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E-Government: Open Data and Public Perceptions of Transparency

A graduate project submitted in partial fulfillment of the requirements

For the degree of Master of Public Administration in Public Sector Management and Leadership

By

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Abstract

How does e-government presence through an open data portal affect citizen perceptions of local government transparency in the City of Los Angeles?

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Master of Public Administration in Public Sector Management and Leadership

This graduate project examines the effectiveness of e-government technology implementation by government and its affects on citizen perceptions of government transparency. Transparency helps citizens maintain government accountability, develop greater trust for government, and ultimately bolster the legitimacy of government. The research proposes the use of a quantitative study which reaches out to registered and unregistered users of the City of Los Angeles open data portal through an online survey questionnaire. While the study is specific to the City of Los Angeles, research findings and conclusions can be generally applied to any government entities that employ the common open data portal technology suite. The survey of actual users will provide practical insight for the potential improvement of e-government technology.

Section 1: Project Introduction

The rapid evolution of technology in recent decades has helped transform the way government operates (Desouza & Bhagwatwar, 2012). While technology has been used by government to make internal operations more efficient, a growing component of government technology has been focused on providing services to the public (Moon et al., 2017). One such popular software platform today is the open data portal, which makes government data and information freely available to the public (Wang & Lo, 2016). Open data portal implementations have grown in popularity among government organizations due to the increased expectations for information by the public (Harder & Jordan, 2013). Following the precedent of many federal and state agencies, the City of Los Angeles unveiled its own implementation of the open data portal in 2013 after Mayor Eric Garcetti signed the Los Angeles open data initiative (City of Los Angeles, n.d.). As with other e-government technology solutions, the open data portal seeks to bridge the gap of trust and transparency between government and citizens (Weerakkody, El-Haddadeh, Sivarajah, Omar & Molnar, 2019). While technology such as the open data portal intends to improve the transparency of government, recent studies have explained that the technology can have a negligible impact on citizens attitudes of government transparency (Bannister & Connolly, 2011). Similar to many other public organizations, the City of Los Angeles has made a large investment in the open data portal (Currie, 2016). The investment aims at improving citizen involvement in government while increasing transparency (Conradie & Choenni, 2014). Given the investment and objectives of the open data portal, this research investigates the effectiveness of the technology through a practical approach. How does the City of Los Angeles open data portal affect public perceptions of transparency?

Section 2: Background of the Issue

The ability to maintain accountability of government officials by members of the public has been a growing issue in the last two decades. The U.S. Congress has taken notice of this trend, as over 50 bills passed in each yearly cycle which have contained the word accountability within the title (Bovens, Goodin & Schillemans, 2014). One of the primary ways in which government seeks to improve accountability is through efforts of maintaining transparency with the public (Harrison & Sayogo, 2014). Transparency is generally understood as an open channel of information flow between government entities and citizens (Part & Blenkinsopp, 2011). The implication of transparency is that citizens will be able to find out what is happening within government organizations and track the daily activities of public servants with finances being of particular concern (Piotrowski & Van Ryzin, 2007). Accountability and transparency build upon the relationship between government and the public through establishing greater trust. Trust between government institutions, politicians and citizens are imperative for maintaining the legitimacy of government (Albaladejo, 2019). Research indicates that there is a trend of decreasing confidence in government, and local government entities are not exempt from these unfortunate circumstances (Mahmood, 2016; Park & Blenkinsopp, 2011). Mutual trust is not only necessary for the implementation of public policies, but is also considered a vital step in resolving the existing social problems of today through rudimentary applications of psychology (Albaladejo, 2019).

Moore's law predicted the rapid evolution of Information Technology (IT) over recent decades, and this prediction has held to be true as technological hardware has improved exponentially in computational power while costs have been driven down (Marburger, 2011). The public sector has leveraged advances in technology by implementing IT solutions to help

fulfill the various tasks of government in a more efficient and effective manner (Moon, Lee & Roh, 2017). The first component of public sector technology is IT, which refers to the set of inward facing applications that are necessary for routine operations and functions (Moon et al., 2017). The second component of technology is commonly referred to as e-government, which is the outward facing set of applications that facilitate communications between public institutions and their external stakeholders such as citizens, businesses and other government organizations (Müller & Skau, 2015). The innovative set of outward facing applications of e-government such as the open data portal have been used to transform government by restoring citizen trust through providing information and creating transparency (Bannister & Connolly, 2011).

The Freedom of Information Act (FOIA) which was passed in 1966 is considered the pioneer of legislation which provided citizens with accessibility to government records and data (Harder & Jordan, 2013). Government entities were mandated to comply with records requests for information by the public, and this system continues to the present day. While the FOIA records requests provide the required transparency of government, information is shared in a passive manner since the citizen must first generate the request. The advancement of using e-government technology to fulfill information inquiries was propelled by the E-Government Act of 2002, and later the Open Government Initiative signed by President Barack Obama (Evans & Campos, 2013). While the concept of presenting data over an open data portal for government entities has existed for some time, the initiatives by President Obama pushed for the creation of agency specific open government websites and established standards for publishing machine readable formats. One of the most prominent government open data portals is data.gov, which provides highly functional access to over 200,000 federal government datasets from various agencies (Lourenço, 2015).

Following the precedent set by President Obama, Los Angeles City Mayor Eric Garcetti took a big step forward for e-government and transparency at the local government level in Southern California by signing the Los Angeles open data initiative in 2013 (City of Los Angeles, n.d.). The City of Los Angeles (n.d.) directive expressly states that the purpose of the open data portal is to promote accountability and transparency. The implementation of e-government solutions can present many benefits to local government entities such as the City of Los Angeles. The primary benefit of the open data portal would be to provide greater transparency, which may increase citizen knowledge of government and resolve issues of public mistrust (Grimmelikhuisen, Porumbescu, Hong & Im, 2013). E-government can also facilitate the empowerment of citizens, which can increase citizen engagement and participation in government that bolsters the accountability of public officials (Johnston, 2010; Moon et al., 2017). Private corporations can also leverage the data presented on e-government data portals to make better decisions and offer new services which could stimulate the economy significantly (Dawes, Vidiyasa & Parkhimovich, 2016). As an example, Mayor Garcetti has already made progress with private sector cooperation through the open data portal by establishing an agreement with Waze in 2014 for data sharing (Currie, 2016).

The benefits of implementing e-government solutions such as an open data portal to improve the trust-based relationship between government and the public through transparency are understood. Relevant research in the field of e-government has mostly been focused on deepening the understanding of how trust in e-government services can be developed upon (Bannister & Connolly, 2011). Understandably, this type of research primarily seeks to improve e-government through a technical approach. It is important to consider however that simply publishing data and making information available does not necessarily make government entities

more transparent or facilitate the accountability of public servants (Harrison et al., 2012). This implies that the original intention of Mayor Garcetti to improve transparency when implementing the open data portal may not ultimately be achieved despite having good intentions, and presenting a well-made e-government solution. There may be many underlying factors leading to this ineffectiveness, however it is important to explicitly research this concern considering the amount of financial resources and labor hours it takes to implement and support the open data portal (Currie, 2016). While there are studies on measuring the performance of e-government, there is a lack of studies specifically on open data portals and particularly within the local government context of the Los Angeles area. Therefore, an imperative study can determine the actual effectiveness of how the City of Los Angeles open data portal is affecting how citizens feel about the transparency of government being improved through the e-government services being provided. A proposed research on the subject can identify, how does e-government presence through an open data portal affect citizen perceptions of local government transparency in the City of Los Angeles?

Section 3: Literature Review

Citizen distrust of government entities is seen as a major intangible problem by government officials, and transparency has generally been proposed as the solution to the issue of citizen trust (Grimmelikhuijsen et al., 2013). Transparency can take multiple forms, however, one common approach to transparency is when government entities provide information transparency to the public (Harrison & Sayogo, 2014). Information transparency is when citizens have access to data, documents, and other information which demonstrates the actions and decisions made by government entities. Therefore, citizens will be able to access the information made available to the public to track and understand what public administrators are allocating resources to based on their work history and decisions. Transparency helps make information about government operations open to the public, in a manner which can be observed and scrutinized (Harder & Jordan, 2013). The information made available to the public can serve as a tool that provides citizens a means of detecting and possibly preventing government corruption (Park & Blenkinsopp, 2011). In addition to providing a means for citizens to detect government corruption, information transparency can also give government greater legitimacy among citizens, enhance government performance through greater efficiency, and encourage fundamental principles of good governance practices (Grimmelikhuijsen et al., 2013).

Information transparency in government is becoming increasingly important considering the large growth in internet usage and the rising expectation of citizens to access government services and information online (Harder & Jordan, 2013). E-government, as it is commonly referred to, is the term used to describe the deployment of internet and communications technologies (ICTs) to facilitate exchanges between government entities and external stakeholders (Müller & Skau, 2015). ICT encompasses a large field within the Information

Technology (IT) industry and is used to describe the technology which internally facilitates the external e-government business applications used by government entities (Moon et al., 2017). The means and format of information provided to the public by the organization is often known as open data since the organization is making information available and accessible to the public (Okamoto, 2017). It is important to understand and differentiate the different components of technology which come together to provide information transparency to the public. Government entities make a large investment of resources when implementing the complex set of technologies used to facilitate information transparency, and it is important to keep this investment into consideration. This research project seeks to gauge the effectiveness of the investment made by government entities into e-government and open data technologies through the example of the City of Los Angeles (Currie, 2016). In addition, this research project attempts to determine how effective the investment in the technology which facilitates the open data portal has been in influencing the public's perception of transparency for the City of Los Angeles.

Development of the ICTs Which Influenced E-Government Technology

Before the widespread use of the Internet, technology was used in a stand-alone manner by public administrators to provide a means of better decision making (Yildiz, 2007). The initial use of technology in the public sector was limited to automating back end operations. However, this selective trend of technology use changed with the widespread implementation of personal computers in the 1980s that led to a new era of technology use in the public sector. The development of computers and the cost of obtaining processing power through the fulfilled prediction of Moore's law led to the more widespread use of technology (Marburger, 2011). In the 1990s there was the advent of the Internet for military communications purposes. However,

the combination of computing and telecommunications technology led to exponential growth in the use of Information and Communications Technologies (ICTs) for transmitting and processing data (Moon et al., 2017). The rapid advancement in ICT led to many increased capabilities for individuals and organizations to access information and ultimately led to a big transformation in commerce and government (Da Cruz, Tavares, Marques, Jorge & De Sousa, 2016).

The evolution and innovation in technology led to the eventual realization that Information Technology (IT) functions in government should be decentralized (Yildiz, 2007). In addition to decentralization, Yildiz (2007) states that the growth of technology use in government led public administrators to realize its significance and begin including IT issues in the core functions of government. Given the rapid pace at which ICT advances, it is also important for government entities to not only leverage the technology but implement governance infrastructures (Johnston, 2010). A governance infrastructure allows entities to manage the synthesis of technology, people, operating practices, and policies which support government activities. Essentially, it is necessary to have a governance infrastructure to facilitate the use of technology which presents information for improving government transparency and generating accountability (Bannister & Connolly, 2011).

E-Government as a Tool Promoting Transparency

The discussion regarding the use of ICT by public organizations ultimately leads to the development and implementation of e-government. E-government is the public-facing set of applications that facilitate communication between public organizations and external stakeholders (Müller & Skau, 2015; Moon et al., 2017). E-government has many different uses and stages in its development life-cycle within an organization. The general e-government usage relationships include the provisioning of information services from government to citizens

(G2C), government to businesses (G2B) and government to government (G2G) (Norris & Reddick, 2013). With its different use cases, e-government also has a development scale within organizations which indicates the level to which e-government is being leveraged by the organization (Yildiz, 2007). The first stage of development is stage one, which is when an organization is beginning to emerge with a web presence on the Internet. The varying levels of development stages advance until stage five, which describes the situation where the organization has a seamless web presence that mirrors all services provided by public employees in person across each department of the organization. While attaining a level of stage five development is ideal, most organizations likely fall in between stage one and stage five. It is important to be aware of how developed the e-government presence of an organization is to frame a realistic approach of expecting results in improving efficiency and influencing public perceptions on trust and transparency. The development of e-government for the City of Los Angeles will play a factor when analyzing the results of the conducted study.

One of the advantages of using e-government is the increase of efficiency in operations since citizens do not have to interact with public employees (Moon et al., 2017). Moon et al. (2017) continues by stating that multiple e-government studies show that the lack of public employee interaction improves government responsiveness while also providing more cost-effective services. Outside of the technical realms of ICT and e-government development practices, much of the public administration research in the field of e-government revolves around the restoration of trust in government by citizens (Bannister & Connolly, 2011). There is a great focus on the transformative effects of e-government which is at the core of public sector modernization. E-government is considered an important tool for enabling the government to have more effective governance, provide citizens participation opportunities in policymaking and

the democratic process, while also improving transparency (Veljković, Bogdanović-Dinić, & Stoimenov, 2014).

One of the major areas of transformation targeted by implementing e-government is improvements in transparency and government trust. While there is still much work to be done in the field of public administration for researching e-government, Bannister & Connolly (2011) state in their research that increased use of e-government technology will lead to greater trust in government. This conclusion is reinforced through previous research surrounding e-government and trust in government (Tolbert & Mossberger, 2006). Tolbert and Mossberger (2006) examined the uses and perceptions of e-government and citizen usage through factors such as accessibility and responsiveness. The study demonstrated that e-government implemented at the local government level positively affected citizen perceptions of government accessibility and responsiveness. However, only the positive contribution of government responsiveness through e-government led to an increased level of trust in government. This idea that merely making government more accessible to the public through e-government technology alone is not necessarily sufficient for improving citizen trust is also backed up by other researchers. Harrison et al. (2012) states that simply making information available online in-itself does not improve citizen trust. This leads to the aim of this research which seeks to practically determine if making data available via the open data portal has positively affected the perceptions of citizens in government trust and transparency.

One Canadian study which examined the use of e-government to improve citizen perceptions of public trust concluded that there is indeed a positive correlation between citizens using e-government technology and their level of trust in government (Bannister & Connolly, 2011). Though the sample size of the study was relatively small, the research generated an

interesting take on the subject when it considered the different demographics of people who interacted with the government through the use of technology. For individuals who already had a high level of trust in government, the use of e-government technology only reinforced their existing confidence. Individuals who did not demonstrate pre-existing high levels of trust in government experienced only a marginal impact for trust improvement after using e-government technology. While the results of the Canadian study might seem inconclusive in pointing to a strong correlation to improved trust in government after using e-government technology, it could be interpreted that there is indeed a positive impact whether on a large or small scale. The positive impact on government trust and confidence by citizens through transformative e-government technology is also affirmed by another international study from the Middle Eastern Gulf States (Mahmood, 2016). In a relatively lengthy empirical study, Mahmood (2016) concluded that the effects of e-government technology can indeed have a positive significant impact on citizen perceptions of trust in government. While the existing studies on the use of e-government to improve transparency may not inspire great confidence, it is also important to note the potential differences in the e-government solution studied by previous researchers. E-government is a broad term used to describe the various software solutions for facilitating communication. This research attempts to analyze the open data portal specifically, which is designed to exclusively provide citizens information about government and improve transparency. However, when combined with the other benefits of e-government such as increased efficiency and cost-savings, the overall justification for investing in e-government technology is still strong.

Using Open Data to Facilitate Government Transparency

The specific e-government technology solution which this research paper focuses on is commonly referred to as an open data portal. Open government data is generally defined as data that is produced through public funding and made available without restrictions on usage (Okamoto, 2017). An open data portal specifically refers to the e-government technology platform which makes the presentation of open government data possible. Through the advent and rapid advancement of innovative ICT and e-government technologies, the concept of open data has been enabled in the realm of the public sector (Wang & Lo, 2016). While today public entities can provide data and information through the use of technology, the idea of transparency through information sharing existed even before the invention of the common personal computer. The concept of citizen access to government information and records traces its roots back many decades to legislative initiatives at the federal level, namely the 1946 administrative procedure act and the Freedom of Information Act (FOIA) signed in 1967 (Piotrowski & Van Ryzin, 2007). Even in recent years, there has been a considerable amount of interest in open government data which led to the formulation of many open data policies around the world (Wang & Lo, 2016). One such prime example is President Barack Obama's Open Government Directive, which was signed in 2009 and required government information and data to be made open to the public (Okamoto, 2017). The Open Government Directive led to the launch of many federal government web pages that hosted government data for public access.

The innovative approach of federal agencies under the initiative led to many state and local government agencies to follow the trend and launch open data portals. Under the direction of Los Angeles City Mayor Eric Garcetti, the City of Los Angeles introduced the Los Angeles open data initiative in 2013 (City of Los Angeles, n.d.). The City of Los Angeles then began to

start publishing financial information on its new open data portal in 2013 (Currie, 2016). The City of Los Angeles open data portal grew in the following years and included data sets from many different departments. One key distinguishing feature of open data portals is that the data content should be shared in a machine-readable format. The standard of machine readability of open data was set by President Barack Obama who signed an executive order in 2013 requiring open government data to be in a machine-readable format (Okamoto, 2017). Machine-readable data provides additional intelligence and the capability of being able to analyze open data information through application programming interfaces (APIs) or other software means. This gives citizens and businesses who consume open data the ability to perform further analysis on the information, instead of simply being able to view a document in a digital format.

The motivation for government organizations to make open data available is to increase citizen involvement, improve transparency, enhance decision-making capabilities (Conradie & Choenni, 2014), and provide innovative opportunities for the public and private sector (Mergel & Desouza, 2013). Also, proactively providing data on an open data portal can significantly reduce the workload of public servants who must respond to repetitive public records requests to remain in compliance with the Freedom of Information Act (White, 2018). While there are many benefits to open data which include improved transparency, some critics argue that releasing data proactively can lead to the public forming false conclusions about government among other issues (Conradie & Choenni, 2014). However, the study by Conradie and Choenni (2014) concludes that while there may be barriers that prevent the publication of open government data, practical steps should be taken to overcome these barriers and realize the benefits of open data.

While the potential benefits of using e-government technology such as an open data portal to improve citizen trust and increase transparency are proven, there are a few

considerations for government organizations. A recent Dutch study by Janssen, Charalabidis, and Zuiderwijk (2012) on government open data usage raised many of the concerns about open data portals which prompt the need for this research paper. Supplementing other studies, Janssen et al. (2012) concluded that open data reinforces institutional structures and simply publishing data on the portal will not necessarily yield results such as improved transparency. There are ample reasons cited in the study of multiple similar conclusions, however, one of the common reasons revolves around the consumer of the open data and how effective the data is at meeting their needs. Complaints by users about open data portals include poor interfaces and usability, lack of data standardization and enrichment, missing meta-data, and a lack of feedback mechanisms for future improvement. Janssen et al. (2012) reminds that the purpose of open data is to help people solve problems, and having non-user friendly systems which do not help the average person accomplish this requirement can lead to unsatisfactory results. Janssen et al. (2012) concludes by stating that while much research has been focused on proving the benefits of open data, there also needs to be a concern on measuring effectiveness outside of common metrics such as the number of datasets which are available on an open data portal. Echoing the common concerns which raise the justification for this research, it is important to follow the advice of determining the user-friendliness of the City of Los Angeles open data portal. Among several factors, the research questions in this study should focus on understanding how users really feel about the open data portal and whether it is successfully meeting their information needs to help solve problems.

The Transparency of E-Government Technology

Government information transparency can be simply defined as the ability of citizens to have access to data and documents which demonstrate the actions and decisions made by

government officials (Harrison & Sayogo, 2014). The core function of providing transparency to the public is to fulfill the obligation of government officials to maintain accountability to the public regarding how public resources are spent (Lourenço, 2015). Studies conclude that increased transparency can help to combat mistrust of government among citizens, which is an increasingly problematic issue faced by many government entities (Albaladejo, 2019; Tolbert & Mossberger, 2006; Grimmelikhuijsen et al., 2013). As Bannister and Connolly (2011) eloquently concluded at the end of their research on e-government and trust, increased transparency improves levels of trust in government among citizens simply by leaving less to be trusted since more information is available to citizens. While the benefits of transparency are undoubted, the dynamics of understanding how transparent an organization is can be challenging since it involves the study of interactions between a variety of actors whose ranging set of values are not always fully understood (Meijer, 2013). In addition, there has been no standardized manner in which the various levels of government entities have approached e-government technology such as open data portals, which makes understanding transparency even more difficult. There have been numerous studies that have examined the effect of various e-government technology solutions on transparency. However, there are no specific research findings on open data portals and particularly at the local government level. This study attempts to bridge the gap in understanding regarding open data portals and transparency at the local government level within the context of the Los Angeles area.

As the study of Janssen et al. (2012) stated, it is crucial to consider the end-user when assessing the success of an open data portal. A recent study by Da Cruz et al. (2016) worked on developing a framework called the Municipal Transparency Index (MTI) for measuring transparency at the local government level. The MTI framework is heavily based on

understanding the feedback of stakeholders and does not follow traditional metrics which could be purely legal and formal indicators. The MTI focuses on measuring the transparency of an organization through seven groups of dimensions that include organizational information, future plans, regulations, relationships with citizens, procurement information, financial transparency and urban planning. While the presence of this information gives indicators of transparency, the model does not take into consideration the open data portal experience which has been stressed by many other studies. Another study conducted by Kim and Lee (2012) based on the e-government solution of the Seoul Metropolitan Government focused on more practical end-user satisfaction measurements such as ease of use, participation, satisfaction, self-development, influence on decision making and overall perception of transparency. The study out of Seoul found conclusive results which promoted the use of e-government technology for transparency, however, it stressed the importance of continuous monitoring and performance assessment (Kim & Lee, 2012). Lastly, the authors noted that while the study produced positive results, the study is only limited to a single city and e-government solution. The methods employed by the MTI framework and Seoul based transparency study can be used for this study to help determine the transparency effectiveness for the City of Los Angeles open data portal.

Summary and Implications of the Literature Review

A review of relevant literature in the disciplines of e-government, open data technology and transparency in the realm of government explains the importance of using technology to promote transparency and improve citizen trust in government. While open data portals can provide the necessary improvements for building transparency, simply making data available which is not in a readily usable form that is easy to search will hamper the effectiveness of the technology (Harrison et al., 2012; Janssen et al., 2012). The literature explains that effective e-

government solutions such as an open data portal must be crafted with end-user service in mind through factors such as information attractiveness, ease of navigation, information usefulness and user awareness (Kim & Lee, 2012; Wirtz, Piehler, Rieger, & Daiser, 2016). Therefore a thorough research study on the effectiveness of an open data portal should not only focus on the apparent questions relating to transparency but must also understand the end-user experience on the portal. This type of research can not only help ensure that citizens are satisfied with the open data portal implementation by the City of Los Angeles, but ensure that the investment of resources into the technology is maximized by meeting its goal of improving transparency. Furthermore, this research can help pave the way for other agencies to determine how successful an open data portal implementation has been in influencing perceptions of transparency. While many studies have focused on the various aspects of e-government and transparency, few have actually attempted to understand the success of how the open data portal shapes a participants perceptions of transparency (Kim & Lee, 2012).

Section 4: Methodology

The primary purpose of this research is to contribute to existing e-government open data portal literature and how it affects public transparency through a practical approach. Most importantly, the research focuses on the effects of an open data portal implementation on public perceptions of transparency. Therefore, the project strives to ascertain the correlation between technology and its intended effect on transparency for the City of Los Angeles. Taking into consideration the recommendations, conclusions and findings of previous literature, this project attempts to answer the following main questions:

1. Does the City of Los Angeles open data portal successfully affect public perceptions of government transparency?
2. Are the users of the open data portal able to easily navigate the site and obtain the information which they are searching for?
3. Has any information from the open data portal been used as data for a relevant study or assisted in providing a resolution to problems by the public?
4. Based on objective feedback from the user base, what improvements can be made to the open data portal to improve user satisfaction or boost perceptions of government transparency?

Research Design and Demographics

This research will employ a quantitative research method with a survey questionnaire to gather responses from users of the City of Los Angeles open data portal. The research intends to develop an examination of how successful the open data portal is in influencing public opinions of government transparency. The survey questionnaire will consist of closed-ended questions on a five-point Likert scale of coded values to determine user feedback (Frankfort-Nachmias,

Nachmias & DeWaard, 2015). In addition to the closed-ended questions, there will also be two optional open-ended questions for feedback at the end of the survey giving the respondents an opportunity to provide additional input which was not considered in the questionnaire form. This is important since users may be able to think of feedback which the coded survey questions do not accommodate, and can serve to improve the open data portal implementation to become more effective. Each user of the open data portal will be invited to offer feedback through an online questionnaire. Participation will be voluntary and at the convenience of the user who wishes to participate. In order to solicit a large volume of responses, there will not be any sampling rules on who is offered the survey, instead each visitor will have an equal opportunity to participate.

The City of Los Angeles open data portal provides data and statistics regarding the City of Los Angeles. However, since the data portal is on an open platform available on the Internet, there may be many users and survey respondents who do not live within the City of Los Angeles. The United States Census Bureau (2018) estimates that there are approximately 3.99 million residents who live in the City of Los Angeles, and 10.1 million who live in the surrounding Los Angeles County area. Despite the number of residents in Los Angeles, many visitors could be from different cities, states, or countries. While this may not provide immediate significance to the results of the research, the questionnaire will accommodate the spatially diverse range of respondents. The first question of the survey will ask the user if they are a resident of the City of Los Angeles. This distinction between residents and non-residents will help to perform analysis on the results of the survey and determine if there is a difference in perceptions of transparency between the two groups. In addition, there can be benefits derived when analyzing the results to know the difference in responses from Los Angeles residents and non-residents. For example,

international respondents may be able to provide different insights into the open data portal based off their experiences from various government entities abroad.

Data Collection and Procedures

The open data portal and geohub which the City of Los Angeles has already implemented is based on the Socrata and ESRI technology platforms which can be leveraged to conduct this research (Currie, 2016). It is not necessary to login to the portal or provide any information to access data or receive services. However, on the main page of the open data portal there is an option to sign up for the platform by providing contact information and an email address for future updates and information. In addition, there are options of signing up for the data portal website with a login through the Socrata platform that can be linked to a social media account. The registered user email addresses can be used to provide a list of potentially thousands of respondents to the survey questionnaire. Since it is not required to sign up to use the open data portal, it is likely that those who have provided their information will have greater interest in open data portals than a one-time visitor who simply wanted to access data.

Given that the open data portal does not require a login for usage, this means that a significant percentage of total users could be unregistered. To gather a survey with greater diversity, this research also seeks to target unregistered users of the City of Los Angeles open data portal. Users who have entered their email information and registered for the portal may be more likely to have an interest in the field of open data, and therefore could give different responses than those who anonymously use the portal. As suggested by a recent study, surveying both registered and unregistered visitors can help mitigate the possible bias of users who already perceive adequate transparency of government from simply having their view reinforced (Bannister & Connolly, 2011). Surveying unregistered users will also accommodate those

individuals who may stumble upon the open data portal unknowingly when using an Internet search engine to obtain information.

Since the City of Los Angeles is an ESRI customer, the research survey can be implemented using the ESRI Survey123 software platform which is made for customizing survey forms. In addition to providing a survey solution, Survey123 provides additional capabilities of performing analysis and visualizations on the results of the survey which will be important post-survey. When a user connects to the open data portal webpage, they will begin to search for a dataset. Once the dataset has been opened, the notification for the feedback survey should be presented. The survey will only be presented once to each unique user of the portal. It is important to present the survey after the user has found the dataset, so that insights can be understood about the user experience and usability of the portal (Janssen et al., 2012). For example, how difficult was it for the user to find the dataset which they were looking for on the portal?

In addition to the unregistered users who visit the web page, the City of Los Angeles maintains a list of registered users for the open data portal. The entire list of registered users should be contacted by email and offered the survey to complete for their feedback. The Survey123 software has built-in functionality which allows for only one survey to be submitted per unique user. This functionality should be enabled to prevent duplicate responses to the survey, since a user can possibly open the survey link multiple times and therefore skew results with duplicate submissions. Each user should participate in the survey only once. The survey will be open for a total of four weeks to solicit a large number of responses. An email notification will be sent twice to the list of registered users, once at the commencement of the survey period

and another at the end of the third week. Unregistered users will be able to access the survey at any time during the four-week period through the open data portal web page.

Similar research was performed by Kim and Lee (2012), who examined citizen feedback of an e-government solution implemented by the Seoul Metropolitan Government in South Korea. Their study sent a similar web-based survey to a random sample of 10,136 registered users of the Oasis e-government platform. Out of the 10,136 members who were offered the survey, there were 1,076 respondents who completed the survey (Kim & Lee, 2012). The roughly 10% response rate demonstrates that though a large number of people may be offered the voluntary survey, only a fraction will complete the survey. For this reason, it is important to implement a nonresponse bias test on the users who did not respond to the survey (Kim & Lee, 2012; Frankfort-Nachmias et al., 2015). A large nonresponse rate can lead to errors in results. The nonresponse bias test will determine the characteristics of those who did not respond and whether they had an equal opportunity to complete the survey, ruling out concerns of data validity (Kim & Lee, 2012).

Ethical Considerations

The survey questionnaire for this research will be offered in a digital format through the ESRI Survey123 software platform. The survey will be made available for completion by any users who visit the open data portal webpage for the period of one month, and it is anticipated that the survey will take each user approximately twenty minutes to complete. The survey is completely voluntary for the users of the City of Los Angeles open data portal who wish to volunteer their time and provide feedback for research purposes. When the survey is first presented to the users, there will be information letting the users know that the survey is completely voluntary and that they may discontinue completing the survey at any time. The user

will also be informed that there is no penalty for refusing to participate, and that there is no personal benefit to be derived from participating as respondents. In addition, the users who decide to participate must agree to the terms of consent for the survey and confirm they are an adult over the age of 18. The terms of the survey will inform participants that the information gathered is to be used for research purposes only and will not be disseminated to any third party groups for commercial purposes. The pre-survey information and terms which respondents must agree to before taking the survey will be presented through the Survey123 software. The process between reading the pre-survey information, accepting the survey terms and filling out the survey will be in three seamless steps of the survey process provided through a digital format.

Only researchers will have access to the collected survey data, which will be stored on a secured server setup by the researchers. The researchers can control access to the survey data through dedicated username and password logins to the Survey123 software platform. The underlying database which holds the survey records will also be secured to prevent any unauthorized access to the data directly. Since the information gathered pertains to the effectiveness of the City of Los Angeles open data portal, City of Los Angeles staff involved in managing the open data portal will be presented with information regarding survey results. The information revealed to City of Los Angeles staff will not contain any personally identifiable information of users. Understandably, this information can be used by the City of Los Angeles to determine how successful their software implementation has been with the user base and provide possible improvements to the open data portal. The foreseeable risks to the research are minimal, since there are no personal discomforts or information confidentiality threats for users providing feedback regarding the open data portal. Any publications which are created based off of this research data will not include any personally identifiable information of the users.

Section 5: Recommendations

Literature in the field of e-government supports the idea that technology can positively impact both transparency and citizen trust in government (Albaladejo, 2019; Grimmelikhuisen et al., 2013). An open data portal is a prime example of an e-government technology solution which seeks to bridge the knowledge gap of government operations to citizens through providing data and information (Bannister & Connolly, 2011). While the possibility of improving transparency through an open data portal is recognized, the actual impact of the technology can have varying degrees of success. As studies have explained, simply using the basic capabilities of the software to make data publicly available may not provide any improvements in citizen perceptions of transparency (Harrison et al., 2012). This research will obtain critical feedback from users of the City of Los Angeles open data portal to understand the level of impact the technology has made in influencing public perceptions of transparency. The findings of this study will provide city staff with information on their successes and possible shortcomings, along with methods of improvement to the open data portal which can maximize the effectiveness of the solution. The findings of the study can be used by managers and administrators within the City of Los Angeles to better serve the public with information. The findings will also be transferrable to any other local government entities that have implemented or are planning to implement an open data portal.

The results of this study will provide recommendations to managers on specific changes which can be made to the open data portal based on critical user feedback. Without performing a study, the City of Los Angeles will be unsure about the actual success of the open data portal in influencing public opinions regarding transparency. Outside of this study, there are conceptual ideas provided by existing studies which can be considered for improving the effectiveness of e-

government technology. The existing literature on the subject of e-government technology gives recommendations to government entities on maximizing user satisfaction. These are some general practical considerations highlighted by recent literature which can be implemented to improve the success of an open data portal:

- Work to overcome the political or organizational barriers which restrict the release of data and information on the open data portal (Conradie & Choenni, 2014).
- Organizations should plan and implement a governance infrastructure which provides the organization guidelines on managing technology, people, operating practices and policies related to e-government technology (Bannister & Connolly, 2011; Johnston, 2010).
- The organization should review received public records requests made under the Freedom of Information Act (FOIA) for guidance on determining what data can be proactively released on the open data portal. Publishing relevant data can reduce any redundancy of work and increase organizational efficiency, making full use of the technology (Currie, 2016; Moon et al., 2017; White, 2018).
- Due to the large amount of labor which may be required to regularly prepare and update data on the open data portal, organizations should try to automate the task of updating data through batch processing or providing direct views into databases (Currie, 2016).
- Managing data and systems for the open data portal should be centralized organizationally to improve efficiency and reduce the unnecessary expenditure of resources (Conradie & Choenni, 2014; Currie, 2016). Ideally, centralization should also include the management of legacy systems and siloed information systems which restrict the ability to share information across the organization.

- Ensure the data presented on the open data portal is in a machine readable format, providing API's for data access or web-based visualizations for maximizing the usability of the information for analysis (Conradie & Choenni, 2014; Okamoto, 2017).
- The latest trends in technology focus around mobile devices, therefore open data should additionally be geared for use on a mobile device (Desouza & Bhagwatwar, 2012; Okamoto, 2017). Given the advancement of mobile technology, it is also beneficial to leverage mobile devices to capture data which can be presented on the open data portal (Janssen et al., 2012).
- The implementation of open data portals should ideally have a strong focus on user-friendliness to ease the experience of the visitor in finding the data they are looking for (Janssen et al., 2012). General factors which affect user-friendliness include information attractiveness, ease of navigation, information usefulness and user awareness (Kim & Lee, 2012; Wirtz et al., 2016).

While the recommendations provided by literature give general guidelines for ensuring the overall success of the e-government technology, this research can generate greater insights into the successes and shortcomings of the City of Los Angeles open data portal implementation. The feedback obtained from the research can provide recommendations for City of Los Angeles staff to enhance the open data portal. The enhancements can improve the user experience and ultimately enable the open data portal to improve the transparency of government provided by the software. The findings from the study will not only benefit the City of Los Angeles staff who manage the open data portal, but other government entities who can implement the fundamental concepts used to improve the technology.

Section 6: Conclusion

The decline in trust of government by the public has been a growing problem in recent decades (Mahmood, 2016; Park & Blenkinsopp, 2011). Improving government transparency has generally been viewed as one of the primary ways to resolve the issue of government mistrust among the public (Harrison & Sayogo, 2014). The sharp advancement in technology and the adoption of e-government solutions by government have led to a transformation in the way government operates (Bannister & Connolly, 2011). Studies have explained the general positive impact that e-government technology can make on citizen perceptions of government trust (Kim & Lee, 2012; Mahmood, 2016; Tolbert & Mossberger, 2006). However, previous studies have not been specific in measuring the actual improvement of public perceptions of transparency through the use of technology. In addition, while there are studies on measuring the performance of e-government, there is a lack of studies specifically on open data portals and particularly within the local government context of the Los Angeles area. This research attempts to bridge the multiple gaps in research which surround e-government technology, open data portals, citizen perceptions of transparency, and user satisfaction within the local government context.

The contributions of the study will not only benefit the City of Los Angeles staff who manage the open data portal, but other local government entities who are implementing similar technology. The insights from the user feedback will ultimately provide a way to understand the actual effectiveness of the technology and hopefully give clear paths of improvement to address possible shortcomings. The software driving the open data portal is offered by industry specific vendors; therefore the results of this study can even positively affect the software vendors who offer open data solutions. Ultimately, this study seeks to expand existing knowledge on e-government technology and open data portals in regards to public perceptions of transparency.

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Appendix A: Survey Questions

1. Are you a City of Los Angeles resident? If not, do you live within Los Angeles County?
 - City of Los Angeles resident
 - Los Angeles County resident (outside of LA City)
 - Other

 2. What is your gender?
 - Male
 - Female
 - Transgender
 - Other
 - Refuse to Answer

 3. Which age range bracket do you fall within?
 - 17 or younger
 - 18-24
 - 25-29
 - 30-39
 - 40-49
 - 50-59
 - 60 or older

 4. Are you a registered member of the City of Los Angeles open data portal?
 - (Yes/No)

 5. Are you searching for data on the City of Los Angeles open data portal in an academic, professional or personal capacity?
 - Academic
 - Professional
 - Personal

 6. How did you find out about the City of Los Angeles open data portal?
 - Internet search engine
 - City of Los Angeles website
 - Friend or colleague
 - Other (Enter 'other')

 7. Did you use a PC or mobile device to access the open data portal?
 - PC
 - Mobile Device

 8. Did you submit a records request in lieu of not being able to locate data on the City of Los Angeles open data portal?
 - (Yes/No)
- If yes, what data were you searching for?

9. Were you able to find the data you were originally looking for?
- (Yes/No)
10. Have you been able to use data from the City of Los Angeles open data portal for any studies or relevant projects to make decisions?
- (Yes/No)

(The following questions will use a five-point Likert scale format.)

11. How satisfied are you with your overall experience on the City of Los Angeles open data portal?
12. Do you feel that the data searching functionality was efficient and effective to help you find relevant information?
13. How would you rate your experience in terms of easiness of navigating the City of Los Angeles open data portal website?
14. Do you feel that the City of Los Angeles open data portal has positively affected your impression of transparency for the City of Los Angeles?

(The following are optional, open-ended questions which will allow the respondent to manually type an answer.)

15. What improvements do you think can be made to the City of Los Angeles open data portal to improve user satisfaction?
16. What additional data can be added to the City of Los Angeles open data portal to improve transparency or better assist the general public?