors in the literature. This supported identification of some of the factors that influence the success or failure of adoption of information and communication technologies in municipalities in Lebanon, and awareness of these factors is of paramount importance to the further development and progress of websites by Lebanese municipalities.

After using non-probability sampling and getting the approval of the institutional review board (IRB) at the American University of Beirut, I sent recruitment

emails to 20 municipalities; unfortunately, only two emails reached their destination while the others were unidentified emails. Though I sent recruitment emails and reminders after three days, but I didn't get any reply. Then, I contacted the selected municipalities via the phone publicly provided on their websites and asked them to participate in the study. They were informed about the objectives of the study via the phone and that the interview will last not more than 15 minutes. Then, after having their approval to participate in the study via the phone, I scheduled appointments with them (Table 5.1). I prepared a series of 10 open-ended questions to be asked during all the interviews (Table 5.2). The selected 20 municipalities are asked the same questions presented in Table 5.1, which allowed me to highlight and compare the critical factors influencing the efficiency of their websites in terms of information and e-services.

Table 5.1. Set Dates of the Interviews with Municipalities.

Municipalities	Dates of the interview	Duration of the interview (minutes)
municipality of Beirut	9/4/2018	10
municipality of Saida (South Lebanon)	18/4/2018	10
municipality of Tyre (South Lebanon)	16/3/2018	15
Municipality of Jezzine (South Lebanon)	18/4/2018	13
municipality of Hanaway (South Lebanon)	16/3/2018	10
municipality of Choiefat (Mount Lebanon)	9/4/2018	15
municipality of Abadeyeh (Mount Lebanon)	13/4/2018	15
municipality of Habboush (Nabatiyeh)	16/4/2018	15
municipality of Douair (Nabatiyeh)	16/4/2018	13
municipality of Aley (Mount Lebanon)	13/4/2018	13
Municipality of Bkassine	09/11/2018	15

Municipality of Lebaa	09/11/2018	15
Municipality of Mjeydel	09/11/2018	15
Municipality of Roum	09/11/2018	15
Municipality of Harouf	11/11/2018	15
Municipality of Jebchit	11/11/2018	10
Municipality of Arnoun	11/11/2018	10
Municipality of Deir el Zahrani	11/11/2018	10
Municipality of Jarjouh	11/11/2018	10
Municipality of Maroun	12/11/2018	15
Municipality of Rchaf	12/11/2018	10

Table 5.2. Interview Guide.

Interview questions to the staff (employees) in municipalities
1) Why did you develop a website? 2) When was it developed? 3) How do you define e-government? 4) What are the services you are presenting on the website? 5) What are the importance of those services to the citizens presented via a website? 6) What is your role as an administrative staff in the municipality? 7) What are the challenges faced? 8) From where did you get the funding? What was the source of the funding? 9) How are you communicating with the central government? 10) To what extent is the lack of e-government from the central government affecting you?

5.1.1. Ethical Considerations

The contacted municipalities were assured of the strictly confidential character of the study as well as the anonymous treatment of the data to be obtained through the interviews. Any information that was obtained in connection with the study remained confidential. The collected data remained confidential and anonymous. All data were kept in a password-protected computer that was kept secure and notes taken during the interviews were kept in a locked file drawer. Anonymized interview data might be shared between members of the research team, my MA thesis committee, or included in the thesis text. The participants were given the choice to be in this study or not, and they were informed that they may withdraw at any time without consequences of any kind. They had the right to discontinue participation at any time for any reason.

Data collection

During the interviews, I took notes so as to make sure that I remember accurately all the information they provide. Taking notes during the interview facilitated easy reference to the answers they provided. The data collected during the interviews were analyzed instantly at the same day to ensure remembering all the information. Data collected were grouped into themes to show the main critical factors influencing development and efficiency of web-based technologies.

I compared the derived themes and grouped them into web-based technologies adoption factors. The new derived themes were compared to the adoption factors in Table 4.1 and differences and/or similarities were highlighted within the Lebanese case. Consequently, analyzing the data enabled me to explain and understand the efficiency of web-based technologies within Lebanese municipalities.

5.2. Factors of Website Development

Regarding question 1 in table 5.2, some of the he interviewees stated that the website is important for the citizens to contact us, others stated it was created for tourists to check our touristic places and to keep citizens updated about the accomplished projects and future projects to be accomplished. Two interviewees said: "*The website was not that useful until forms were available for citizens to download*." Actually, most of the answers were similar in that websites were developed for citizens, though their answers were too general. Table 8 shows the time the websites were developed. Three of the interviewed staff said the website was developed 3 years ago, 5 of them said 4 years ago, and the remaining two staff couldn't remember the exact year. So they replied: "I can't remember the exact year, but for sure the website has been present for more than three years." The remaining interviewees said that the presence of a municipality on the web is of paramount importance to increase transparency of municipality and provide more efficient public services to citizens.

Table 5.3. Adoption of Websites by the Interviewed Municipalities.

Longevity of websites	Number of municipalities (Total=20)
Less than 1 year	None
1-2 years	None
2-3 years	None
3-4 years	20

It was important to ask the interviewees about their definition of the concept e-government. The interviewees in Mount Lebanon, Beirut, and Nabatiyeh were familiar with the concept, stating that e-government is providing citizens with faster and easier applications. These interviewees stressed on two words: “faster” and “easier”. Although the definition was not very complete regarding e-government, but they were aware of the outcomes of e-government. In south governorate, interviewees were also aware of what e-government does to citizens, except for the interviewee in municipality of Hanaway stating: “What do you mean by e-government?” After briefly explaining e-government to him, he replied: “Ok. I know what it does. But the word e-government was unfamiliar to me.” In general, the interviewees realize the benefits and outcomes of implementing e-government applications, where they defined e-government in terms of its respective benefits.

In regards to the services they presented on the website, none of the interviewees stated the presence of e-services. The stated services did not enormously differ between these municipalities.

Table 5.4 presents the stated services by each municipality with respect to the services that could be present on a website based on the literature of this thesis.

Table 5.4. In Accordance to the Conceptual Framework.

	Information Quality (updated, relevant)	Budget	Support of municipal council	Online services	Managerial commitment	Rules and demands	Citizens' satisfaction	Age of citizens
Tyre	Yes	Yes	Yes	No	No	Yes	No	Yes
Jezzine	Yes	Yes	Yes	No	Yes	No	No	Yes
Hanaway	No	Yes	Yes	No	No	Yes	No	Yes
Saida	Yes	Yes	Yes	No	No	Yes	No	Yes
Habboush	No	Yes	Yes	No	No	Yes	No	Yes
Douair	No	Yes	Yes	No	No	Yes	No	Yes
Beirut	Yes	Yes	Yes	No	Yes	Yes	No	Yes
Aley	No	Yes	Yes	No	No	Yes	No	Yes
Choeifat	Yes	Yes	Yes	No	Yes	Yes	No	Yes
Abadeyeh	No	Yes	Yes	No	No	Yes	No	Yes
Bkassine	Yes	Yes	Yes	Yes	Yes	No	Yes	No
Lebaa	Yes	No	Yes	No	Yes	No	No	No
Mjeydel	Yes	No	Yes	No	Yes	No	No	No
Roum	Yes	No	Yes	No	Yes	No	Yes	No
Harouf	Yes	No	Yes	No	No	No	Yes	No
Jebchit	Yes	No	Yes	No	Yes	No	No	No
Arnoun	Yes	No	Yes	No	Yes	No	No	No
Deir el Zahrani	Yes	No	Yes	No	Yes	Yes	Yes	No
Jarjouh	Yes	No	Yes	No	Yes	No	Yes	Yes
Maroun	Yes	No	Yes	No	Yes	No	Yes	Yes

The table above showed that all the municipalities used their websites to post information about projects, and future events. The main differences in services were concerned with the availability of downloadable PDF forms; only three municipalities had PDF forms on their websites: Jezzine, Beirut and Choeifat. None of the websites had the option to request applications online or fill the PDF forms online. In addition, the interviewee from the municipality of Beirut said that the municipality council decided to add a payment function on its website within a year where people will be able to do their payments without having to go to the municipality, facilitating the process of paying taxes since people won't have to wait in long queues in governmental buildings anymore. However, people will still be able to pay their fees at the municipality of Beirut. In this regard, I asked the interviewees about the importance of availability of such services on the websites to citizens. So, information quality in terms of updated and relevant information was efficient in some municipalities according to Table 5.4.

Table 5.5. Percentage of Municipalities by Each Stated Benefit.

Stated benefits by the interviewees	**Percentage of municipalities**
"More interaction with the citizens"	70%
"Easier contact with the citizens"	90%
"To be developed"	90%
"Let the citizens know what we are doing"	70%
"It is also for the tourists to check our places"	30%
"important for Lebanese living abroad"	60%
"faster for citizens to download forms and then fill them by hand than coming to the office back and forth"	30%
"other municipalities can check our projects, so if there are common projects, we can work together on them"	50%
"attract funds from international organizations and/or businessmen in the city through showing on the website our future projects"	30%
"more people will visit our events when they are informed about them"	70%

The percentages differ between the benefits stated in table 4.5. The highest percentages goes to: easier contact with the citizens, to be developed, more interaction with the citizens, inform the citizens about what the municipality is doing, and to encourage people to visit events (90% and 70%). These benefits show the importance of websites launched by these municipalities. Only three interviewees in municipalities of Beirut, Jezzine, and Tyre stated the importance of websites to attract the tourists, which is kind of interesting. What was really interesting and innovative in these benefits is that 5 of these municipalities: Tyre, Saida, Beirut, Aley, and Choeifat stated that they use the websites to post their future projects where other employees in other municipalities can share information regarding these potential projects. Three of the municipalities: Aley, Choeifat and Habboush, added that the website allows them to post future projects and thus representatives from different international organizations may visit their websites and may be interested in the future projects, attracting funds and information regarding potential projects.

Concerning the challenges faced upon launching the websites, none of the municipalities mentioned any financial constraints. The process seemed to be easy for most of these municipalities. One interviewee from municipality of Jezzine said: "We didn't face any challenge, but maybe now we are facing the challenge of competition between our website and our Facebook page, more people prefer to open the Facebook page." She continued smiling: "people want something fun maybe." None of the municipalities suffered from technical challenges, because one of the interviewees said: "I learned some IT skills over the phone, not hard at all." Another interviewee said: "The municipality contracted out an IT engineer to design the website." He also added: "This is faster and easier than us learning new skills." Even the launching of a mobile

App by the municipality of Jezzine was not challenging at all as mentioned by the interviewee. She said: “The municipal council filled a form to be approved by the central government, and it was approved in a period of 10 days.” In addition, the municipality of Jezzine did many workshops and distributed brochures to inform citizens about its importance in making services easier and faster.

Indeed, the mobile App targets specifically citizens of Jezzine who live outside Jezzine, allowing them to request applications online, fill them electronically, and pay online; rather than coming to the office of the municipality itself, saving them time and costs. Launching of the mobile App was done through partnering with the private sector to develop the App, the interviewee received basic IT skills over the phone with no referring to any encountered challenges. She added that the App is new to peoples of Jezzine, they need time to start using it when they see its promising results in terms of time savings and fast services. I interrupted her and asked her about whether there are services on the App targeting Lebanese diaspora, she said that no not. This reflected that the services offered on the App were directed only for Lebanese residents not for the diaspora. Although 60% of the interviewees said that websites are important for Lebanese living abroad to check the projects done by the municipality; yet, none of them have services on their websites that target Lebanese diaspora.

80% of the interviewees stated that their municipality has contracted out IT professionals for better development of their websites. I interrupted and asked them: “Why don’t you have staff who have IT skills?” two of the respondents said that it is not easy to hire public servants in Lebanon, the process is political in nature, while the others said it is easier and less costly to contract out IT professionals rather than hiring

new staff and training them. One of the respondents said: “Who will work in the municipality to get paid 400,000 L.L.?”

When I asked about the sources of funding of the websites, one of the respondents said: “I know nothing about who funded the website, but what I surely know is that our municipality gets a lot of money from the central government, so I assume it funded the website.” The other respondents stated that their municipalities funded the website using money from the collected taxes. The interviewee in the municipality of Tyre said: “The municipality gets money twice a year from the central government and sometimes more.” Another interviewee in the municipality of Choeifat said: “developing a website is not that expensive if the website is simple in its nature, the more features you include in it, the more it becomes costly.” He added: “A simple website can cost 500$, but a more interactive website will cost 5000$.” So, these municipalities didn’t face much financial challenges because most of their websites were not interactive in nature.

Regarding their communication with the central government, 80% of the municipalities said that they are local authorities and municipal councils take their own decisions regarding the local communities. In fact, one interviewee in the municipality of Choeifat said that communicating with the central government is not that necessary, especially that sometimes the municipal council have good relationships with wealthy businessmen in the city, who support them financially in some projects.” Yet, other interviewees said that they communicate with the central government through the appointed district commissioners and governors in cases of planning and budgeting. One of the interviewee said: “To develop a website, we had to wait for the approval of the district commissioner, it was a long process to develop a simple website.” He

continued and said: “upon receiving the approval, the president of the council instantly started working on the website development.”

Concerning the influence of the lack of e-government from the central government on municipalities, 80% of the interviewees suggested that it would be much easier and faster to communicate with the central government and finish applications through the web. It will save them a lot of efforts and time. The remaining 20% said that the problem is not with the presence or absence of e-government in the central government, the problem is with the citizens’ willingness and acceptance to use the web-based technologies and advanced features on the websites (e-services) whether developed by municipalities or central government. I interrupted asked them if they send regularly surveys to check users’ satisfaction or any other method. None of the interviewees said that they do surveys to check users’ satisfaction. Then, I asked if they know the concept of “web traffic”, also none of them knew it or used it before to check visitors of the website.

According to the interviews, municipalities in Lebanon are aware of the importance of websites in making access to services faster and easier. In addition, municipalities in Lebanon used the websites for other reasons such as: encouraging tourists, communicating with other municipalities and informing them about their latest projects, in addition to attracting wealthy businessmen in the city or village to fund their public projects. These were interesting benefits revealed by the interviewees and reflected their innovation through their communication with other stakeholders in the society. This matches the conceptual framework in the importance of developing communication channels and municipal networks to have better opportunities to develop their websites. Indeed, interviewees used these communication channels to

have bigger budgets and to have more financial resources from different donors. Having financial resources allows municipalities to develop websites and keep these websites updated. Consequently, municipalities in Lebanon do not rely heavily on the central government in case there is shortage in funds, they have other options to get funds from other stakeholders. So, keeping good relationships with donors is a very important factor for municipalities in Lebanon to develop websites.

On the other hand, municipalities in Lebanon are not aware of their citizens' needs and demands, they use the website only to interact with the citizens through providing their contact numbers and emails. Social media dominance over websites was another problem highlighted by interviewees. This could be explained in that Lebanese people use social media for fun and personal motives and they instantly open their Facebook pages to check news about their relatives and friends. It might be the reason they open Facebook page of the municipality more than the website, especially if both sites post same information. Of the information posted in the website lacks quality in terms of completeness, relevance, and updates, then citizens prefer Facebook pages rather than websites. However, if the website is beneficial to citizens in terms of information's quality and systems' quality, then citizens are encouraged and motivated to use the websites. Also, availability of e-services on the website which make their lives easier and faster encourages them to use the websites more than the Facebook pages. This confirms the literature about the importance of information's quality and systems' quality. Designing the web while taking into consideration the quality of the information posted is considered an important factor in determining the efficiency of the website.

Another important factor highlighted by an interviewee is that their communication with the central government is very administrative in nature, by which any application requires the approval of district commissioner, governor, then the Ministry of Interior and Municipalities. Going back to the literature of this paper, central government is making great initiatives and becoming more and more e-government. Yet, the national e-government strategy set by OMSAR did not include any action plans or objectives aiming to communicate with the municipalities online or to improve the efficiency of the websites of municipalities. Changing the communication between the central government and municipalities from administrative procedures and paperwork to a more electronically environment, could possibly make the communication faster and easier encouraging other municipalities to develop websites.

Furthermore, integrating the municipalities in their action plans towards e-government plays a significant role in spreading awareness for other municipalities about the importance of e-government. So, the ones who don't have a website will be motivated and encouraged to develop one, while the others who already have one will develop it more. The literature in this paper showed that although the Ministry of Telecommunications has recently lowered the prices of Internet. However, this is considered a slight change, more people will use Internet if prices are lowered more and the speed is enhanced. This is somehow difficult because of the monopolistic nature of OGERO in deciding the prices of Internet. Here comes the role of political issues which indirectly could influence the use of websites. If the Internet is not that costly, then the number of users will increase and so more users will visit the websites. Lebanese people will increase their trust in government when such services like Internet is decreased in

cost, so more people will use the websites and more municipalities, especially the rural ones, will develop websites and become more efficient in e-government.

To add, most of the interviewees emphasized that municipal council is very supportive with the development of websites. One of the interviewees said that the municipal council played an important role in developing the website and a mobile application; workshops were done to introduce the mobile application to people and to teach them about its importance. While others did not mention anything about the support of the municipal council. Indeed, those that don't have the support of the municipal council showed less progressiveness in the advancement of websites. Their websites are outdated and they don't have downloadable forms. Actually, the municipal support plays an important role in the efficiency of the websites. Developing strategic plans by municipal councils is very important for them to assess their objectives based on the available resources. In addition, none of the interviewees stated that they do SWOT analysis before developing their websites, this definitely causes their inefficiency when implementing e-government. It is of paramount importance to do SWOT analysis, which guarantees the efficiency of the websites. To add, none of the interviewees stated the importance of their commitment to e-government adoption.

The lack of staff commitment to e-government adoption is considered one of the factors which could negatively influence the adoption of e-government strategies. Interviewees were not motivated to use the website of the municipality, in addition to the lack of their IT skills and capabilities and the lack in the number of staff in each municipality. One of the interviewees stated that most of the staff in the municipality are old and they don't acquire skills related to IT. However, hiring civil servants in Lebanon is a very complicated procedure and most of citizens prefer to work in the

private sector rather than working in the public sector because of the low wages in the Lebanese public sector. Consequently, some of the municipalities contracted out IT people, and this surely requires additional costs. That's why many municipalities always seek for funds from international non-profit organizations. However, the funds should always be sustainable to guarantee good results pertaining to e-government adoption.

Some of the interviewees stated the excessive administrative demands and rules when it comes to planning, budgeting and other decisions taken by the municipal council. Any paperwork needs to be approved first by the district commissioner, then the governor, and then the Ministry of Municipalities. Actually, these control authorities are very important to oversight these municipalities and to prevent corruption and any irrelevant expenditures. However, the lack of communication between central and local governments in an efficient way without such excessive administrative reforms is crucial for municipalities to adopt e-government applications.

According to the answers of the interviewees, citizens were not integrated in the procedure of website development. Their needs and demands were not taken into consideration. To add, none of the interviewees said that they do surveys to ask about their opinions regarding the website. Satisfaction of citizens was not considered something important to them. The reason behind their lack of use of the websites. Integrating citizens in the development of the website was considered an important external factor for having an efficient adoption of websites. So, the inefficiency of the websites of Lebanese municipalities could also be explained in terms of absence of citizens' involvement in the process of e-government adoption. Citizens form a critical factor in the efficiency of the websites using their recommendations and demands into high consideration when putting action plans.

Furthermore, three of the interviewees stated that these websites are mostly used by educated and young people, and that the elderly prefer to come to the municipality and submit their applications through face to face interactions. Such socioeconomic conditions between citizens also played an important role in the efficiency or inefficiency of e-government. More awareness and workshops could be implemented in cities and villages to let citizens know the importance of websites, how to use them, and how using them makes their access to public services easier and faster. Underestimating the elderly and those who don't know how to use ICT applications leads to digital divide, which is one of the challenges of e-government adoption. In addition to those who don't have access to Internet because of bad economic conditions. However, religion didn't constitute a factor in Lebanon, none of the interviewees claimed the importance of religion in determining the efficiency of websites. In contrast to other Arab countries where religion was one of the factors which influenced the use of ICTS.

Information quality

The quality of the information posted on the websites of the interviewed municipalities in terms of updated and relevant information, was not very efficient in all the municipalities. 5 out of 20 interviewees stated that the information was updated and relevant to citizens in terms of projects and activities of the municipalities. The others' websites were not updated and they post general information not specific to the municipality. This is because of the lack of financial and human resources, these municipalities have lack in staff and they don't always get funding from the central government. They managed to get funds twice from donors, but that was not sustainable.

Budget

According to the answers of the interviewees, they stated that they got funds from central government and others from donors. However, the money is spent on other services rather than spending the money on developing the websites. They believe that spending money on the development of the website is irrelevant because citizens will not use it. On the other hand, municipalities should spend money on the websites and enhance the information posted and the services in order for citizens to use it.

Support of the municipal council

Some of the interviewees emphasized that the municipal council is very supportive when it comes to e-government implementation. However, none of the interviewees stated that they develop e-government plans. The absence of definite plans with specific goals is an impediment to the success of e-government implementation. Some of the interviewees stated that the municipal council cares about implementing other projects and activities such as: infrastructure of the village. So, e-government adoption is not a priority for all municipalities. E-government is not considered a valuable commitment; however, some municipalities develop websites for the sake of good reputation only.

Online services

None of the websites of the interviewed municipalities have the option of e-services. All of them claimed that it is a complex procedure to adopt e-services, in addition it requires more financial resources than having a simple web. Furthermore, most of the interviewees said that there are many legal constraints which prevent them

from adopting online services. The adoption of online services require collaboration and support of the central government. According to Delone and Mclean, the unavailability of online services discouraged citizens from visiting the websites. Some municipalities have already started to develop online services.

Managerial commitment

None of the interviewees emphasized the importance of managerial commitment in e-government adoption and success. Municipalities suffer lack of employees, so they need to contract out IT specialists when it comes to adoption of e-government. This is additional costs for the municipalities. The staff in municipalities require more IT training skills and workshops in order to increase their commitment to e-government adoption, and to better understand the importance of having an efficient website. Employees play an important role in the success of e-government. Some municipalities have already started to develop their IT skills through workshops and training courses, which have really helped them to improve in terms of e-government implementation. More municipalities are willing to learn from other municipalities and improve their e-government initiatives.

Rules and demands

All of the interviewees stated that their municipalities suffer from extensive rules and demands when it comes to budgeting and adoption of projects. Although these rules and demands are essential to oversight municipalities by control authorities; however, redundancy in rules and demands prevent municipalities from being efficient. Especially that municipalities need the approval of control authorities when

implementing any project or when asking for funds. In addition, none of the interviewees asserted that they do surveys to ask about the opinions of the citizens. Disregarding citizens' recommendations is a critical factor which influences the efficiency of the adoption of e-government. Furthermore, some of the interviewees said that elderly prefer to come to the municipality itself rather than vesting a website. The elderly do not know how to use a website, so it is easier for them to visit municipalities. Indeed, e-government adoption leads to digital divide, but municipalities can put effective strategies in order to decrease the influence of digital divide on the efficiency of e-government adoption in Lebanon.

Interview with Sakker el dekkene and ArabiaGIS

Interview questions to the staff (employees) in municipalities
1) Why did you develop a platform? 2) When was it developed? 3) How do you define e-government? 4) What are the services you are presenting on the platform? 5) What are the importance of those services to the citizens presented via a platform? 6) What are the challenges faced? 7) From where did you get the funding? What was the source of the funding?

This initiative seeks to promote transparency between municipalities and residents creating web platforms that serve as two-way communication channels. This initiative called the Baldtai Madinati project, was launched with funding from USAID, and implemented by Lebanese NGOs Sakker El Dekkene and ArabiaGIS. It created websites for municipalities that have a dual goal, the interviewee added that this

initiative allows local governments to share information about their operations and financial performance, and giving residents a platform to provide input. In its initial phase, the project took on five municipalities in South Lebanon: Jezzine, Bkassine, Roum, Qaitouleh and Haitoura. The interviewee mentioned some challenges faced in implementing it, including insufficient human resources at the municipalities to help maintain the platforms and disagreements with the municipal administrations about what information should be published. He also added that it has been an uphill battle to catch the attention of residents, many of whom don't view questions of good governance and transparency as high priorities. He said that in many cases, residents were not even aware of their rights or their municipality's responsibilities. So, this tool aimed to give them the tools to hold public officials accountable, he explained. *"We believe that the fight against corruption doesn't come from above – it's not something that members of Parliament or ministers do. The citizens need to be an active part in the fight against corruption," he said. "To do that, they need information."*

He also said that the involvement with the platform has developed only slowly, but organizers said that they have seen some promising signs. For instance, a petition published on Jezzine's website opposing a rock – project in the Kfar Falous area reached 139 signatures. *"We do believe that municipalities have duties toward the citizens to show them everything they're doing, because in the end, everything they're doing comes from their money,"* he said. He also that that the organizers of this initiative chose to establish a new website for each municipality rather than working on the existing one because they believed that a new platform would definitely attract more interest from citizens, many of whom have lost their trust in the government. *"Everything that's new is attractive and motivating for the people,"* he said.

The next phase of the project expanded to municipalities in the North, and the five initial web platforms were turned over to their respective municipalities to keep going forward, he added. The initiative came as Lebanon is – in theory – implementing a newly adopted law aimed at increasing transparency among public agencies, which requires them to publish certain information, including budgets, annual reports and financial transactions of more than LL5 million ($ 3,500), on their websites, he explained.

Interview with ArabiaGIS

The interviewee said that the BALDATI platform was developed under the USAID-funded BALADI CAP program. The BALDATI platform is a direct outcome of an advocacy project and capacity building effort by BALADI CAP grantees ArabiaGIS and "Sakker El-Dekkene" since October 17, aiming at creating an active space to monitor the municipal operations and ensure transparency, accountability and access to information at the local level within the municipalities of Jezzine, Bkassine, Roum, Qaytouli, and Haytoura, he explained. He also said that the platform contributes directly into USAID objective of improving municipal services and responsiveness to the demands of citizens. *"We also started the phase two of Baldati Madinati as part of a grant from Baladi CAP to improve transparency and access to information in North Lebanon,"* he said.

Top-down and bottom-up approaches

The lack of e-services on all the websites of Lebanese municipalities and lack of e-government could be explained by either a top-down approach or a bottom-down

approach. The top-down approach is explained by the current Lebanese law which doesn't allow for e-signature. People need to sign in personally and hence go to the municipality for every paperwork instead of doing it online. If municipalities want to move beyond stage 1, e-signature must be allowed, but its absence is considered a great impediment for municipalities to move beyond stage 1. Changing the current laws towards allowing e-signature is very important for municipalities to advance and move from stage 1 to stage 2. Also, with changing current laws towards e-signature, it is recommended to have secure and safe processing of transactions on the websites of municipalities. This was greatly highlighted in the literature above, trusting Internet on one side and the government on the other side. Indeed, Lebanon recorded a much higher rate of software piracy than the global average with 70 percent of the software used in 2015 being pirated (IDAL, 2016).

The absence of legislations in the central government which protect the privacy and the shared information by citizens if they want to transact online, explains the lack of trust of citizens in the government. Indeed, none of the interviewees mentioned security and privacy issues, which were greatly highlighted when reviewing the literature on e-government in Lebanon. This is due to the absence of awareness and knowledge about security and privacy in online transactions. Even before implementing e-signature law, more legislations should be adopted to protect the individual from cybercrimes. Also, the literature above showed that because central government has not passed e-signature yet, central government is working with the banking sector to implement for example E-taxation option on the website of the Ministry of Finance. The reason why the banking sector in Lebanon is so secure is because it relies heavily on cyber security, due to prior experiences in the past, realizing how easy it is to hack or

breach anyone especially these days. Municipalities could also work with the banking sector to adopt e-services on their websites. But, we cannot deny the fact that changing the law and implementing e-signature by the central government is important for the Lebanese diaspora, especially that 4-8 millions are diaspora and none of the services on the websites target them because of the absence of law pertaining to e-signature. The most practical tool to fight cybercrimes is by having a platform where citizens could report any breach directly to the Cybercrime and Intellectual Property Bureau at the Internal Security Forces, in case e-signature law is passed. So, working on e-government legislations set by central government is very important for an efficient e-government adoption in local governments.

We can also look at e-government from a bottom-up approach which is to work with municipalities and citizens to increase the adoption of e-government applications because the percentages of visitors to the websites was very small. In Lebanon, municipalities have already started their e-government initiatives, and they are proving their abilities to innovate, support and simplify governance. More municipalities have been joining online platforms to increase their transparency via their collaboration with NGOs.

Based on the answers of the interviewees, none of them do surveys to ask about users' satisfaction with the website. This means that municipalities are not communicating well with their citizens to encourage them to use the services on the website. Initiating more awareness on the importance of these websites is important for e-government to become efficient. Municipalities should recognize the needs and demands of citizens. This might help in encouraging them to visit more the websites. These low percentages pertaining to visitors could also be explained in terms of lack of

trust in government, so citizens prefer to come to the municipality itself. Another reason could be due to the dominance of social media over websites. This was highlighted in the interviews that people prefer the Facebook page of the municipality and not the website. Working on enhancing either approach could definitely increase efficiency of e-government in Lebanon. So, municipalities in Lebanon should also have e-government strategic plans and they should do SWOT analysis before adopting e-government. These are very important for municipalities to assess its available resources versus required resources. Furthermore, municipalities shouldn't rely only temporary funds because reliance on temporary funds lead to the adoption of temporary e-government. They have to make sure that the funds are sustained and to connect with various donors in order to ensure an effective implementation of e-government and its sustainability.

In Lebanon, working on enhancing both approaches is very essential for increasing the efficiency of e-government. However, top-down approach is very decisive in terms of increasing efficiency of e-government in Lebanon. According to Delone and Mclean (2004) information technology success model, information and service quality are significant components for users' satisfaction. So, working on enhancing the websites of municipalities in terms of information and quality would definitely encourage and motivate citizens to sue them. However, municipalities need financial resources in addition to training skills. Municipalities should have many networks with the non-for-profit organizations and civil society in order to efficiently implement e-government. They should enhance their communication channels. The central government must work on adopting laws pertaining to e-government signature in order for municipalities to move from stage 1 to stage 2. Plus, more advancements

should be implemented related the infrastructure of IT in Lebanon because some people do not have access to Internet. Although e-government is very important; yet, central government in Lebanon should be aware of issues of digital divide and security and privacy issues. Digital divide may arise as a result of e-government initiatives due to the socio-economic differences between citizens. To add, citizens will gain their trust in government when transacting with the government online in a secure way. More initiatives must be taken regarding security and privacy issues.

CONCLUSION

To sum up, Chapter one was an overview of e-government and the outcomes of e-government. Chapter two presented Delone and Mclean (2004) theoretical framework which I have used throughout the thesis, and which I based my conceptual framework on it in addition to other factors when reviewing the literature about e-government. Chapter three presented the content analysis of the websites of municipalities in Lebanon. It also presented the findings related to e-government and information and service quality. Chapter four presented the findings of the interviews conducted with staff in municipalities, in order to better understanding the adoption factors influencing e-government in Lebanon. The chapter ended with two approaches to explain the situation regarding government in Lebanon. These two approaches could also be used ad recommendations for government officials, policymakers, and municipal councils in order to enhance e-government in Lebanon.

This thesis explained the efficiency of the websites across the Lebanese municipalities. E-government literature on the adoption factors of e-government applications in Lebanon was understudied. Indeed, no research was done on adoption of e-government—mainly websites—across municipalities in Lebanon. By explaining the efficiency of the websites in terms of its updated information and e-services, and percentages of visitors to websites fills a gap in the literature because these websites were not studied before in terms of their efficiency in e-government. Plus, the interviews with staff in municipalities enabled me to seek out the factors influencing adoption and use of websites in Lebanon, and compared them to the literature and the

four frameworks mentioned in this thesis. Actually, all of the derived factors matched the literature.

Municipalities in Lebanon are slowly catching-up with e-government mainly due to the absence of laws pertaining to e-signature and citizens' unwillingness to use the websites. The local governments were totally marginalized in the e-government strategy launched by OMSAR. Marginalizing them from action plans related to e-government hindered their advancement in e-government applications. More involvement of municipalities in such action plans is critical in making a huge difference. Municipalities in rural areas like Beqaa governorate doesn't have any presence on the web, it could be due to financial and technical constraints. Such rural areas should be more supported by the central government and get awareness on the importance of websites in more interactions with the citizens and to attract funds from other national and international stakeholders. My analysis showed the main challenges which some municipalities faced when initiating and developing websites, all the factors were identified in the literature. It also helped me to identify the set of factors that can lead to failure or success of e-government in Lebanon. This helped me to give some possible recommendations which can help with mitigating some of the challenges. My analysis also revealed that my work can be improved and moved forward in many directions that are worth pursuing as future work. More research could be done explaining the low percentages of adoption of websites by citizens and their preferences to Facebook pages.

The limitations of this study was the sample interviewed was small. Conducting more interviews would help to better understand challenges faced with development of websites and their advancement. A larger sample size ensures more accurate

information. In addition to research bias while analyzing the content of the websites and when coding the interviews and the accuracy of the results. Another limitation was suing only three dimensions of Delone and Mclean (2004) success model, and the use of the size of governorate as a variable and not the size of municipality was a limitation, too.

This research paper can be redone using a larger sample size of interviewees. To identify the influences leading to the adoption and use of Facebook Pages more than websites within the Lebanese context. More investigation could be conducted on municipal support and commitment to advance the websites and how lack of communication and collaboration from the central government is affecting their efficiency in e-government. Studies can be conducted in other developing countries in the Arab World to compare/contrast the results and investigate other adoption factors influencing the adoption of e-government. More research is needed that focuses on national legislations and policies to ensure a positive spillover on municipalities which can lead to development and advancement in e-government

BIBLIOGRAPHY

Allwinkle, Sam, and Peter Cruickshank. 2011. "Creating smart-er cities: An overview." *Journal of urban technology* 18, no. 2: 1-16.

Alomari, Osama, Thair Hamtini, Osama Harfoushi, Bashar Al-Shboul, Ruba Obiedat, and Sahem Nawafleh. 2014. "Towards Developing Successful E-Government Websites." *Journal of Software Engineering and Applications* 6, no. 11: 559-563. doi:10.4236/jsea.2013.611067.

Ballou, Donald, and Giri Tayi. 1999. "Enhancing data quality in data warehouse environments." *Communications of the ACM* 42, no. 1: 73-78.

Bertot, John, Paul Jaeger, and Justin Grimes. 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, no. 3: 264-271.

Bhatnagar, Subhash. 2003. "E-government and access to information." *Global corruption report* 2003: 24-32.

Brown, Maureen. 2000. "Mitigating the risk of information technology initiatives: Best practices and points of failure for the public sector." *Public Administration and Public Policy* 77, no. 3: 153-164.

Bwalya, Xu and Stephen Asencio. 2015. "A Conceptual Framework for E-Government Development in Resource-Constrained Countries: The Case of Zambia." *Information Development* 32, no. 4: 1183-1198.

Chadwick, Andrew, and Christopher May. 2003. "Interaction between States and Citizens in the Age of the Internet: "e-Government" in the United States, Britain, and the European Union." *Governance* 16, no. 2: 271-300.

Charbaji, Abdulrazzak and Tarik Mikdashi. 2003. "A Path Analytic Study of the Attitude toward E-Government in Lebanon." *Corporate Governance: The International Journal of Business in Society* 3, no. 1: 76-82.

Cho, Yong-Hyo, and Byung-Dae Choi. 2004. "E-government to combat corruption: The case of Seoul metropolitan government." *International Journal of Public Administration* 27, no. 10: 719-735.

Chourabi, Hafedh, Taewoo Nam, Shawn Walker, Ramon Gil-Garcia, Sehl Mellouli, Karine Nahon, Theresa Pardo, and Hans Scholl. 2012. "Understanding smart cities: An integrative framework." In *System Science (HICSS), 2012 45th Hawaii International Conference on*, pp. 2289-2297. IEEE, 2012.

Ciborra, Claudio. 2005. "Interpreting e-government and development: Efficiency, transparency or governance at a distance?" *Information Technology & People* 18, no. 3: 260-279.

Corrales, Javier, and Frank Westhoff. 2006. "Information technology adoption and political regimes." *International Studies Quarterly* 50, no. 4: 911-933.

Das, Amit, Haminder Singh, and Damien Joseph. 2017. "A Longitudinal Study of E-Government Maturity." *Information & Management* 54, no. 4: 415-426. doi:10.1016/j.im.2016.09.006.

Durant, F. 2002. "*E-government and the Internet in the Caribbean: An initial assessment*", Electronic government: First international conference, EGOV 2002, Aix-en-Provence, France, September 2-6, 2002, proceedings, R Traunmuller and K Lenk, Berlin, Springer Verlag: 101-104.

Fakhoury, Rania and David Baker. 2016. "Governmental Trust, Active Citizenship, and E-Government Acceptance in Lebanon." *Journal of Leadership, Accountability and Ethics* 13, no. 2: 36.

Frohlich, Karin. 2017. "Evaluating the Effects of E-Government Initiatives on Citizen-Centric Goals at Selected Namibian Government Ministry." *IIMC / IST-Africa*. doi:10.23919/ISTAFRICA.2017.8102361.

Gable, Matt. 2015. "Efficiency, Participation, and Quality: Three Dimensions of E-Government?" *Social Science Computer Review* 33, no. 4: 519-532.

Gajendra, Sharma and Manish Pokharel. 2016. "The Strategic Role of Information Technology in E-Government: A Case of Nepal." *International Journal of eBusiness and eGovernment Studies* 8.

Gauld, Robin, Andrew Gray, and Sasha McComb. 2009. "How responsive is e-government? Evidence from Australia and New Zealand." *Government information quarterly* 26, no. 1: 69-74.

Gil-García, Ramón, and Theresa Pardo. 2005. "E-government success factors: Mapping practical tools to theoretical foundations." *Government information quarterly* 22, no. 2: 187-216.

Harb, Hassan and Atallah Hassan. 2015. "Does Good Governance Mediate Relationship between E-Government and Public Trust in Lebanon?" *International Review of Management and Marketing* 6, no. 3: 500-509.

Heeks, Richard and Savita Bailur. 2017. "Analyzing e-government research: Perspectives, philosophies, theories, methods, and practice." *Government information quarterly* 24, no. 2: 243-265.

Heeks, Richard. 2005. "E-Government as a Carrier of Context." *Journal of Public Policy* 25, no. 1: 51-74.

Ho, xiaoling, Daqing Zheng, Qingfeng Zeng, and Weiguo Fan. 2016. "How to Strengthen the Social Media Interactivity of E-Government." *Online Information Review* 40, no. 1: 79-96. doi:10.1108/OIR-03-2015-0084.

http://www.omsar.gov.lb/Cultures/enUS/Publications/Strategies/Documents/4a8c1c25f5f9444aa94923c5e4d38cacHighLevelEGovernmentStrategyAM21Jan08.pdf

Iacovino, Mario, Sara Barsanti, and Lino Cinquini. 2017. "Public Organizations between Old Public Administration, New Public Management and Public Governance: The Case of the Tuscany Region." *Public Organization Review* 17, no. 1: 61-82. doi: 10.1007/s11115-015-0327-x.

Jeffres, L. W., and Lin C. A. 2006. "Metropolitan websites as urban communication." *Journal of Computer-Mediated Communication* 11, no. 4: 957–980.

Kang, Seok, and Sherice Gearhart. 2010. "E-Government and Civic Engagement: How is Citizens' Use of City Web Sites Related with Civic Involvement and Political Behaviors?" *Journal of Broadcasting & Electronic Media* 54, no. 3: 443-462.

Knutsen, Henrik. 2012. "Democracy, dictatorship and technological change." *Governance and knowledge. The politics of foreign investment, technology and ideas*: 13-28.

Landry, Charles. *The creative city: A toolkit for urban innovators*. Earthscan, 2012.

Layne, Karen and Jungwoo Lee. 2001. "Developing fully functional e-government: A four stage model." *Government Information Quarterly* 18, no. 2: 36-122.

Lebanon. IDAL, "Lebanon in Figures," Accessed 4, 2018. http://investinlebanon.gov.lb/en/lebanon_at_a_glance/lebanon_in_figures

Lebanon. Ministry of Telecommunications. Beirut: Ministry of Telecommunications, 2014. Accessed November, 2017. http://www.mpt.gov.lb/

Lebanon. Office of Minister of state for Administrative Reform. *High level e-government strategy document*. Beirut: OMSAR, 2007. Accessed April, 2018.

Lee, Chung-pin, Kaiju Chang, and Frances Stokes Berry. 2011. "Testing the development and diffusion of e-government and e-democracy: A global perspective." *Public Administration Review* 71, no. 3: 444-454.

Macintosh, Ann, Edmund Robson, Ella Smith, and Angus Whyte. "Electronic democracy and young people. 2003." *Social science computer review* 21, no. 1: 43-54.

Mahrer, Harald, and Robert Krimmer. "Towards the enhancement of e-democracy: identifying the notion of the 'middleman paradox'." *Information systems journal* 15, no. 1 (2005): 27-42.

Moon, Jae. 2002. "The evolution of e-government among municipalities: Rhetoric or reality?" *Public Administration Review* 62, no. 4: 424-433.

Moon, Junghoon, Young Chan Choe, Miri Chung, Gu Hyun Jung, and Bobby Swar. 2016. "IT Outsourcing Success in the Public Sector: Lessons from E-Government Practices in Korea." *Information Development* 32, no. 2: 142-160.

Nam, Taewoo, and Theresa Pardo. "Conceptualizing smart city with dimensions of technology, people, and institutions." In *Proceedings of the 12th annual international digital government research conference: digital government innovation in challenging times*, pp. 282-291. ACM, 2011.

Osborne, David, and Ted Gaebler. *Reinventing government: How the entrepreneurial spirit is transforming the public sector*. New York: Penguin Classics, 1992.

Pederson, Keld. 2016. "E-Government in Local Government: Challenges and Capabilities." *Electronic Journal of E-Government* 14, no. 1: 99.

Pilemalm, Sofie, Ida Lindgren, and Elina Ramsell. 2016. "Emerging Forms of Inter-Organizational and Cross-Sector Collaborations in E-Government Initiatives: Implications for Participative Development of Information Systems." *Transforming Government: People, Process and Policy* 10, no. 4: 605-636.

Presidency of the Council of Ministers. Central Administration of statistics. *Lebanese administrative districts*. Beirut, 2007. Accessed April 5, 2018.

Redman, Thomas. 1998. "The impact of poor data quality on the typical enterprise." *Communications of the ACM* 41, no. 2: 79-82.

Rose, Jeremy, John Persson, Lise Heeager, and Zahir Irani. 2015. "Managing e-Government: Value Positions and Relationships." *Information Systems Journal* 25, no. 5: 531-571. doi:10.1111/isj.12052.

Sæbø, Øystein, Jeremy Rose, and Judith Molka-Danielsen. 2010. "eParticipation: Designing and managing political discussion forums." *Social Science Computer Review* 28, no. 4: 403-426.

Schaffers, Hans, Nicos Komninos, Marc Pallot, Brigitte Trousse, Michael Nilsson, and Alvaro Oliveira. "Smart cities and the future internet: Towards cooperation frameworks for open innovation." In *The future internet assembly*, pp. 431-446. Springer, Berlin, Heidelberg, 2011.

Spender, Mike. 2000. "E-Government and Transformation of Service Delivery in Developing Countries." *Transforming Government: People, Process and Policy* 10, no. 3: 368-390. doi: 10.1108/TG-09-2015-0039.

Stier, Sebastian. 2015. "Political determinants of e-government performance revisited: Comparing democracies and autocracies." *Government Information Quarterly* 32, no. 3: 270-278.

The Economist Intelligence Unit, "Lebanon economy: Quick view," Accessed 4, 2018. http://country.eiu.com/lebanon

The International Telecommunication Union, “Arab States Profile 2009,” Accessed 4, 2018. https://www.itu.int/net/newsroom/GSR/2009/docs/arab_states_stats.aspx

Presidency of the Council of Ministers Central Administration of Statistics, “Economic Statistics 2007,” Accesses 6, 2018. http://www.cas.gov.lb/index.php/about-lebanon-en

Tolbert, Caroline, and Karen Mossberger. 2006. "The effects of e-government on trust and confidence in government." *Public administration review* 66, no. 3: 354-369.

Toppeta, D. 2010. The Smart City Vision: How Innovation and ICT Can Build Smart, “Livable”, Sustainable Cities. The Innovation Knowledge Foundation. Available from http://www.thinkinnovation.org/file/research/23/en/Toppeta_Report_005_2010.pdf.

United Nations and American Society for Public Administration. 2012. “*Global survey of e-government, Lebanon.*” October 12, 2012.

Wang, Yi-Shun, and Yi-Wen Liao. 2008. "Assessing eGovernment systems success: A validation of the DeLone and McLean model of information systems success." *Government Information Quarterly* 25, no. 4: 717-733.

West, Darrell. 2004. "E-government and the transformation of service delivery and citizen attitudes." *Public administration review* 64, no. 1: 15-27.

West, Young. 2004. "Exploring the Relationship between E-Government Development and Environmental Sustainability: A Study of Small Island Developing States." *Sustainability* 9, no. 5: 732. doi: 10.3390/su9050732.

Delone, William, and Ephraim McLean. 2003. “The DeLone and McLean Model of Information Systems Success: A Ten-Year Update.” *Journal of Management Information Systems* 19, no. 4: 9-30. doi: 10.1080/07421222.2003.11045748

Carrizales, Tony. 2008. "Functions of E-Government: A Study of Municipal Practices." *State & Local Government Review* 40, no. 1: 12-26. http://www.jstor.org/stable/25469771.

Melitski, James. 2003. “Capacity and e-government performance: An analysis based on early adopters of Internet technologies in New Jersey.*” Public Performance and Management Review* 26, no. 2: 376-90.

Pascual, Patricia. 2003. “E-government.” Asia-Pacific e-Primers Series. United Nations Development Programme-Asia-Pacific Development Information Programme.

Moon, Jae, Jooho Lee, and Chul-Young Roh. 2014. "The evolution of internal IT applications and e-government studies in public administration: Research themes and methods." *Administration & Society* 46, no. 1: 3-36.

Relhan, G. 2012. "Municipal ICT Capacity and its Impact on the Climate-Change Affected Urban Poor–the case of Mozambique." *A poverty &social impact analysis (PSIA) study. The World Bank*.

Teşu, Daniela. 2012. "Developing e-government for better public services within European Union." *Theoretical and Empirical Researches in Urban Management* 7, no. 2: 79-88.

Basu, Subhajit. 2004. "E- government and developing countries: an overview." *International Review of Law, Computers & Technology* 18, no. 1: 109-132.

Graafland-Essers, Irma, and Emile Ettedgui. 2003. *Benchmarking e-Government in Europe and the US*. No. 1733. Rand Corporation.

Fountain, Jane. 2001. *Building the virtual state: Information technology and institutional change*. Washington, D.C: Brookings Institution Press.

Heeks, Richard, ed. 1999. *Reinventing government in the information age: International practice in IT-enabled public sector reform*. London: Routledge.

Cloete, Fanie. 2003. Assessing governance with electronic policy management tools. *Public Performance and Management Review* 26: 276-90.

Horrigan, John. 2004. *How Americans get in touch with government: Internet users benefit from the efficiency of e-government, but multiple channels are still needed for citizens to reach agencies and solve problems*. Washington, DC: Pew Internet and American Life Project.

Devadoss, Paul Raj, Shan Pan, and Jimmy Huang. 2003. "Structurational analysis of e-government initiatives: a case study of SCO." *Decision support systems* 34, no. 3: 253-269.

Pascual, Patricia. 2003. *E-government*. New York: Asia-Pacific Development Information Programme, United Nations Development Programme, eprimers.apdip.net/series. Accessed October 22, 2018.

Holzer, Marc, and Byong-Joon Kim, eds. 2004. *Building good governance: Reforms in Seoul*. Newark, NJ: National Center for Public Productivity.

Malina, Anna. 1999. Perspectives on citizen democratization and alienation in the virtual public sphere. *In Digital democracy: Discourse and decision making in the information age*, ed. Barry N. Hague and Brian D. Loader, 23-38. London: Routledge.

Urban, Africa, and Water Unit. "Municipal ICT Capacity and its Impact on the Climate-Change Affected Urban Poor."