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The Implementation of 311 Technology in Local Government and the Impact on Citizen-initiated Contacting

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ABSTRACT

THE IMPLEMENTATION OF 311 TECHNOLOGY IN LOCAL GOVERNMENT AND THE IMPACT ON CITIZEN-INITIATED CONTACTING

By

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DECEMBER 2016

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Prior studies have documented the expanded role of 311 non-emergency systems in public participation, public management and performance management in local governments. Three-one-one began as a simple telephone-based system for requesting non-emergency services and now plays an important role in local governments. Yet, there are very few insights into the impact of 311 systems on their public users, even as local governments increasingly turn to 311 as a public engagement tool, using it to facilitate citizen-initiated contacts. This dissertation explores two research questions. First, how has 311 technology affected citizen behavior? Second, has the introduction of a 311 system produced a more equitable pattern of participation in the administrative process by changing the profile of citizens who contact local government?

Once introduced into a local government, 311 systems are widely accessible (particularly in the case of multi-channel 311 systems that offer several easy-to-use options for contacting) and relatively inexpensive and should, therefore, stimulate contacting. The technology's ease of use should appeal to potential users, particularly those intimidated by more complex, pre-311 methods of contacting. This study uses a mixed methods research design with three case studies

(Denver, Minneapolis and Kansas City) to conduct a pre- and post-311 implementation analysis of contacting patterns. It focuses on determining whether contacting rates change and whether there are equity implications of the patterns generated as a result of 311 use.

This dissertation finds that the cities faced several challenges during implementation, including managing the internal culture change associated with introducing 311 into local government. It also finds some evidence of higher contacting rates and increased equity associated with 311 use. These findings have two main policy implications. First, they highlight the importance of designing a variety of participation options to ensure that participation is open to various cross-sections of the population and to equalize access to government across venues. Second, more consideration needs to be given to the design features of an implementation plan for an innovation such as 311, ensuring a clear link between the features and specific desired outcomes, given the unique conditions of the implementation context.

Keywords: 311 non-emergency systems, Public participation, Citizen-initiated contacts

THE IMPLEMENTATION OF 311 TECHNOLOGY IN LOCAL GOVERNMENT AND THE
IMPACT ON CITIZEN-INITIATED CONTACTING

BY
EMEFA SEWORDOR

A Dissertation Submitted in Partial Fulfillment
of the Requirements for the Degree
of
Doctor of Philosophy
in the
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of
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ACCEPTANCE

This dissertation was prepared under the direction of the candidate's Dissertation Committee. It has been approved and accepted by all members of that committee, and it has been accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy in Public Policy in the Andrew Young School of Policy Studies of Georgia State University.

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DEDICATION

To my family.

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CHAPTER I: INTRODUCTION

This study examines public engagement and participation in the administrative process, through the lens of the 311 non-emergency center technology. The inaugural launch of the 311 non-emergency system in Baltimore, Maryland in 1996 ushered in a new era for local government administration. In the ensuing years, the innovation has been adopted by many jurisdictions (O'Byrne, 2015), potentially expanding citizens' participation in public administration and influencing local governments' approach to serving the public as customers (Thomas, 2012). According to a 2012 survey by the International City/County Management Association (ICMA), as many as 263 local governments have established 311 or 311-related systems in the country, in a diversity of local contexts (C. Fleming, personal communication, April 29, 2014).

Three-one-one was conceptualized in a time when its emergency equivalent – the well-known 911 number – was being subjected to a wide variety of non-urgent calls, often adding to the strain on operators (Tracy & Tracy, 1998). Cities initially established the 311 non-emergency number system to provide relief to their 911 emergency systems, which were being inundated with these non-urgent calls (U.S. Department of Justice, 2007). The magnitude of the problem is noted by Mazerolle et al. (2002, p. 98), who cite nationwide statistics on the rate of non-emergency calls to 911 systems as between 40 and 80 percent.

Over the next two decades, 311 technology developed from being simply an auxiliary phone service to 911, used mainly for providing information, into sophisticated systems that constitute an integral part of local governments' service delivery and performance systems (Behn, 2005; Clark, Brudney, & Jang, 2013; Kavanagh, 2007; Nam, 2012; Nam & Pardo, 2012; Tumin & Wasserman, 2008). A number of factors have contributed to these developments. As Poister

and Streib (1999, p. 326) note, in the 1990s, a confluence of factors (such as budgetary pressures, legislative restrictions and increasing mandates to sub-national governments) brought public performance back to the fore in local governments. There is evidence that governments are finding new ways to make increasing use of technologies in public administration (Anthopoulos & Reddick, 2016). Developments in technology have allowed governments to advance this agenda.

Overall, the use of 311 systems has gone beyond providing citizens with basic information about government services. They are now being used in areas such as disaster management (Holmes, 2007; Phelan, 2009; Schellong & Langenberg, 2007) and performance management (Behn, 2005; Reddick, 2010; Schwester, Carrizales, & Holzer, 2009). Arguably, 311's most important role is making government more accessible and facilitating public contact and participation in local governance (Reddick, 2011; Schwester et al., 2009).

The type of government-public relationship that technologies such as 311 facilitate is somewhat "unique" in the public participation literature (Hirlinger, 1992, p. 555; Sharp, 1984; Thomas, 1982; Verba & Nie, 1972). This type of interaction, termed citizen-initiated contacting, is unique due to the fact that it is motivated by an individual's need - whether objective or "perceived" - for a particular service provided by the government (Jones, Greenberg, Kaufman, & Drew, 1977; Sharp, 1984; Thomas, 1982, 2012; Thomas & Melkers, 1999) and thus introduces the public into the administrative process. Although literature on citizen-initiated contacting as a mode of public participation dates back to the early 1970s (for example, Verba & Nie, 1972; Verba, Nie, & Kim, 1978), compared to other forms of public participation, it is relatively under-researched, particularly in the literature after 2000.

The literature is even more sparse when it comes to assessing the impact of technologies on citizen-initiated contacting. However, studies in e-government have contributed to our understanding of technology use in government, particularly the Internet. There is no consensus on what constitutes “e-government” but most definitions stress the use and role of computer and Internet technologies (see, for example, Marche & McNiven, 2003; Roy, 2006), thereby effectively precluding first generation 311 telephone systems. In the 1990s, e-government was characterized by government-to-citizen (G2C) communication (Cavallo, Lynch, & Scull, 2014), whereas 311 was always designed to facilitate, citizen-to-government or C2G communication. Furthermore, the focus in the e-government literature has overwhelmingly been on how the technologies have impacted government’s level of responsiveness and accountability to the public as customers; that is, the focus is on change at the government’s end (Behn, 2005; Reddick, 2010; Schwester et al., 2009). Researchers pay less attention to the changes that these new technologies cause at the users’ - that is, the public’s - end. Some studies that have examined the impact of Internet technologies on public participation focused on whether they result in representativeness or if there is a digital divide in usage patterns (for example, Best & Krueger, 2005; Clark et al., 2013; Schlozman, Verba, & Brady, 2010; Thomas & Streib, 2003).

As use of the 311 technology continues to grow and evolve, it is important to examine its impact on the user end. The reach of 311 technology means that a larger segment of the population is potentially exposed to it as an avenue for engagement. As such, 311 has the potential to change the pattern of participation from those in the traditional participation literature.

A Primer on 311 as an Innovation in Local Government

Much of our understanding about the 311 innovation in local government relies primarily on non-academic studies and industry reports on best practices. Two decades after Baltimore implemented the first 311 call center system, little in the way of academic literature explains the phenomenon of 311 systems in local government, particularly with a focus on its impact on the administrative side of government. This section offers a brief review of the history of 311, discusses some of the main developments in usage and how the concept of 311 now refers to a sophisticated technology that is, in many cases, intimately tied to the functions and performance of local governments.¹

The 311 non-emergency number is one in a series of specially designated “N-1-1” telephone codes used for accessing information or various types of social or government services (Mid-America Regional Council, n.d.). The origin of the 311 number is tied to the best known of these N-1-1 numbers: the 911 emergency number. According to the National Emergency Number Association (NENA), deliberations about instituting an emergency number date back to the 1950s when fire safety professionals recommended a designated number for fire services (NENA, 2013-14a). This discussion subsequently broadened to include considerations for a comprehensive number for all emergencies and, in 1968, 911 came into effect (NENA, 2013-14a). However, as NENA (2013-14a) and the Industry Council for Emergency Response Technologies (2015) note, this was mainly based on a telecommunications industry agreement and was not immediately institutionalized. Although the 911 number became widely accepted, formal legislative support would only follow 30 years later with the Congressional Wireless Communications and Public Safety Act of 1999, whose intent was “to promote and enhance

¹ For a more detailed review of this history, including the mechanisms via which 311 technology has diffused and been adapted, and service integration, see two recent dissertations by O’Byrne (2015), and Nam (2012), respectively.

public safety through use of 9-1-1 as the universal emergency assistance number” (“Wireless Communications and Public Safety Act of 1999,” 1999). The 911 number gained popularity and spread across the country, reaching almost full coverage of the American population by the end of 2015 (NENA, 2013-14b).

With 911’s popularity came the unintended consequence of misuse of the number, creating pressures on the emergency response systems as the system was often subjected to a wide variety of non-urgent calls (Tracy & Tracy, 1998). Concerns over the strain on 911 systems, particularly from non-emergency calls, led officials in search of alternative or parallel systems to handle these calls (Mazerolle et al., 2002; Purdum, 1996). The US Department of Justice applied to the Federal Communications Commission (FCC) for 311 to be a national number for non-emergency calls (U.S. Department of Justice, 2007, *The COPS Office Responds to a National Crisis* section, para. 3). In comments submitted to the FCC prior to its final ruling, several organizations opposed the request (FCC, 1997). For example, NENA feared that the public would confuse “N-1-1” codes for emergency and non-emergency, while various associations of 911 operators and administrators feared that the implementation of a non-emergency number would harm efforts to achieve full coverage for the emergency number (FCC, 1997, p. 21). In 1997, the FCC approved the application (FCC, 1997).

Despite its availability nationwide, some jurisdictions that already had seven-digit non-emergency numbers in place have not transitioned to using 311. This study will focus only on the three-digit systems since, as noted by Mazerolle et al. (2002, p. 119), these tend to incorporate more advanced call-taking technologies and their memorable standardized format makes them a distinct technology from the seven-digit options.

The innovation and diffusion literature provides some possible explanations for the spread of 311 systems and the mechanisms via which the systems spread across the country (O'Byrne, 2015). One hypothesized reason for the spread of innovation, which is likely to be applicable to the case of 311 adoptions, is “social learning theory,” which explains the diffusion of ideas as the result of a process in which officials learn from the experiences of their peers in other jurisdictions as they seek solutions to problems (Boehmke & Witmer, 2004, pp. 39-40). Officials in jurisdictions that are considering their own policy adoption are likely to look to leaders or “pioneers in the adoption of a policy” as part of the learning process, in what is known as a “leader-laggard model” of diffusion (Berry & Berry, 2007, p. 230). The transmission of innovative ideas is posited to take place within forums or “policy networks” where officials interact with each other (Mintrom & Vergari, 1998, p. 128). Mintrom and Vergari (1998, p. 130) note that, particularly within these “policy networks,” there are key, well-connected individuals - known as “policy entrepreneurs” and defined as “people who seek to promote policy innovations” - who help to transmit and push the innovation process along.

O’Byrne (2015, pp. 63-64, 116) finds that mayors, particularly of big cities such as Baltimore and Chicago, played a significant role as political policy entrepreneurs by providing strong leadership that facilitated both local adoption and the spread of 311 systems. This finding lends support for the “leader-laggard” thesis. O’Byrne (2015, p. 64) also finds that various associations of local governments served as policy networks that encouraged the adoption of 311 technologies.

Referring to 311 as a technology is a bit misleading, as the concept has developed over time from a simple phone-based system to a multi-channel or multi-technology system. For the purposes of this study, one of the most notable technical developments related to 311 technology

is the addition of customer relationship management (CRM) systems to the 311 system. CRM systems “facilitate collection and analysis of data on contacts for use by the sponsoring government or agency” (Thomas, 2012, p. 62). See Nam (2012) for a thorough review of the history and literature on 311/CRM systems. Other technological developments have also been previously detailed elsewhere. For example, in his dissertation, O’Byrne (2015) provides an in-depth discussion of several significant developments in 311, related to both technologies as well as their changing uses in local government. In many jurisdictions, 311 technologies now facilitate contacting via a variety of communication modes, including cellular phones and social media, among others (O’Byrne, 2015). For example, in Chicago “about 1/3 of the calls placed to 311 are now made using a cellular phone,” (City of Chicago, 2010-2016a, http://www.cityofchicago.org/city/en/depts/311/supp_info/faq.html). An Internet search for “311 call center” returns hits for many cities’ 311 Web pages, which provide most of the same services available via the telephone system.²

The significance of these changes is that evolving 311 technologies extend the reach of 311 and thereby broaden the set of participants in this aspect of local government administration. David Moody of KANA (a 311 software company) claims that

‘The starting point was always channel shift – getting people to use mobile devices rather than make a phone call... The reality is that’s not what’s happening anymore. You’re actually opening up a new demographic. You’re not shifting channels, but you’re actually getting more people to contact you’ (cited in Verton, 2012, Lessons Emerging, para. 7).

² The Web hits include, for example, City of Columbus (<http://311.columbus.gov/>); City of New York (<http://www1.nyc.gov/311/>); District of Columbia (<http://311.dc.gov/>); City of Pittsburgh (<http://pittsburghpa.gov/311/form>)

Engagement of a broader range of people speaks to the potential transformative power of 311 technology on public participation (Fountain, 2013), perhaps with the promise of a more equitable pattern of participation than is offered by more traditional modes of public participation.

Three-one-one's success in achieving its goals depends on how the implementation process for the innovation is managed. Of critical importance to a successful implementation strategy for 311 in city government is understanding that "local government lacks a unified culture" (Edwards & Thomas, 2005, p. 370) and the implications of this for managing the organizational change that ensues when 311 is introduced. Edwards and Thomas (2005) find that the decentralized and diversified nature of local government was an important consideration for the city of Atlanta when it implemented an innovation (the Atlanta Dashboard) into city government. The authors note differences across departments in areas such as customer service orientation, technologies and personnel (Edwards & Thomas, 2005, p. 371). Strategies for dealing with the unique implementation context in local government would be important for understanding the outcomes of a 311 implementation process as well.

Drawing on the organization theory literature, Fernandez and Rainey (2006, pp. 169-173) offer insights into eight key factors that influence the success of an implementation in government: making sure that the change is needed; having a plan for managing change; galvanizing support within the organization; obtaining leadership support; obtaining support from external partners; ensuring adequate resources are available to support implementation; ensuring the change takes hold in the organization; and ensuring a complete implementation. These factors or criteria, arguably, take on more weight in light of the uniqueness of the local government context.

Contribution of the Study

This study contributes to public administration research by focusing specifically on contact with the administrative side of government. In this context, the focus then is on the public's role in public management primarily as customer, although the other two roles – citizen and partner - identified by Thomas (2012) may also come into play, though to a limited extent. As Thomas (2012, p. 9) notes, the customer role may be the most common role that the public takes on and thus is of no less significance than the public's other two roles as citizen and partner, and warrants attention as a legitimate participatory role in modern public management.

This dissertation examines how the introduction of 311 technology affects who contacts local government and who participates in the public administration process, with particular emphasis on its impact on representation—that is, equity. Public participation is important in a democratic society (Carpini, Cook, & Jacobs, 2004; Checkoway & Van Til, 1978, p. 27; Lijphart, 1997). As political scientists express concern over what they view as the declining participation of citizens in public affairs (for example, Lijphart, 1997; Putnam, 1995) and disparities in representation (for example, Lijphart, 1997; Strolovitch, 2006; Verba, Schlozman, Brady, & Nie, 1993), it is a matter of policy relevance whether innovations in public administration – such as 311 systems that affect participation in the administrative process – improve or worsen these patterns. Furthermore, as a direct means of public participation, it is important to understand who has access to the administrative side of government and consequently gains access to local government services.

I use a model of contacting and conduct a pre-post analysis to assess the impact of the introduction of a 311 system on the demographic and socioeconomic profile of citizens who contact local government. This study also has important implications for understanding how

local government operations are affected by citizen contacts. As Sharp notes of such contacts, it is “a dynamic that should drive the allocation of urban bureaucracies’ resources toward areas where problem solving is most needed” (Sharp, 1984, p. 669).

The 311 system is a preferred lens for studying public participation in the administrative process, given that telephone service is more pervasive than Internet penetration in the United States. By 2008, 95 percent of households had telephones (FCC, 2010, p. 16 - 3), but by June 2013, only about 70 percent of residential households had a fixed Internet connection with speed of at least “200 kilobits per second in at least one direction” (FCC, 2014, p. 12).

Research Questions

Citizen-initiated contacting has been studied since the 1970s but 311 as a technological innovation in government has only recently gained attention in the academic literature. There remains a large area ripe for academic exploration where these two strands of literature intersect. In an attempt to contribute to the scholarship that links the political science literature on participation with the public administration literature on contacting via 311, I will explore the following research questions: How has 311 technology affected citizen behavior? Has the introduction of a 311 system produced a more equitable pattern of participation in the administrative process by changing the profile of citizens who contact local government?

I choose three study sites for my investigation and use a mixed methods research design. The City and County of Denver, Colorado, Minneapolis, Minnesota, and Kansas City, Missouri all implemented 311 in the mid-2000s. In the mixed methods design, I employ local government quantitative survey data to conduct pre-post evaluations of the characteristics of citizens who

contact their local government. I then conduct a qualitative study involving document review and telephone interviews with 311 experts. The qualitative analysis provides the necessary contextual information to assist with the interpretation of the quantitative results.

Structure of the Dissertation

This dissertation has eight chapters. Chapter two begins with a review of the literature on public participation more broadly and then narrows down to focus more specifically on the theoretical and empirical literature on citizen-initiated contacting as a mode of public participation. This review of the literature shapes the conceptual framework that guides the rest of the study and informs the hypotheses.

Chapter three describes the components and features of the mixed methods research design. The design is heavy on the quantitative component, with the qualitative component serving a supporting role. I describe the case (that is, city) selection procedures, the data collection procedures for the quantitative data (local governments' survey data), interviewee sampling procedures and procedures for collection of the qualitative data (document and interview data). I also provide an overview of the data collected and outline my methods for quantitative and qualitative analysis. I discuss my approach for mixing the quantitative and qualitative components.

Chapters four through six present the findings for the three study cities individually. Each of these findings chapters begins by presenting the qualitative findings to set the stage and then proceeds to discuss the results from the quantitative analysis. The chapters wrap up with a discussion that “embeds” the qualitative findings within the quantitative results.

Chapter seven synthesizes the research findings from the three preceding chapters through a discussion that cuts across the three cases. Chapter eight offers some concluding thoughts, including the policy implications of the research findings and future directions for research in this area.

CHAPTER II: PUBLIC PARTICIPATION

The concept of “public participation” covers a diversity of “publics” and acts or behaviors. Verba and Nie (1972, p. 2) define political participation as acts “directly aimed at influencing the selection of governmental personnel and/or the actions they take.” Public participation encompasses slightly more than political participation, as the former includes a broader set of publics, such as traditional interest groups (Thomas, 2012, pp. 122-123). Rowe and Frewer (2005, p. 253) define public participation broadly as “the practice of involving members of the public in the agenda-setting, decision-making, and policy-forming activities of organizations/institutions responsible for policy development.” Because of its comprehensiveness, I will use the term “public participation” in this study. Despite the recognition of the importance of public participation, there is disagreement over how that participation should take place - encapsulated in the “politics-administration dichotomy,” which calls for the separation of politics (where public involvement “should” take place) and administration (Thomas, 2012, p. 15).

Despite the debate as to whether the public should be engaged in the affairs of government, when scholars note a decline in indicators of activity among the public, the reaction is often one of alarm. For the last few decades, researchers have documented a decrease in public participation, citing, for example, low voter turnout and voter apathy, and the potentially detrimental consequences of lack of involvement on society (Putnam, 1995).

This chapter provides a synthesis of the literature on public participation to inform the conceptual framework that guides this study. First, I discuss some relevant terms and the origin of the concept of public participation in current usage. I provide a synopsis of typologies of participation and proceed to discuss the trends in participation since the 1960s. In the second

half of the chapter, I delve into the literature on citizen-initiated contacts specifically, discussing theoretical and empirical contributions to this literature. These inform the development of the research framework and hypotheses.

What Constitutes Public Participation?

As Thomas (2012, p. 19) notes, the public participation movement in America of the 1960s was a response to criticisms that public administration was unresponsive to the public, and to accusations of pervasive prejudice within the public sector. According to Denhardt and Denhardt (2000, pp. 551-552), the old public administration model focused on neutral competence, direct service provision, top-down program implementation and narrow citizen participation. In the 1960s, President Johnson's War on Poverty federal programs called for public involvement, through "maximum feasible participation" by program beneficiaries in the planning and administration of programs, thereby spawning the "citizen participation" movement (Langton, 1978, p. 14; Thomas, 2012, p. 20). Over time, the move for more public participation at the federal level influenced state and local governments.

Providing a clear and precise definition for public participation is difficult since the term is often confused with a number of other related terms and concepts, including citizen participation and political participation (Langton, 1978, pp. 13-14; Yang & Callahan, 2005, p. 193). Following Langton's example (1978, p. 16) and disaggregating the terms into their constituent parts, the first part refers to who acts while the second part describes what they do. Arguably, public participation is the most comprehensive term as its first component – *public* – captures a diverse set of publics that includes the segment of the public also represented by

citizen (Langton, 1978; Thomas, 2012, pp. 122-123; Yang & Callahan, 2005, p. 193). Public participation is also a broader concept than political participation (Yang & Callahan, 2005, p. 193), the latter of which, according to Langton, “stresses the state (*polis*)” (Langton, 1978, p. 20). The second part of these related concepts, *participation*, covers a broader set of acts that occur in the engagement between the public and the state. Langton notes that the distinction between (citizen) participation and (citizen) involvement lies in who controls the interaction process – the state or citizens or both (Langton, 1978, pp. 20-21). With (citizen) *participation* control could be shared between the two parties or be vested in only one side, whereas with (citizen) *involvement*, all control lies with the state (Langton, 1978, p. 21). This study focuses on the broadest and most inclusive of these concepts: public participation.

Classifying Public Participation Types

Over time, as the politics-administration dichotomy eased, scholars and administrators became open to exploring different participatory mechanisms for engaging the public in the administrative process. Historically, the “ladder” proposed by Arnstein (1969) is an important place to start exploring the treatment of participatory approaches in the literature. Arnstein (1969) presents a framework in which citizen power and control rise with greater participation. The Arnstein (1969) ladder and other one-dimensional characterizations of the participation landscape have been criticized for emphasizing a single aim and strong normative overtones (Bishop & Davis, 2002; Cornwall, 2008; Fung, 2006; Tritter & McCallum, 2006). Bishop and Davis (2002, p. 16) highlight the limited purpose of participation within the Arnstein (1969) framework, explaining that, within the framework, “until direct democracy comes into play, no

meaningful participation has occurred.” Tritter and McCallum (2006, p. 161) offer several criticisms of Arnstein’s (1969) ladder, including its rigid hierarchy, and lack of acknowledgement of other possible goals of participation. As such, Tritter and McCallum (2006, p. 164) call for a variety of ladders to represent the diversity of participation.

With the critiques of earlier one-dimensional typologies, more recent scholars have developed richer multi-dimensional frameworks that better reflect different objectives and the contextual factors surrounding the participation (Bishop & Davis, 2002; Fung, 2006; Rosener, 1978; Thomas, 1990, 2012). These newer frameworks consider a variety of goals or purposes for participation and therefore embrace a much wider set of participation efforts and activities. They are therefore better able to represent the state of the field of actual participation initiatives and mechanisms, and can inform the design of participatory mechanisms. These proposed frameworks include, for example, the “democracy cube” (Fung, 2006) and the “design science approach” (Thomas, 2012).

Patterns and Trends in Public Participation

Studies such as Lijphart (1997) highlight troubling trends in participation levels and their potential consequences for democracy. The United States experienced high levels of public participation in the 1960s and 1970s, followed thereafter by declines. Scholars, including Putnam (1995), have noted declines in a wide range of public participation acts such as voting and attendance at public meetings.

According to the United States Census Bureau, data on voting show that, despite increases in voting rates for the 2008 and 2012 general elections, participation (that is, voting)

rates remained about 10 percentage points below 1964 and 1968 voting rate levels (U.S. Census Bureau, 2012). Apart from the secular decline in participation, there is the additional concern that those who participate may not be representative of the wider society (see, for example, Lijphart, 1997). There may be equity implications of non-representative participation.

Evolving Effects and Trends

The most common finding in studies on participation patterns is that socioeconomic status affects participation (Brady, Verba, & Schlozman, 1995; Jones et al., 1977; Vedlitz, 1980; Verba & Nie, 1972; Verba et al., 1993). Earlier studies tended to find the link between participation and socioeconomic status to be direct (e.g., Verba & Nie, 1972; Verba et al., 1993), while later studies find the link to be less direct. Later studies find the existence of mechanisms that attenuate the link between socioeconomic status and participation - one of the most significant mechanisms being through “needs” in the case of the contacting mode of participation (Hirlinger, 1992; Marschall, 2004; Sharp, 1984; Thomas, 1982; Thomas & Melkers, 1999).

As noted by Fiorina, (2001, pp. 4-5), some scholars argue that the debate over declining participation is altogether misguided, because it views participation too narrowly. For example, Dalton (2008, pp. 85-86) finds that, as opposed to declining, participation is moving away from traditional “duty-based” modes (such as voting) toward increased engagement in more “direct” modes (for example, contacting). This line of argument is important for ensuring that research captures all forms and mechanisms of participation, especially as new forms are introduced through innovations such as new technologies.

Citizen-Initiated Contacts as a Mode of Public Participation

Over the last few decades, studies have approached public participation as a complex concept with many facets and nuances (Claggett & Pollock, 2006; Sharp, 1984; Thomas, 1982; Verba & Nie, 1972; Verba et al., 1978). As Claggett and Pollock (2006, p. 593) note, the frameworks for organizing participation proposed by Verba, Nie and their co-authors are amongst the first to use empirical evidence to identify several forms of participation, including contacting (Verba & Nie, 1972; Verba et al., 1978). According to the authors, there are five dimensions that are useful for defining the sphere of participation acts: the influence exercised, outcome scope, conflict level, the initiative required on the part of the participant (Verba & Nie, 1972, p. 47) and the degree of cooperation (Verba et al., 1978, p. 312). These studies make a significant contribution to the study of contacting behavior, not just by recognizing it as a mode of participation in and of itself, but by also identifying two forms of it. On the one hand, “contacts with broad referent” are contacts whose outcomes have the potential to impact the lives of a large segment of the community (Verba & Nie, 1972, p. 66). On the other hand, “contacts with particularized referents” tend to have a limited impact, usually on the contactor and/or their family (Verba & Nie, 1972, p. 66).

Scholarship progressed with studies that focus on the attitude that characterizes contacting as a unique type of participation, with most scholars focusing on empirically analyzing local contacting data to explore this (for example, Hero, 1986; Hirlinger, 1992; Jones et al., 1977; Peterson, 1986; Sharp, 1984; Thomas, 1982; Thomas & Melkers, 1999). As Thomas (1982) notes, research on contacting advanced with the contribution by Jones et al. (1977) highlighting another key aspect to contacting as a specific type of participation when they include a measure of need into their contacting framework. The argument is that people take the

initiative to make contact with government because they need something from government (such as a city service) (Thomas, 1982). This makes contacting out to be different from traditional acts of participation, such as voting, where the motivation to act is based on some sense of civic obligation (Dalton, 2008).

Thomas (1982, p. 504) notes that contacting is a unique type of participation because of its “instrumental” ends. Thomas (1982, pp. 510-511) sharpens the focus on needs in his “clientele participation” model by explaining that what is essential in motivating contacting is not the objective needs of prospective participants, as proposed by Jones et al. (1977), but rather their subjective assessment or perception that they have some need from government. This leads Sharp (1984) to theorize that a different philosophical motivation drives contacting than most types of participation. Sharp (1984) postulates that an “ethic of government responsiveness on demand” (p. 654), in which individuals show a preference for turning their problems into public problems, drives contacting in municipal governments (p. 664). By this, Sharp (1984) is emphasizing the uniqueness of contacting as a mode of participation in that it is motivated by some situation that the individual faces – one the individual deems his or her local government can or should assist with.

Models of Citizen-Initiated Contacts

Hirlinger (1992) identifies several models of citizen-initiated contacting, based on which set of variables received the most attention in the study: the socioeconomic status (SES) model, the parabolic model, the political ties model and the perceived needs model. The latter models tend to build on the basic socioeconomic status model (Peterson, 1986), and add more layers of

complexity to achieve richer modeling of the phenomenon of contacting. Moreover, these updated models offer deeper insights into the place and effect of the socioeconomic status variables in contacting models (Sharp, 1984; Thomas, 1982). For example, Sharp (1984, p. 662) concludes that, “perceived need is crucial to understanding contacting behavior, in part because it is a significant predictor of contacting and in part because the importance of socioeconomic variables is contingent upon it.”

The traditional socioeconomic model has a long record but it is a weak model for explaining contacting activity, as Thomas (1982) notes. The SES model is a “resource model,” by arguing that social status confers resources such as “time, money and civic skills” that make participation feasible (Brady et al., 1995, p. 271). With respect to contacting behavior - an example of what Brady et al. (1995, p. 282) classify as a “time-based act” - the results for the effect of socioeconomic variables are mixed. For example, Brady et al. (1995, p. 283) report that income has no impact and education has little effect. Thomas (1982), for example, finds weak support for the SES model in his study of Cincinnati contacts, with a positive association between income and contacting in only some of the services included in the study and no statistically significant relationship in the remaining services.

Jones et al. (1977) put forward another form for the relationship between SES and contacting behavior: higher SES people have less need but more “awareness” so that, as need and awareness interact they generate a quadratic or “parabolic” relationship. Thus, contact may initially rise with SES as citizens become more aware that they can turn to government to solve their problems, but then fall with SES as their needs decline (Jones et al., 1977). Several studies have tested the Jones et al. (1977) model and most do not find empirical support for its central thesis (see, for example, Sharp, 1984; Thomas, 1982; Thomas & Melkers, 1999; Vedlitz, 1980).

The subsequent “need” models of contacting were developed in response to the unsatisfactory performance of the SES and parabolic models. Thomas (1982, p. 511) critiques the parabolic model, highlighting the failure of Jones et al. (1977) in capturing an objective measure of need, based on SES, rather than capturing the belief (from the perspective of the potential contactors) that they have some need from government. This subjective measure of need for some assistance that government can provide, for example, trash pickup or filling potholes – measured from the contactor’s perspective – is known as “perceived need” (Thomas, 1982). Perceived need became the dominant measure of need in models of contacting (Hirlinger, 1992; Sharp, 1984; Thomas, 1982; Thomas & Melkers, 1999).

Factors Associated with Citizen-Initiated Contacting of Local Government

Because of its long history, the SES model is the most tested model of contacting. SES variables remain important in the participation literature as researchers continue to test the applicability of the SES model or control for these factors in their participation models (Leighley, 1995). As such, this study includes SES variables to test the resource theory underlying the elaborated SES model of Brady et al. (1995). Following Thomas and Melkers (1999), this study groups into three main categories the key explanatory variables that potentially mediate the effects of antecedent variables, specifically SES and demographic characteristics: perceived need, other involvement, and psychological engagement. This study also includes measures of stakeholding as control variables (see Figure 1). Stakeholding refers to having a vested interest in the quality of services in one’s community (Thomas & Melkers, 1999, p. 669).

Researchers usually operationalize SES with some measure of income, education and occupation, usually in the form of an index that incorporates some or all of these three variables (Brady et al., 1995; Hirlinger, 1992; Verba & Nie, 1972). Verba and Nie (1972, p. 132) use all three in a summative measure of SES in their baseline model and find that particularized contacting is unrelated to SES, but note that there is a significant difference between the lowest and highest SES groups, with the latter being more active. They determine that the SES framework does a poor job of modeling particularized contacting (Verba & Nie, 1972, p. 136).

Subsequent research extend the standard or baseline SES model to analyze the impact of socioeconomic variables in models that include a broader set of determinants of participation. Brady et al. (1995) propose a resource model, which analyzes the paths from SES to the necessary civic skills that aid in participation. Income has no bearing on the level of those skills but directly impacts those acts that require money (Brady et al., 1995). With respect to contacting acts specifically, which take up time, Brady et al. (1995) find that civic skills, that are fostered through work and schooling, have a significant positive impact on activity, while family income and education do not. Hirlinger (1992) finds his SES scale to be insignificant in contacting.

Jones et al. (1977, p. 150) use a model that proxies SES with a similar concept - “social well-being” - to study contacting about environmental issues in Detroit, Michigan. The authors find that a “parabolic” (quadratic) relationship exists between their two measures of social well-being and contacting, where contacting is highest for those with mid-levels of social well-being and awareness. However, most other studies that have tested the parabolic assumption have been unable to find evidence to support it (for example, Hirlinger, 1992; Sharp, 1984; Thomas, 1982; Thomas & Melkers, 1999).

The next most important set of explanatory variables in empirical studies of contacting is needs. Jones et al. (1977) measure objective need, but most scholars measure perceived need, often using survey questions about local conditions (for example, poor road conditions or rundown buildings) (Hirlinger, 1992; Marschall, 2004; Sharp, 1984; Thomas, 1982; Thomas & Melkers, 1999) or services (for example, Hero, 1986). Marschall (2004) finds that people who perceive problems in their neighborhood are more likely to contact. Thomas and Melkers (1999) find perceived need increases the likelihood of contacting city departments; that is, people who gave lower ratings to services were more likely to contact the responsible service department. Thomas and Melkers (1999) also present an interesting result for the effect of SES in a need model, that is, SES is a weak factor in contacting. Hirlinger (1992) initially finds no relationship between perceived need and contacting, but he does find that for those who have needs, having political connections increases the likelihood of particularized contacting.

“Civic attitudes,” as a potential mechanism through which SES impacts participation (Verba & Nie, 1972, pp. 13-14), remain relevant in contacting research (Brady et al., 1995; Hero, 1986; Hirlinger, 1992; Marschall, 2004; Peterson, 1986; Thomas & Melkers, 1999). According to Verba and Nie (1972, p. 19) these attitudes include “attitudes such as a sense of efficacy, of psychological involvement in politics, of an obligation to participate, and so on.” These attitudes are essential for motivating people to take the initiative to contact (Hirlinger, 1992; Thomas & Melkers, 1999). These diverse attitude factors have been measured in varying ways across studies and so have been found to have differing effects. For example, Brady et al. (1995, p. 283) find that interest in public affairs and civic skills (the latter of which tend to be positively correlated with SES) are positively related to activities that use up time, such as contacting. The interest in public affairs result is also found in Marschall (2004), on contacting about education

and neighborhood safety issues. Hero (1986) finds that efficacy has a significant negative effect on contacting. Hero (1986, p. 634), citing Verba and Nie (1972), explains that this counter-intuitive finding may possibly be due to higher efficacy people choosing to participate in other ways. Thomas and Melkers (1999) find that political efficacy is not related to contacting. They find interest in public affairs has a significant positive effect on contacting behavior in some cases and other involvement has a significant positive effect in most of the cases they study (Thomas & Melkers, 1999).

In addition to SES, one of the earliest set of factors analyzed in participation studies, especially by scholars interested in equity, are demographic factors, particularly race. Researchers have faced challenges in their attempts to identify the unique contribution of demographics - particularly race - to contacting; this is due in part to how closely these variables tend to be intertwined with other variables, such as SES and psychological engagement (Leighley, 1995; Thomas & Melkers, 1999; Verba & Nie, 1972). As Verba and Nie (1972, pp. 151-152) note, minorities tend to score low on SES, thereby reducing their propensity to participate even though their disadvantaged position should serve as a mobilizing force to seek amelioration. Verba and Nie (1972) find that blacks are less likely to engage in contacting and posit that the possible reasons for this finding include lower levels of efficacy. Several subsequent studies have found evidence to support the finding that minorities are less likely to engage in contacting behavior (Hero, 1986; Hirlinger, 1992; Thomas & Melkers, 1999).

The life cycle model asserts that there is a curvilinear relationship between age and participation, with participation peaking in mid-life (Verba & Nie, 1972, p. 138). This pattern is attributed to higher mobility and weaker ties to the community in early adulthood (Leighley, 1995, p. 184). When it comes to contacting behavior specifically, the results have been mixed

(see, for example, Hirlinger, 1992; Thomas & Melkers, 1999). Verba and Nie (1972, pp. 138-139) state that there is no relationship between particularized contacting and stage of life. Because the age effect is sometimes interpreted in connection to community ties, age is sometimes considered part of another set of variables in this study's framework: stakeholding (Thomas & Melkers, 1999). Stakeholding is usually operationalized through a variety of measures, such as home ownership, having minors in the household and residency tenure, among others, and there is no consensus on the effect of this set of factors (Thomas & Melkers, 1999, pp. 669-670). For example, Marschall (2004) includes home ownership in modeling contacting about both education and neighborhood safety issues and finds mixed results, while Clark et al. (2013) and Thomas and Melkers (1999) find strong evidence that this measure positively impacts some forms of contacting. Leighley (1995, p. 184) notes that females' voting rates have become similar to men's; however, there remain some gender disparities across different modes of participation.

Conceptual Framework and Hypotheses

This study is guided by the following conceptual framework (Figure 1), with factors that influence citizen-initiated contacts informed by the literature discussed above, particularly the needs model of Thomas and Melkers (1999).

The following hypotheses draw mainly from the literature on the factors that affect participation in political acts generally and contacting behavior more specifically. The hypotheses are mainly geared toward testing whether the new 311 technology serves as a

mediating force in the presence of factors that historically have produced inequitable participation, while facilitating the public's participation in the public administrative process.

First, I establish whether the introduction and availability of the 311 technology to facilitate contacting local government changes the overall amount of this form of participation in the city. I expect that the availability of 311, which is widely accessible (particularly in the case of multi-channel 311 systems that offer several easy-to-use options for contacting) and relatively inexpensive, to stimulate contacting. The technology's ease of use should appeal to potential users, particularly those intimidated by more complex, pre-311 methods of contacting. I examine total contacting rates and hypothesize the following:

H1: Post-311 contacting rates will be higher than pre-311 contacting rates.

Historically, SES variables influence other factors such as skills, civic orientations and other types of resources or factors that affect participation. Lower SES groups have historically had lower levels of those resources. Given this link, I expect 311 to play a moderating role that makes it easier for low SES groups to contact their local government. For instance, I posit that the technology should mitigate the effect of low levels of such factors as political efficacy and awareness that are traditionally found among low SES groups. "Other contacting" or "non-311 contacting" is contacting that takes place outside of the 311 technology and includes such contacts as direct contact with city council members, among others. Without the 311 technology to facilitate contact, non-311 contacting should not exhibit the same patterns (in terms of socioeconomic and demographic profiles of participants) as 311 contacting.

H2: Patterns of participation via citizen-initiated contacts will be more equitable after adopting 311.

More specifically,

H2a: The association between SES and contacting will be weaker after adopting 311.

H2b: The association between SES and 311 contacting will be weaker than the association between SES and non-311 contacting.

H2c: The association between demographic characteristics and contacting will be weaker after adopting 311.

H2d: The association between demographic characteristics – race, age and sex – and 311 contacting will be weaker than the association between demographic characteristics and non-311 contacting.

As previous literature has shown, perceived need can be a powerful explanatory variable in understanding contacting behavior. I expect the same result in this study and hypothesize that as 311 reduces the barriers traditionally associated with lower SES, perceived need will become an even stronger motivating factor for initiating contact with local government.

H3a: Perceived need will have a strong positive association with contacting, especially after 311.

H3b: Perceived need will have a stronger positive association with 311 contacting than with non-311 contacting.

Because of the strong connection between 311 and the provision of local services, I expect having a stake in the local community to motivate residents to initiate contact with their local government for services that impact their lives within their communities. As such, I hypothesize the following:

H4: Having a stake in the community will have a stronger association with contacting via 311 than with non-311 contacting.

The success of an innovation such as 311 depends heavily on factors such as political, administrative and other support in the implementation process. Also important for success is how much the innovation is promoted among the public and other stakeholders to bring awareness to the new avenue for contacting their government in order to encourage its use. I conducted an analysis of the implementation process for the 311 systems to examine the organizational culture and dynamics within city government to understand the context in which the implementation process took place (Nightingale & Rossman, 2010, p. 329). I expect that local governments that implement 311 using a strategy that incorporates management of the change process, and that actively promote their 311 systems will see a greater impact on their citizens' contacting behavior.

I adapted the conceptual frameworks presented in Martinson and O'Brien (2010, p. 167) and Rossman, Roman, Buck, and Morley (1999), cited in Nightingale and Rossman (2010, p. 330), to guide a qualitative evaluation of the 311 implementation process at the three study sites

(see Figure 2).³ This framework helped determine what impact the implementation process had on the contacting behavior observed after 311 implementation. In this framework, I explored the motivations or factors that influenced the implementation process. I also examined the components of the implementation itself, including the policy changes associated with the decision to have a 311 system. These changes interplay with other components that developed during the implementation process. The implementation process involves the relationships between 311, and the city agencies and other stakeholders (such as city council members' ward offices) who partner with 311. The process also involves the technological changes that were introduced, not only at the 311 center itself but also at the implementing partners (city departments) because of their interrelationships with 311. The implementation process analysis also examines how these technological innovations introduced organizational/internal culture changes within the implementing agencies and partners, which needed to be managed to ensure that the policy change was implemented successfully. At the other end of the conceptual framework is a look at the outcomes that resulted from this implementation process, including the facilitation or easing of citizen access to government to encourage citizen contacting. Therefore, I explore the following proposition about the implementation process:

P1: 311-related outcomes (contacting rates and patterns) will reflect the effectiveness of the implementation of the 311 innovation.

I assess the "effectiveness" of each city's management of its 311 implementation change process using the eight factors for managing implementation of change proposed by Fernandez and

³ The Martinson and O'Brien (2010, pp. 166-167) framework was an example developed for evaluating a food assistance program. The elements of the framework were adapted as necessary to apply to an evaluation of the 311 implementation process.

Rainey (2006) as a set of evaluative criteria. The factors (criteria C1-C8) are as follows

(Fernandez & Rainey, 2006):

1. C1: “Ensure the need” – leaders develop a clear vision that convincingly explains that the proposed change is necessary (p. 169)
2. C2: “Provide a plan” – leaders outline a coherent strategy for executing the change (pp. 169-170)
3. C3: “Build internal support for change and overcome resistance” – leaders work with internal partners and stakeholders to ensure buy-in for the initiative (pp. 170-171)
4. C4: “Ensure top-management support and commitment” – there is high level political and/or administrative support for the initiative (p. 171)
5. C5: “Build external support” – leaders work with external partners and stakeholders to ensure support for the initiative (pp. 171-172)
6. C6: “Provide resources” – make adequate financial and other resources available to support the implementation (p. 172)
7. C7: “Institutionalize change” – leaders ensure changes take root and become a permanent part of the organization’s operations and procedures (pp. 172-173)
8. C8: “Pursue comprehensive change” – ensure a coherent and complete implementation of the initiative by avoiding a piece-meal approach to implementation that compromises the integrity of the entire initiative (p. 173)

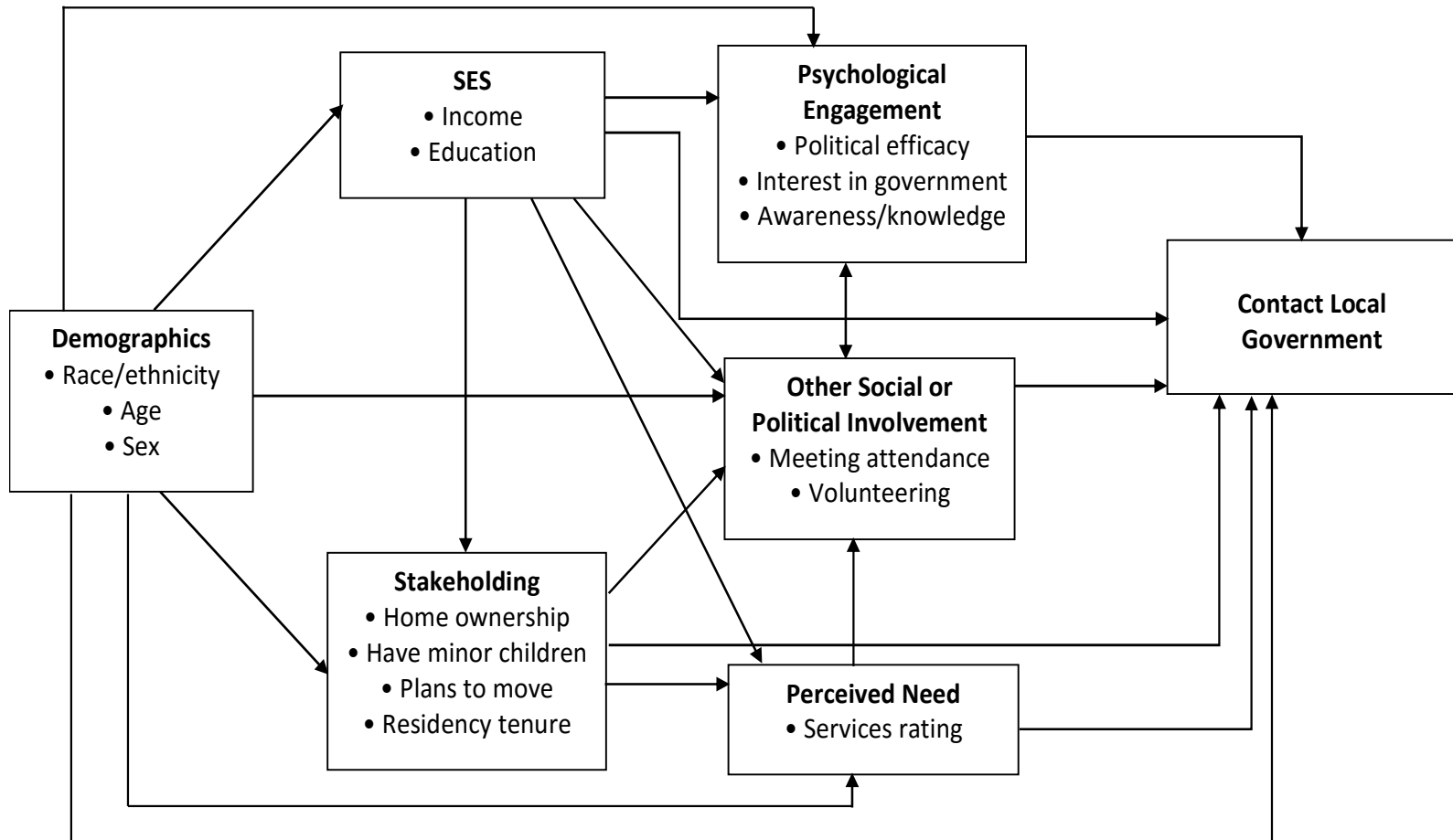


Figure 1. Integrated contacting framework. Based on the model developed by Thomas and Melkers (1999).

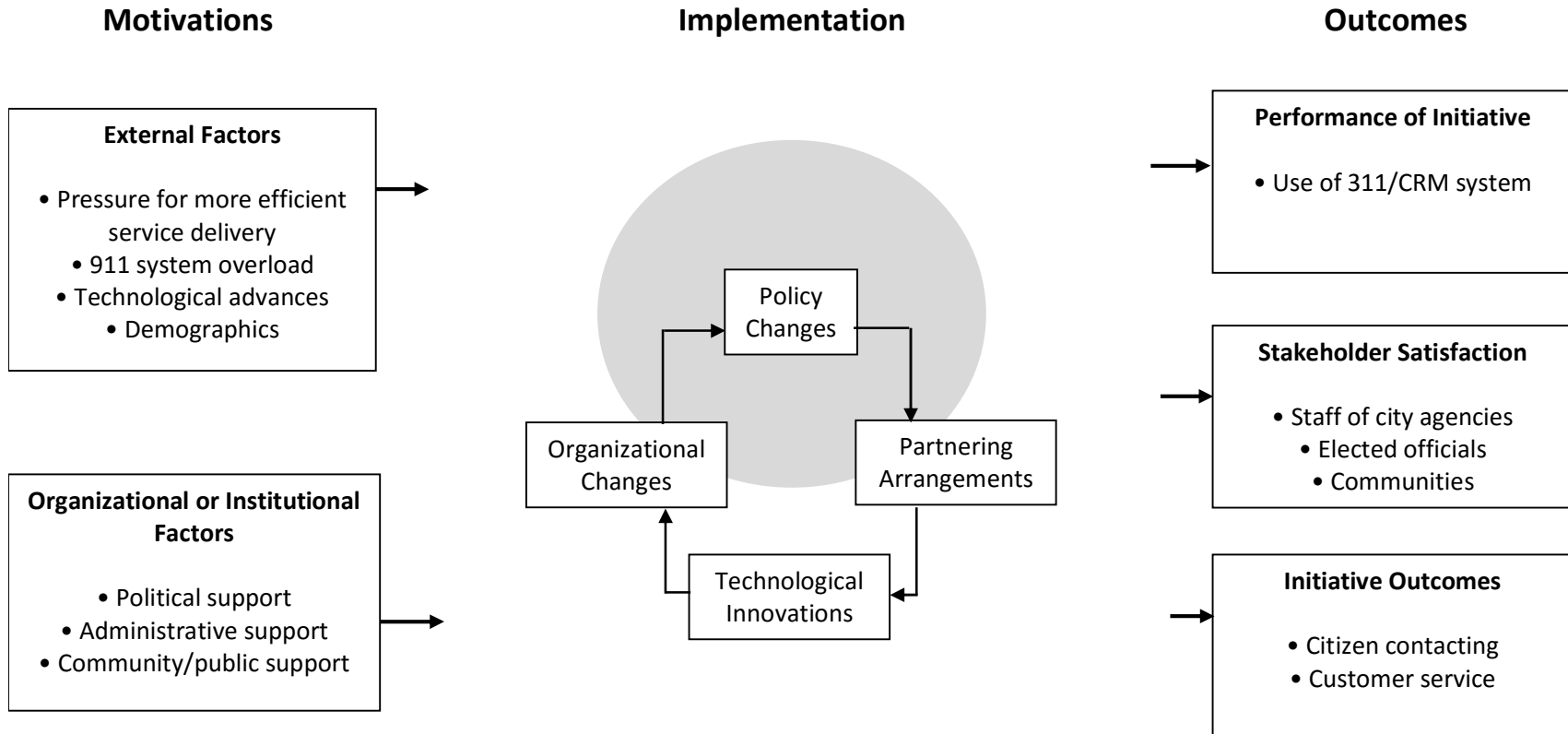


Figure 2. Conceptual framework for implementation analysis of 311 case study. Adapted from the conceptual frameworks in Martinson and O'Brien (2010, p. 167), and Rossman et al. (1999), cited in Nightingale and Rossman (2010, p. 330).

Summary

Public participation refers to a wide range of acts and involves a variety of different participants. The range of acts that qualify as public participation has grown over the last few decades. Theoretically, the participation sphere is defined by a number of dimensions that allow us to group participatory activities into modes or mechanisms of participation. The focus of this study is one of these modes: contacting. Citizen-initiated contacting differs from most types of participation because of its instrumental value – the contactor takes the initiative to act because he or she perceives there to be some need for a good or service that can be met by government.

Empirically, the study of participation generally, and of contacting behavior specifically, has been heavily influenced by the socioeconomic status (SES) model, though the success of the traditional SES model has been mixed. Despite some well-known critiques of the SES model (see, for example, Leighley, 1995), researchers continue to see the utility of SES variables in models of contacting behavior (see, for example, Thomas & Melkers, 1999). However, these more recent studies stress the indirect role of the SES variables and focus on the explanatory mechanisms behind participation and, as such, highlight the primary effects of other factors such as perceived need (see, for example, Thomas & Melkers, 1999). This dissertation study seeks to empirically analyze what impact the introduction of the 311 technology has had on these explanatory mechanisms. It also seeks to explore possible explanations for any observed effects of the technology that might be attributed to how it was implemented in the city government.

CHAPTER III: DATA AND METHODS

This dissertation adopts a mixed methods research design that uses both quantitative and qualitative research methodologies to study the 311 phenomenon in local governments. Johnson and Onwuegbuzie (2004, p. 17) define mixed methods research as “the class of research where the researcher mixes or combines quantitative and qualitative research techniques, methods, approaches, concepts or language into a single study.” This approach to research is informed by what Creswell (2009, p. 10) calls a “pragmatic philosophical worldview,” which has value for “focusing attention on the research problem in social science research and then using pluralistic approaches to derive knowledge about the problem.” Mixed methods users “look to the *what* and *how* to research” (Creswell, 2009, p. 11, emphasis in original). Mixed methods research gives the researcher freedom in that it has the advantage of benefiting from the strengths of both quantitative and qualitative approaches, while limiting the weaknesses of both (Creswell, 2009; Johnson & Onwuegbuzie, 2004). Additionally, combining the two research paradigms produces more comprehensive knowledge (Johnson & Onwuegbuzie, 2004, p. 21).

Research Design

I applied the framework developed by Creswell et al. (2003), cited in Creswell (2009, p. 209), to develop a sequential explanatory mixed methods design with multiple cases (see Figure 3). The sequential design includes the mixing strategy of “embedding” to combine the qualitative and quantitative findings. In Figure 3, I use mixed methods notation (Creswell, 2009, p. 209) for various aspects of the design. The notation is explained in the subsequent discussion.

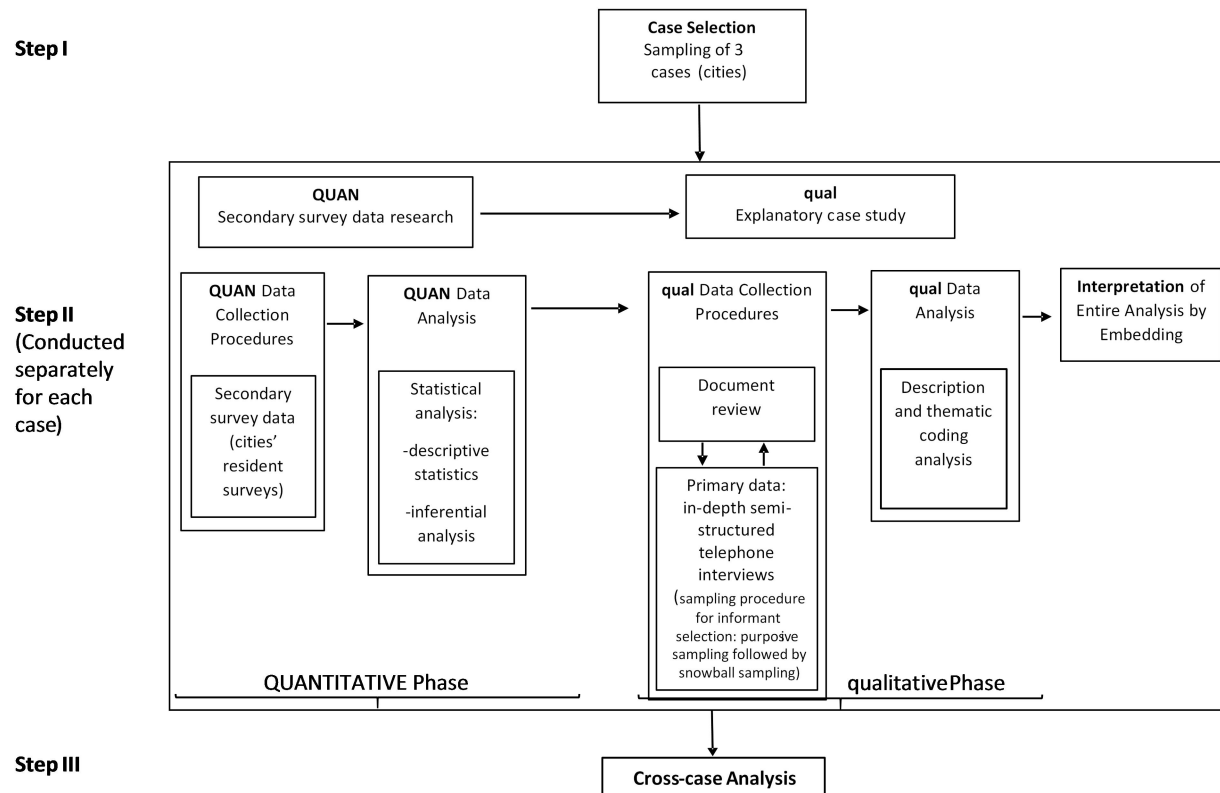


Figure 3. Sequential explanatory mixed methods design with multiple cases. Adapted from the framework of Creswell et al. (2003), as adapted and cited in Creswell (2009, p. 209).

Step I: Case Selection

First, I defined my unit of analysis to be a city that has implemented 311. I selected three American cities as cases for a multiple-case study to ensure robustness of my results (Yin, 2003a, p. 135). As Miles, Huberman, and Saldana (2013) state,

Multiple-case sampling adds *confidence* to findings. By looking at a range of similar and contrasting cases, we can understand a single-case finding, grounding it by specifying *how* and *where* and, if possible, *why* it carries on as it does. We can strengthen the precision, validity, stability and trustworthiness of the findings.

(p. 33, emphasis in original).

There is no standard recommendation as to the number of cases to include in a multiple-case research project (Miles et al., 2013, p. 34; Yin, 2003b). However, I posited that three well-chosen cases could provide the richness of contexts to allow meaningful comparisons while keeping the dissertation manageable.

As O'Byrne (2015) notes, there is no current, comprehensive data set on 311 systems. As such, I was unable to compile a sampling frame that consists of the universe of 311 systems in the country. I employed a strategy whereby I developed a set of criteria that would allow me to sample local governments to compile a variety of cases (Martinson & O'Brien, 2010, p. 171).

My criteria for the local governments were as follows:

1. Must have been operating 311 systems for at least a few years to have an established history of use (at least two years); and
2. Must conduct regular (either annual or biennial) citizen or resident surveys, with at least one survey being conducted in the one or two years prior to implementing 311 and at least one survey being conducted a year or two after implementing 311.

As previously mentioned, notable studies on 311 include Nam (2012), O'Byrne (2015) and a series of reports by the ICMA. Of key importance to this study is the ICMA, which has conducted a number of case studies on 311, mostly geared toward a practitioner audience.⁴ I made contact with Ms. Cory Fleming, who is the 311/CRM program director at the ICMA and co-author of several of the Association's studies. I held an informal Skype meeting with Ms. Fleming on April 28, 2014 to discuss the ICMA's work on 311 and the data needs of my study. Ms. Fleming, whose position with the ICMA gives her access to several networks of local governments, and 311 practitioners and scholars, agreed to assist with the data collection.

Ms. Fleming conducted brief surveys at meetings of two professional associations for 311 directors and managers held in May of 2014 to gather data that helped in determining which local governments met the two criteria. The two associations were the Association of Government Contact Center Professionals (AGCCP) and the 311 Synergy Group. Ms. Fleming's surveys yielded 19 responses, of which nine met both criteria. Analysis of the survey responses showed that several of the represented local governments were medium-sized cities, all of whom implemented 311 in the early to mid-2000s. Attempts to contact these jurisdictions for data access were successful in three cases. These cities were the City and County of Denver, Colorado, Minneapolis, Minnesota, and Kansas City, Missouri. Table 1 provides a summary overview of the three study sites.⁵ Each of the cities implemented 311 in 2006 and so faced similar external economic and other environmental conditions. Furthermore, the three cities were similar in terms of other economic characteristics—such as median household income, household poverty rates—and their populations' educational attainment (see Table 1). However,

⁴ The ICMA operates a Center for Sustainable Communities, which runs a project dedicated to 311/CRM Consulting Services: http://icma.org/en/results/sustainable_communities/projects/technical_assistance

⁵ I do not report the latest available data. Instead, I report characteristics as at 2010 in order to use as complete a set of official data (US Census data) available on the study contexts for a period as close to the implementation period as possible.

Table 1 also shows that they provide enough variation in relevant characteristics—specifically racial and other demographic profiles, and government structure—to represent diversity in cases for an enriched multiple-case study (Martinson & O’Brien, 2010).

Table 1

Study Cities' Characteristics (Year 2010)

	Denver	Minneapolis	Kansas City
Population	600,158	382,578	459,787
% White	68.9	63.8	59.2
% Black	10.2	18.6	29.9
% Hispanic or Latino	31.8	10.5	10.0
Median age in years	33.7	31.4	34.6
% Foreign-born	16.6	15.1	7.5
% White	60.0	33.3	39.7
% of Population aged 5 plus whose home language is not English	27.7	19.6	11.6
% of Population aged 5 plus whose English speaking proficiency level is below "very well"	13.5	10.0	5.5
% of Population aged 25 plus with at least a high school diploma	84.0	87.9	86.4
Median household income in \$	45,501	46,075	44,113
% of Families below the poverty line	14.8	16.4	13.7
Government ^a	Mayor-Council, with a "strong" mayor	Mayor-Council, with a "weak" mayor	Council-Manager

Note. Data sources: Population to median age: US Census Bureau, 2010, Profile of general population and housing characteristics. % Foreign-born to % of Families below the poverty line: US Census Bureau, 2006-2010 American Community Survey, Selected characteristics of the native and foreign-born populations.

^aSources: Denver - City and County of Denver (2016); Minneapolis - City of Minneapolis (2015); Kansas City - City of Kansas City (2016).

Step II: Data Collection, Analysis and Interpretation Strategy

Given that the focus was on determining the quantitative effects first and then determining what role the implementation process may have had on those outcomes, a sequential design was used in Step II of the framework (Figure 3). In the version of the sequential design represented in Figure 3, the quantitative (“QUAN”) phase (including both data collection and methods) comes first—both in time and weight—before the qualitative (“qual”) phase of the study (Creswell, 2009, pp. 206-207).⁶ The “mixing” of the quantitative and qualitative data occurs only during the interpretation phase, where I “embed” the latter data type within the broader study (Creswell, 2009, pp. 207-208). This process is discussed in detail below. In Step II of the design, I outline my strategy for inquiry at the case level, which was executed separately for each city. In the strategy, the quantitative phase, which includes its data collection and data analysis using quantitative methods, is discussed before the qualitative phase, which includes the qualitative data collection and data analysis using qualitative methods.

Quantitative phase.

The purpose of the quantitative phase in this study is to determine the underlying mechanisms that explain the phenomenon of citizen-initiated contacts. Quantitative research methodology offers several benefits to a study. It produces numerical estimates, facilitates testing hypotheses, and has strong claims to external validity if appropriate sampling techniques are used (Johnson & Onwuegbuzie, 2004, p. 19).

⁶ Using “mixed methods notation” (see Creswell, 2009, pp. 209-210), the quantitative aspects of the study are labeled “QUAN,” with uppercase letters used to denote their priority in the sequence and heavier emphasis in the design. The qualitative aspects of the study are labeled “qual,” with lower case letters used to denote their auxiliary function in the design.

Quantitative data: Citizen/resident survey data.

In the quantitative phase, I used secondary survey data (with closed-ended questions) from each of the three cities. In each case, the citizen or resident surveys were conducted by an external party—a survey consulting firm—on behalf of the city. I contacted the cities for the survey instruments for surveys conducted in the years of interest (pre- and post-311 periods). If there were pertinent contacting questions in those surveys, I emailed the city for access to the individual (that is, respondent) level survey data. Before submitting the survey data files to me, the cities ensured that all data had been de-identified and stripped of any personal identifiable information to protect the privacy of survey respondents. The unit of observation in this phase of the study is the individual survey respondent.

See Table 2 for an overview of the data. Each survey used random sampling techniques to sample adults who reside within the city limits. For consistency, I chose 2005 as the pre-311 period for each city. That year was also the last year before 311 implementation. I also chose 2008 to designate as the post-311 period in each city in order to ensure: (1) that a sufficient length of time had elapsed for the 311 system to be fully implemented, and (2) some comparability across the three cases by possibly controlling for certain external factors or “history” (Bingham & Felbinger, 2002, p. 22).⁷ I do not extend the post-311 analysis beyond one period in order to keep the analysis manageable. However, this decision is limiting in that it does not allow trend analysis.

Due to the nuances of each survey instrument and differences in questions and/or question wording, the data coding procedures and variable operationalizations (from Figure 1) differ across the three cases. Therefore, I document these decisions and procedures separately in

⁷ In evaluation research, “history” is one of the “threats to internal validity” of a study design (Bingham & Felbinger, 2002, p. 21). History refers to “events that occur during the time of the program that provide rival explanations for changes in the target or experimental group” (Bingham & Felbinger, 2002, p. 22).

a series of individual city tables (that is, Tables 3 to 5). See Appendices A to C for the list of specific survey questions used to construct the variables and description text in Tables 3 to 5, respectively.

Table 2

Overview of Cities' Citizen or Resident Survey Data

	Denver	Minneapolis	Kansas City⁸
Pre-311			
Year	2005	2005	
Initial sample size	1,017	1,277	
Final sample size	702	1,046	
Post-311			
Year	2008	2008	2008
Initial sample size	941	1,258	4,748
Final sample size	667	984	4,031
Survey firm	National Research Center	National Research Center	ETC Institute

⁸ Even though 2005 survey data were available for Kansas City, due to data limitations, a pre-311 quantitative analysis could not be conducted for the city. Details are provided in Chapter 6.

Table 3

Variable Descriptions for Denver Quantitative Data

Variable⁹	Description
<i>Dependent Variables</i>	
311 Contact	Dummy variable that takes a value of 1 if anyone in the respondent's household had called 311 within the past year and 0 otherwise.
City Contact	Dummy variable that takes a value of 1 if respondent contacted city personnel in the past year and 0 otherwise.
Total Contact	Dummy variable that takes a value of 1 if respondent is coded 1 on either one or both of the previous two contact dummy variables, that is, someone in the respondent's household had contacted via 311 or the respondent had contacted the city and 0 otherwise. ¹⁰
Non-311 Contact	Dummy variable that takes a value of 1 if respondent is coded 1 on the Total Contact variable but coded 0 on the 311 Contact variable and 0 otherwise.
<i>Independent Variables</i>	
Socioeconomic Status	
Income: Low Income (reference group), Middle Income, High Income	A group of three income dummy variables corresponding to income categories of <\$50,000, \$50,000 - \$99,999, and \$100,000 and over, each taking the value of 1 if respondent's household income falls into the category and 0 otherwise.

⁹ See Appendix A for the 2005 and 2008 Denver survey questions used to construct these variables and the description text.

¹⁰ There is a slight difference in the wording between the 311 Contact and City Contact survey questions that introduces a complication in the analysis: the 311 Contact question asks about the respondent or an individual from their household, while the City Contact question only asks about the respondent's contacting with no mention of their household. This complicates what the Total Contact variable captures and affects the comparison between this variable in 2008 and the Total Contact variable in 2005 when there was no 311 or 311 question. I acknowledge this as a potential limitation of this study.

Variable ⁹	Description
<i>Demographics</i>	
White	Race dummy variable that takes value 1 for whites and 0 for everybody else.
Age: Young Adult (reference group), Older Adult, Seniors	A group of three age dummy variables corresponding to respondent age groups of 18-34, 35-54, and 55 and over, each taking the value of 1 if respondent's age falls within the range and 0 otherwise.
<i>Perceived Need</i>	
Services Rating	Four-point summary rating scale of the quality of 27 city services, with 1 for "Excellent," 2 for "Good," 3 for "Fair," and 4 for "Poor." (Cronbach's alpha = 0.9001 for 2005 and 0.9021 for 2008).
<i>Stakeholding</i>	
Home Owner	Dummy variable that takes value of 1 if the respondent owns his or her home and 0 otherwise.
Have Minor Children	Dummy variable that takes value of 1 if individuals younger than 18 years live in the respondent's home and 0 otherwise.
<i>Psychological Engagement</i>	
Interest in Government	Dummy variable that takes a value of 1 if, in the past year, someone in the respondent's household had viewed a televised meeting on city affairs and 0 otherwise.
Political Efficacy	Dummy variable that takes a value of 1 if respondent's opinion on the issue of the city government "listening to citizens" was "Strongly agree" or "Somewhat agree" in 2005 or "Excellent" or "Good" in 2008 and 0 otherwise.
<i>Other Social/Political Involvement</i>	
Meeting Attendance	Dummy variable that takes a value of 1 if, in the past year, someone in the respondent's home participated in a meeting about city affairs and 0 otherwise.
Volunteer	Dummy variable that takes a value of 1 if, in the past year, someone in the respondent's home had volunteered in the city and 0 otherwise.

Note. Sources: The City of Denver 2005 Citizen Survey (National Research Center, 2005a) and The City of Denver 2008 Citizen Survey (National Research Center, 2008a).

Table 4

Variable Descriptions for Minneapolis Quantitative Data

Variable¹¹	Description
<i>Dependent Variables</i>	
311 Contact	Dummy variable that takes a value of 1 if the respondent had contacted 311 within the past year and 0 otherwise.
City Contact	Dummy variable that takes a value of 1 if respondent had “contacted the city” within the past year and 0 otherwise.
Total Contact	Dummy variable that takes a value of 1 if respondent is coded 1 on either one or both of the previous two contact dummy variables, and 0 otherwise.
Non-311 Contact	Dummy variable that takes a value of 1 if respondent is coded 1 on the Total Contact variable but coded 0 on the 311 Contact variable and 0 otherwise.
<i>Independent Variables</i>	
<i>Socioeconomic Status</i>	
Income: Low Income (reference group), Middle Income, High Income	A group of three income dummy variables corresponding to income categories of <\$50,000, \$50,000 - \$99,999, and \$100,000 and over, each taking the value of 1 if respondent’s household income falls into the category and 0 otherwise.
<i>Demographics</i>	
White	Race dummy variable that takes value 1 for whites and 0 for everybody else.
Age: Young Adult (reference group), Older Adult, Seniors	A group of three age dummy variables corresponding to respondent age groups of 18-34, 35-54, and 55 and over, each taking the value of 1 if respondent’s age falls within the range and 0 otherwise.
Male	Sex dummy variable that takes value 1 for men and 0 for women.

¹¹ See Appendix B for the 2005 and 2008 Minneapolis survey questions used to construct these variables and the description text.

Variable ¹¹	Description
<i>Perceived Need</i> Services Rating	Four-point summary satisfaction rating scale of 16 city services, with 1 for “Very satisfied,” 2 for “Satisfied,” 3 for “Dissatisfied,” and 4 for “Very dissatisfied.” (Cronbach’s alpha = 0.8176 for 2005 and 0.8389 for 2008).
<i>Stakeholding</i> Home Owner	Dummy variable that takes value of 1 if the respondent owns his or her home and 0 otherwise.
Have Minor Children	Dummy variable that takes value of 1 if individuals younger than 18 years live in the respondent’s home and 0 otherwise.
<i>Psychological Engagement</i> Interest in Government	Dummy variable that takes a value of 1 if respondent answered that he or she was either “Very likely” or “Somewhat likely” to use at least one of six listed options to engage the city about a matter that interests the respondent and 0 otherwise.
Political Efficacy	Dummy variable that takes a value of 1 if respondent’s opinion about the options for resident engagement that the city makes available is either “Very good” or “Good” and 0 otherwise.

Note. Sources: City of Minneapolis 2005 Residents Survey (National Research Center, 2005b) and City of Minneapolis 2008 Residents Survey (National Research Center, 2008b).

Table 5

Variable Descriptions for Kansas City Quantitative Data

Variable¹²	Description
<i>Dependent Variables</i>	
311 Contact	Dummy variable that takes a value of 1 if respondent contacted 311 within the past 12 months and 0 otherwise.
<i>Independent Variables</i>	
<i>Socioeconomic Status</i>	
Income: Low Income (reference group), Middle Income, High Income	A group of three income dummy variables corresponding to income categories of <\$60,000, \$60,000 - \$99,999, and \$100,000 and over, each taking the value of 1 if respondent's household income falls into the category and 0 otherwise.
<i>Demographics</i>	
White	Race dummy variable that takes value 1 for whites and 0 for everybody else.
Male	Sex dummy variable that takes value 1 for men and 0 for women.
<i>Perceived Need</i>	
Services Rating	Five-point summary satisfaction scale for the quality of 20 city services, with 1 for "Very satisfied," 2 for "Satisfied," 3 for "Neutral," 4 for "Dissatisfied" and 5 for "Very dissatisfied" ("Don't know" responses recoded as 4) (Cronbach's alpha = 0.8812).
<i>Stakeholding</i>	
Home Owner	Dummy variable that takes value of 1 if the respondent owns his or her home and 0 otherwise.
Have Minor Children	Dummy variable that takes value of 1 if individuals 19 years or under live in the respondent's household and 0 otherwise.
Residency Tenure	Interval level variable capturing the number of years respondent had been a resident of the city.
<i>Psychological Engagement</i>	
Interest in Government	Dummy variable that takes a value of 1 if respondent answered that he or she is likely to participate in a group discussion on local affairs and 0 otherwise.

¹² See Appendix C for the 2008 Kansas City survey questions used to construct these variables and the description text.

Variable ¹²	Description
Political Efficacy	Dummy variable that takes a value of 1 if respondent was “Very satisfied” or “Satisfied” with the amount of public input into city affairs and 0 otherwise.
Awareness	Dummy variable that takes a value of 1 if respondent was “Very satisfied” or “Satisfied” with Kansas City’s attempts at sharing information about city affairs with its residents and 0 otherwise.

Note. Source: 2008 City of Kansas City, Missouri Citizen Survey (ETC Institute, 2008).

Quantitative data analysis methods.

I tested hypotheses H1 through H4 using several statistical techniques. First, I used descriptive statistics and bivariate analysis (cross-tabulations) to explore any differences in contacting rates across relevant groups with characteristics of interest in the data sets. I conducted difference of proportions tests to test hypothesis H1. In addition to the bivariate analysis, I also used the framework outlined in Figure 1 to explore hypotheses H2 to H4. In the framework, the dependent variable is a binary indicator taking the value of one to denote contact (of some form) with local government and zero otherwise. The empirical strategy replicates the model and approach in Thomas and Melkers (1999, p. 678) and is as follows:

$$\text{contact}_i = \beta_0 + \beta_1 \text{SES}_i + \beta_2 \text{Demographics}_i + \beta_3 \text{Perceived Need}_i + \beta_4 \text{Stakeholding}_i + \beta_5 \text{Psychological Engagement}_i + \beta_6 \text{Other Involvement}_i + \varepsilon_i$$

EQ(1)

I used various measures of the variables included in the model in the estimations for each city, depending on data availability, choosing from the set detailed in Figure 1. The

dichotomization of the dependent variable (contact) in equation 1 means that logistic regression is an appropriate estimation technique (Wooldridge, 2009, p. 575). Where individual sampling weights were included in the survey data files,¹³ I used these when performing the statistical analyses, including the logistic regressions.¹⁴

I estimated a series of logistic regressions using equation 1:

1. In the first set of logistic regressions, the dependent variable was Total Contact. I estimated the model for the pre-311 period and then separately for the post-311 period. This allowed me to estimate the effects of the independent variables on Total Contact in each period separately. I then combined the two periods' data sets to estimate an interaction model, which produced identical results to the two separate logit estimates, but had the added benefit of providing the differences in the effects across the periods and their statistical significance.
2. In the second logistic regression, the dependent variable was 311 Contact. I estimated this model only on the post-311 period data.
3. In the third logistic regression, the dependent variable was Non-311 Contact. I estimated this model only on the post-311 period data.

I conducted inference using t-tests. I generated probability effects from each of the main logistic regression models. These probability effects were calculated by the “average partial effect” or APE (also known as the “average marginal effect” or AME) method (Wooldridge, 2009, p. 314). The APE of an independent variable calculates, for each individual in the sample, the marginal or partial effect of the independent variable at the individual's actual values on all the remaining

¹³ Weights were included in the Denver and Minneapolis files but not in the Kansas City file.

¹⁴ Following Cameron and Trivedi (2009, pp. 105-109), I used the sampling weight as a probability weight or “pweight” in Stata for weighted estimation.

independent variables, and then averages these partial effects over the entire sample of individuals (Cameron & Trivedi, 2009, pp. 333-334; Drukker, 2010; Williams, 2011). Although I present the logistic regression coefficients, for ease of interpretation of the variables' effects, I discuss the probability changes instead. I transformed the logit coefficients into the APE probability changes using Stata's "margins" command (Drukker, 2010). The logistic analyses served to test hypotheses H2 to H4 only. In reporting the results, I focus mainly on discussing the independent variables of interest as they pertain to the hypotheses, although I report the full model results in the tables.

Qualitative phase.

Since the main focus of this study is on the impact of 311 implementation on contacting behavior, the research explored the process of implementation and the context in which the system was implemented to provide understanding of how the technology became a more or less effective tool for contacting local government. According to Johnson and Onwuegbuzie (2004, p. 20), qualitative research has the advantage of being able to "describe, in rich detail, phenomena as they are situated and embedded in local contexts." Case studies are particularly useful for studying implementation processes and getting a comprehensive picture of the study context (Martinson & O'Brien, 2010, pp. 163-164; Yin, 2003a, p. xi). The qualitative phase of this study focused on conducting an explanatory case study for "...explaining how events happened" (Yin, 2003a, p. 5).

Qualitative data.

Document review.

I conducted an extensive review of documents pertaining to the history and implementation of the 311 system in each case study city. I reviewed a wide variety of sources, including newspaper articles, city government press releases, city reports on citizen satisfaction, external reports on the city's 311 system, city budget documents, government and technology industry reports on 311 systems, and academic studies.

First, the review helped trace out a chronology of events leading up to and around the time of 311 implementation. It also helped to identify key players in the adoption and implementation process as potential interviewees in the second qualitative data collection strategy—the interview. After constructing a history of 311 implementation, I determined what gaps still remained in my knowledge and used those to inform my next data collection strategy—the interview. The document review was an iterative process. After conducting the interviews, any issues that the interviewees raised that needed further clarification or details led to another round of document review.

Primary data collection using in-depth semi-structured telephone interviews with key informants.

I used in-depth semi-structured interviews, conducted via telephone, to gain insights from experts about the 311 implementation process in their city. DiCicco-Bloom and Crabtree (2006) note that in health care, in-depth interviews with individuals are a useful strategy for “reconstructing perceptions of events and experiences” (2006, p. 316). I opted to conduct the

interviews via telephone because the prospective interviewees were geographically dispersed. The telephone provided a fast, convenient and affordable alternative to the in-person interview for collecting the information (Burnard, 1994).

Sampling strategy:

I used purposive nonrandom sampling to identify potential interviewees within each case (city) (DiCicco-Bloom & Crabtree, 2006; Tongco, 2007). As this is the second level of sampling (of individuals within a case) after sampling cases, this is also an example of a “multilevel sampling” strategy (Creswell, 2009, p. 218). Information from the document review stage was useful in compiling an initial list of the most knowledgeable 311 experts in each city. These “key informants” (Tongco, 2007) included public officials, such as city government leaders and elected officials, 311 call center management and staff, and employees in other city agencies that had dealings with 311.

The criteria for identifying the appropriate experts included that (1) they had been part of the city government in one of the capacities listed above during the time of 311 implementation and (2) they were familiar with how the 311 implementation process unfolded in their city government. The prospective interviewees were not required to be current employees of the city. Given that this project is backward-looking and it had been almost 10 years since the cities implemented 311, it would have been difficult to find a sufficient number of informants who were still employed with the city and willing to participate in the study. The time lapse since implementation was another reason why random sampling of city employees would not have been feasible. Once a key informant was identified, he or she was asked to suggest other

knowledgeable persons who might be willing to share their expertise, thereby allowing for a snowball sampling strategy thereafter (Noy, 2008). This sampling strategy has advantages and disadvantages that are discussed later.

Institutional Review Board approvals:

In December 2015, Georgia State University's Institutional Review Board (IRB) gave approval to conduct the interviews (see Appendix D for IRB approval letter).¹⁵ I used an IRB-approved recruitment email (see Appendix E for copy of recruitment email) to reach out to potential interviewees who were identified through the document review. Once the potential interviewee agreed to participate in the study, I followed up by email or telephone to schedule the interview for a time most convenient for him or her. Each interview was scheduled for half an hour.

Prior to their scheduled interview, each interviewee received, via email, a copy of the IRB-approved informed consent document, detailing the procedures in place to ensure confidentiality (see Appendix F for copy of informed consent document). The informants were promised that their identity would be kept confidential in order to protect them and to encourage candid responses from them, especially when discussing potentially sensitive or less flattering issues such as challenges their city may have faced during the implementation process. The IRB-approved study application included a Waiver of Documentation of Consent to protect the identity of the interviewees, and a requirement to obtain consent orally (which would be audio-recorded) from each interviewee before proceeding to the interview questions. An interview

¹⁵ An amendment to the study application to permit replacing one of my original three planned study cities with an alternative, due to data constraints, was approved by IRB in March 2016. No other aspect of the original study application was altered.

protocol guided the interview process and ensured consistency in the interview format across interviewees and cities (Adams, 2010; Creswell, 2009, p. 183).

Although the interview portion of the study was designated Human Subjects Research, the interview questions did not focus on soliciting any personal or individual level information. Rather, the questions focused on the organizational or institutional level—that is, the interviewee’s knowledge about his or her city and the city’s experience with implementing a 311 system. The interviews were conducted using an IRB-approved list of interview questions (see Appendix G for interview questions) that focused mainly on aspects of the 311 implementation process, including the goals or motivations behind implementing the 311 system, the level of political and administrative support for the initiative, and the level of marketing or promotion for the innovation. The questions were adopted from the interview questions used by Nam and Pardo (2012) in their qualitative study of Philadelphia’s Philly311 center, and supplemented and adapted as necessary based on the conceptual framework in Figure 2.

Overview of interviews:

Fourteen interviews were conducted between December 2015 and March 2016. Tongco (2007, p. 152), citing Bernard (2002), notes that there is no established bound on the number of interviewees to include when sampling purposively—the important consideration is getting the required data. The deliberate bias of the sampling strategy meant that the sample consisted of a set of interviewees who could provide trustworthy data (Tongco, 2007, p. 154). Once the interviews yielded sufficient information to fill in the gaps in knowledge left after the initial document review, and the interviews were no longer bearing new information, no further

interviewees were pursued.¹⁶ Table 6 shows a breakdown of the sample across the three cases. To protect the identity of interviewees, no additional information (such as demographic data and job title) are reported on the sample.¹⁷

The 14 interviews generated 260 minutes of audio recording. Immediately following each interview, I transcribed the recording as completely as possible, but not fully; for example, I omitted extraneous or side discussions, sensitive comments that may violate confidentiality and discussions about potential interviewees whom I may contact. This process yielded 72 pages of text from the 14 interviews.

Table 6

Interview Characteristics

	Denver	Minneapolis	Kansas City	Total
Number of persons contacted	8	11	9	28
Number of interviewees	4	4	6	14
Number of minutes of audio recording	77	50	133	260
Number of pages of transcripts	20	31	21	72

¹⁶ This was despite having received IRB approval to conduct up to 60 interviews, as indicated in the informed consent document in Appendix F.

¹⁷ This is an added precaution to ensure confidentiality. On the one hand, the cities employ thousands of people, which should make identification of individuals difficult. According to the latest budget documents, Denver's appropriations in its 2015 budget was for 10,992.2 full-time equivalent (FTE) positions and 704.8 temporary positions (City and County of Denver, 2015a). Minneapolis's 2015 Council Adopted Budget budgeted for 4,875.9 FTE positions (City of Minneapolis, 2015). Kansas City's 2016 adopted budget appropriated for 6,857.5 FTE positions (City of Kansas City, 2015). However, the group of 311 experts may be reasonably small that individuals from this group may be more easily identified if further details are reported about them.

Qualitative data analysis methods: coding of interview transcripts.

The purpose of the qualitative coding and analysis method was to develop a richer understanding of the study context. This approach provided a context for understanding the quantitative analysis results. I followed the method outlined by Burnard (1991)—which is informed by both grounded theory and content analysis approaches—to analyze the transcripts from the semi-structured open-ended interviews.

Because the number of pages of transcripts was relatively small and manageable, I hand-coded hard copies of all the transcripts rather than relying on Computer Assisted Qualitative Data Analysis Software (CAQDAS). I started the analysis by reading through the transcript and making notes in the margins about themes that emerged from the discussion. This process was partly guided by the topical areas in the interview questions, using those topics as a “start list of codes” for “deductive coding,” while remaining open to any new themes that may emerge in “inductive coding” (Miles et al., 2013, p. 81). The coding was an iterative process in which the content was reviewed several times, refining the themes and developing categories and sub-categories for the data until “saturation,” that is, until the process no longer generated new themes (DiCicco-Bloom & Crabtree, 2006, pp. 317-318).

The analysis of the thematic coding entailed looking for patterns across the transcripts within each case. The analysis is presented to offer an explanation of how the implementation process took place in each city. To do so, the findings are reported by interweaving insights on the themes (in the form of commentary) with quotes from the informants, which also served as supporting evidence for the discussion (Burnard, 1991, p. 464).

Interpretation by embedding.

The final phase of Step II in the research design was the “embedding” of the qualitative analysis findings within the broader quantitatively-heavy analysis in order to interpret the quantitative results (Creswell, 2009, p. 208). That is, the quantitative and qualitative components were kept separate for the most part and only “mixed” during the interpretation of the findings by using an “embedding” approach. Creswell (2009, pp. 207-208) outlines three approaches to “mixing” the quantitative and the qualitative components in a mixed methods design: integration, connecting and embedding. “Embedding” is the term used to denote the mixing strategy in the instance of a sequential design in which the quantitative component comes first (Creswell, 2009, p. 208). In an embedding strategy, the quantitative component serves as the main source of data while the qualitative data has a subsidiary place in the study (Creswell, 2009, p. 208).

Even though in the research design the quantitative phase preceded the qualitative phase, for presentation purposes, I reverse the order of the two sets of findings. In the following three chapters, for each case, I present the qualitative findings first in order to set the context for the case. Although the discussion here does not directly relate to any of the hypothesis, it is important for first understanding the context in which the 311 implementation took place. The presentation of the qualitative findings first therefore helps with broadly framing the discussion on the case study. I then narrow down to the quantitative results in a separate section. The embedding mixing strategy adopted here required that the two sets of data be kept separate until the interpretation phase. After presenting the quantitative findings, I then circle back to explore the quantitative results in-depth through the lens of the previously reported qualitative findings. During this interpretation phase, I paid particular attention to any surprising or anomalous quantitative results. I looked to the qualitative findings to see what explanations they offered for

those quantitative results. The discussion here focuses on what aspects of the implementation process, as mapped out by the qualitative findings, contributed to the quantitative outcomes and how they did so in each city.

Step III: Cross-Case Analysis Strategy

The final stage of the methodology was a “research synthesis” in which I integrated the results at a higher level (Yin, 2003a, p. 145). This deeper level of analysis was instrumental in exploring proposition P1. First, I present a summary of the preceding findings from the three cases. For the qualitative findings, I use the Fernandez and Rainey (2006) framework to draw an assessment of the cities’ implementation processes. I offer a comparison of the quantitative findings across the three cases. Then, I offer a cross-case analysis and discussion of these combined findings. This step consolidates knowledge from this study of the impact of 311 on contacting.

CHAPTER IV: FINDINGS ON DENVER

This chapter presents the results of the analysis for the City of Denver. It begins with the qualitative findings. The chapter then proceeds to the quantitative analysis. The chapter closes with a discussion that mixes the findings from the two analyses.

Qualitative Findings

Denver's 311 Call Center went live on July 7, 2006 (Lent, 2006). The office of Mayor John Hickenlooper announced the arrival of the non-emergency number in Denver by issuing a press release, with the mayor quoted as saying that the system "will revolutionize Denver's approach to customer service by enabling residents and businesses to reach a live, knowledgeable person with just one call to City Hall" (Lent, 2006). The mayor's involvement with Denver's 311 system dates back to its conception (Major, Scheidegger, Gonzales, & Phelan, 2011). The mayor was elected to office for his first term in 2003 with a commitment to a core set of principles that included efficiency and accountability (Lazenby, 2006). The mayor saw the 311 system as an essential component of his broader agenda for improving the way city government operates. According to Denver interviewee 103, "He [Hickenlooper] was a very forward-thinking mayor and had a vision of what 311 would be during and even after he left office." Denver interviewee 104 expressed similar sentiments about the mayor's vision, stating, "The actual implementation started upon the new administration of Mayor Hickenlooper. It was his vision to engage...have more citizen engagement and transparency." In this capacity as promoter of 311 for Denver, the mayor could be viewed as a policy entrepreneur.

From the very beginning, Denver implemented a fairly comprehensive 311 system. The city's system went beyond just the three-digit line and offered a variety of contact channels, including online access, email, fax and walk-in service (Lent, 2006). The service was offered every day from 6 am to 11 pm and operated with an initial staff complement of 29 customer service agents (Lent, 2006). Denver 311 used a translation service that allowed the system to provide service in 182 languages (Lent, 2006). The 311 system was part of an integrated customer relationship management system (Oracle PeopleSoft) that linked information technology (IT) systems across city government (Lazenby, 2006, p. 26).

Goals of Denver's 311 System

The mayor viewed 311 as an important tool for achieving efficiency and transparency in city government (Major et al., 2011). The goals of the 311 system therefore included "better customer service for Denver residents," according to interviewee 101, which the system would accomplish by replacing the city's blue pages listing of 1,200 city government telephone numbers (Lent, 2006) with the single, easily accessible three-digit number. Not only was it daunting for residents to thumb through 1,200 numbers, but most people simply did not have the understanding of the structure of city government, on which the listings were based, to know how to maneuver the system efficiently, leaving residents frustrated in their attempts to contact the city. The following example from interviewee 104 illustrates this point:

I always use the example of, let's say, the dog pound. If you're looking at the dog pound, then you'd look up the dog pound or something related to animals. However, in our instance, the dog pound resides under environmental health. So, you'd have to know to go to environmental health to find the dog pound (Denver interviewee 104).

The 311 number therefore brought ease of access to government that was intended to contribute positively to residents' customer service experience during contacts. Furthermore, maintaining such a large listing of telephone numbers was costly for the city in terms of print expenses. It was also costly in terms of human resources as each of the city's 53 agencies had to allocate staff time to taking and responding to resident calls. The consolidation of city government numbers through a centralized 311 center resulted in efficiencies as the center staff, trained to have an understanding of the structure of city government, could efficiently address resident queries. Centralizing city contacting relieved agency staff to focus on core agency functions.

According to interviewee 102, another goal was "to improve the accountability and engagement of city employees with the citizens." The 311 system's feature of providing residents with a tracking number for their service requests gave users the ability to follow up on their requests and to hold the city accountable for unmet requests. This tracking feature proved beneficial not only directly to residents, but also indirectly through its impact on the city government, as noted by interviewee 103:

Having the ability for the mayor or for city council or for the various agencies to understand the needs of our constituents, to understand their requirements, I think there's lots of incredibly useful data that we are constantly getting from our constituents on each interaction that we have (Denver interviewee 103).

A final goal for the 311 system, stated by the mayor, was to redirect non-emergency calls away from the city's overburdened 911 system (Lent, 2006).

Steps in the Implementation Process

According to the interviewees, prior to the launch in July 2006, Denver engaged in extensive preparations as part of the implementation process, that included learning from the experiences of previous implementers such as Baltimore; Chicago, which adopted in 1999 (City of Chicago, 2010-2016b); and New York City, which adopted in 2003 and is the largest in the nation (City of New York, 2013). This learning from previous adopters is consistent with “social learning theory” (Boehmke & Witmer, 2004) and the “leader-laggard model of diffusion” (Berry & Berry, 2007). The administration also made tangible commitments toward the implementation of the 311 system by establishing the post of chief information officer to oversee the city government’s technology infrastructure, which included the new 311 system (Lazenby, 2006). Initially, Technology Services was responsible for implementing 311, and the center was housed under the General Services Department of the city government (City and County of Denver, 2006b). This initial placement did not appear to be very conducive to the effective operation of the 311 system. However, shortly thereafter, the city underwent an organizational restructuring in which it consolidated its information and technology services into the Technology Services Agency that operated as its own entity and reported to the mayor. Three-one-one was moved to this agency, where it appeared to receive more institutional support:

Originally, we started under General Services and we were like the red-headed stepchild under the porch. Nobody really knew what we were about. People were very confused about what we do... I think it makes a better fit for us to be under Technology Services. We are a super user of technology....And so we feel that we get a lot more technical support by being under Technology Services because they’re in the same field and they get what we do. So we tend to get a little bit more importance when there’s an outage or a system failure, people are responding to us right away because they know the business that we’re doing and they know that being offline creates a lot of issues for residents and they want to bring us back online as soon as possible (Denver interviewee 103).

The preparations also included a “soft launch” period from February 2006, during which Technology Services redirected calls from a select number of participating city agencies into the 311 system (Lazenby, 2006). This period allowed the city to test the system prior to the July launch (City and County of Denver, 2006a, p. 256). The interviewees noted that the city also prepared for launch by engaging cellular service providers and entering into agreements with them to ensure 311 accessibility for their users. The city was able to reach agreements with most of the providers by the date of the launch and completed agreements with the remaining providers soon afterwards.

Marketing the 311 System

According to the interviewees, Denver did not have a paid marketing campaign, but it did engage in a substantial public education campaign to publicize 311 to its residents. The city enjoyed widespread press attention for the new initiative:

We did get quite a bit of print and television coverage when we opened the 311 office – we didn’t pay for any of it, but I am guessing most channels (four stations) covered some aspect of going live. We had two daily newspapers who also covered it (Denver interviewee 101).

From the city’s end, despite the challenge of not having a budget for a paid campaign, it found creative ways to make 311 visible to the public, including displaying 311 on the side of city vehicles, on billboards and by including 311 information on printed city documents, such as garbage pickup notices and property tax bills. The city also printed flyers and made 311 mementos in the form of magnets.

The city's marketing efforts also involved enlisting other organizations and groups to assist in spreading the message about 311. The city worked with council members to reach out to their constituents. City government employees and officials also met with neighborhood organizations (such as Denver's registered neighborhood organizations – RNOs) and attended neighborhood meetings as part of the community outreach efforts. The city also reached out to other service providers such as United Way, which uses 211, for assistance with the promotion strategy.¹⁸

The city of Denver experienced few challenges with its external messaging to the public about 311. However, despite the aggressive marketing effort, unaware or recalcitrant residents could continue to use the old city government telephone numbers for assistance. The city had a backstop in the event that this occurred: it automatically forwarded incoming calls to some of the old numbers into the 311 system so that callers could not bypass the 311 system.

One complication to the city's efforts to publicize its 311 system was a concern that the messaging might reach persons in other cities and counties, who are not served by the 311 system. For that reason, the city made limited use of television and radio for advertising 311 in order to avoid attracting out-of-jurisdiction viewers and listeners who might be misled to call into the 311 system. However, in the view of one interviewee, this did not necessarily harm the effectiveness of the city's message of bringing awareness to 311:

I am not sure paid television advertising would have made a huge impact on the long-term use of 311 but maybe. My view is more that when reinforced and people are reminded over time, they adapt and begin to use new systems like 311 – often people don't even think about it until they need to call their government, which is likely not very often. So, reinforcement of the message through multiple channels (on city vehicles, in city mailings, on city letterhead, reminders in earned media, social media, etc.) can accomplish that objective without spending tax payer money on the most expensive medium available. And, that last point is probably why I lean toward earned media

¹⁸ 211 is an N11 access code used for accessing "community resources and volunteer opportunities" (Mid-America Regional Council, n.d., What is United Way 2-1-1?).

instead of paid media – these are tax dollars and spending them on advertising has to have very clear benefits for elected officials to justify it. Even in hindsight, I think a sustained, deliberate, ongoing campaign to keep 311 in front of people’s minds is the best way to continue to increase its use and value. I also think emphasizing the use of the Web should be part of the sustained effort as well (Denver interviewee 101).

With the launch of 311, one key consideration for the city was to avoid confusion among the public about the use of 911. The campaign was careful to point out that 911 was still the number to call in emergencies while 311 was the number to call for all other inquiries.

Challenges in the Implementation Process

The main threats to the success of Denver’s 311 system seemed to originate from within city government itself. While some segments of city government embraced the new system and welcomed the opportunity to take advantage of its features to improve their operations, others were less enthusiastic about the changes the new system brought. To varying degrees, the city faced pushback and lack of cooperation from some departments – from both heads and staff – as well as from some members of the city council. The main reason for the resistance was, as Denver interviewee 104 states in a nutshell, “People are territorial.”

With respect to the city departments, for several reasons, there was a reluctance to relinquish control over their customer service functions. With the centralized call center service provided by 311, individual departments would lose control over the quality of the customer service that their respective customers would receive. According to interviewee 104, “Other agencies saw it as somebody interjecting themselves into their business so they weren’t as acquiescent to the idea.” There was also the fear that the organizational change would result in

additional work for the departments, as they would have to abandon their own processes and adjust to a new way of doing things. Related to this concern are the technical challenges involved in trying to make different department-specific technologies work with the new 311 technologies. The following comment from interviewee 102 captures these concerns:

Each of the departments felt very proud about the service that they provide to the public and that they didn't want to be removed from their customers. They wanted to be able to take the calls and make sure the calls were resolved within their department and that it was all documented. They had their own processes and systems and people who did that and they were afraid that it wouldn't be done as well if they were one step removed by having 311 take the initial calls. And then also, they were worried that just with the diversity of city services, that it would be very difficult for one call center to be able to answer so many different questions (Denver interviewee 102).

Some departments simply failed to see the benefit of having a centralized customer service and data collection system and so tended to be less committed to contributing to the effort: "We had agencies that kind of didn't understand the benefit of having a tool or one place to exchange or get information or see full case life-cycle" (Denver interviewee 103). The staff response was, in some cases, a reaction to feeling threatened by the new system. Denver interviewee 101 comments on the necessity for the city to act to address this staff concern:

We did an announcement through the mayor that guaranteed no employee would lose their job because we were implementing 311. And I think that was really important because the very people you were relying on to help you implement this had some fears and I think you had to get rid of their fear for them to truly work hard and not be threatened by what you're trying to do (Denver interviewee 101).

Departments and agencies were not the only ones who failed to see the value of the 311/CRM tool for improving city operations. Surprisingly, the city faced some resistance or rather lukewarm reception of 311 from some city council members. In their case, the concern

was over missing opportunities to visibly render service to their constituents in need and in return obtain their constituents' gratitude and allegiance in the form of election votes:

We had a few council members over the years want their residents to call them directly... In the past there was about four or five that were a little bit not so keen to use [311] or tell their constituents about [it] or if they did, they did so in a reserved tone so their residents or their constituents knew, 'Well, the council person really wants me to contact them directly' (Denver interviewee 103).

As with the other aspects of the implementation process, leadership from the mayor appeared to play a part in addressing some of these challenges: "There was a little bit of hand-holding and the mayor had to intervene in some instances to tell people that this was really going to happen and they needed to participate; it wasn't an option not to" (Denver interviewee 104). In addition to the mayor's intervention, those charged with ensuring the success of the implementation process made a conscious effort to allay the fears and concerns of those who were more reluctant to go along with the change:

So we worked with each of the agencies to understand what calls they got most frequently and came up with 'frequently asked questions' and the answers to those. We also looked at how many of them were resolved on a first call versus had to go through several iterations before the issue could get resolved. And then we did a lot of documentation and a lot of training of the reps (Denver interviewee 102).

It helped the implementers make their case to their less cooperative colleagues in the government to show the value and benefit that making use of the 311 system could bring to them and their departments:

What we found is we had a lot of workers who were answering the same questions every day, 90 percent of their day. And our sell was these are experts in their field and they'd be better off spending their time on complex issues and solving those for our citizens instead of the routine questions. And it made workers feel, I think, more valued and respected and helped us identify what are the issues that should be managed by a call

center and what are the issues that should be managed by the department, which was a critical part of the work (Denver interviewee 101).

One concern about how 311 was implemented that may have impacted the public's use of the system is the requirement to collect detailed information from users. The issue here is that privacy concerns, stemming from an inclination to distrust government, may discourage the public from making use of the 311 system:

Understanding that government is always seen as big brother so when you go to your customer, you have to realize that your customer wants to remain anonymous and trying to make people give their name, address and phone number and all the particulars about themselves is not something that the general public is comfortable with when they make calls to the city. People, when they come in to government, there's a certain trepidation about how much information they are willing to give to government because they're not sure if there is retribution involved. They want to be able to get help but they don't necessarily want the help in a form that's going to put them in the spotlight (Denver interviewee 104).

Summary

Denver managed to launch its 311 system on time but the process still faced some challenges. Strong city leadership by the mayor was a big factor in guiding Denver's 311 implementation. Since the idea and the decision to adopt the technology came from the mayor, who operated in a city government where the mayor's office exercised considerable powers, with oversight of city operations, it appeared to be a relatively smooth process from the conceptualization stage to the launch in July 2006 and beyond. The mayor had the authority to bring in the necessary human expertise on technology matters to lead the implementation process and the authority to direct the necessary agencies to provide the administrative and other support

necessary to carry out the process. However, there were limits to what political authority could command from city government.

Far more challenging than the technical process or the external marketing for the 311 system was managing the internal dynamics surrounding this innovation. The 311 system represented a major cultural shift for city government. It was vital to the effectiveness of the 311 system to cajole and ease certain segments of the city government into using the new system and into the new organizational culture that it ushered into the government.

Some argue that Denver's 311 system has never been fully implemented. In support of this claim, they cite, for example, that some of the 53 agencies are still not part of 311 and also the continued use of unsupported legacy systems by some departments. They suggest that one possible explanation for the "incomplete" implementation is waning political and administrative support for 311 resulting from changes in city leadership.¹⁹ If true, this suggestion serves to further highlight the impact that the mayor at the time had on the initial implementation of 311 in Denver and the role that strong political leadership can have in bringing innovation to city government.

Quantitative Findings

The quantitative analysis helps to determine statistically the impacts of the introduction of 311 in a local government context on contacting behavior for various socioeconomic and demographic groups of interest. First, I present some descriptive statistics and summarized cross-tabulations. I then analyze the findings using logistic regressions.

¹⁹ Hickenlooper left the mayor's office in 2011.

Descriptive Statistics for Denver

Sample characteristics.

Table 7 shows the distribution of the survey respondents in the final samples across the two periods. Between 2005 and 2008, the percentage of residents contacting government rose by one third (from 57.5 percent to 75.4 percent). A difference in proportions test indicates that this difference is statistically significant at the 0.01 level. This provides statistical evidence in support of hypothesis H1.

Table 7 also shows differences in the income distribution between the two periods. There was a significantly higher proportion of high income individuals in the 2008 sample while the 2005 sample had a significantly higher proportion of middle income earners. Whites made up a majority of the sample in both periods, increasing their share in the sample by 5.7 percentage points in 2008 but the difference in their shares between the two periods is statistically insignificant. Young adults were the largest age group in 2005 but their share of the sample decreased by 6.3 percentage points in 2008, while the proportion of older adults and seniors increased by 3.1 percentage points each. The decline in the proportion of young adults was statistically significant at the 0.1 significance level. The mean services rating (the measure of perceived need) remained about the same between 2005 and 2008, decreasing by only one-tenth of a percentage point to 2.5 percent in 2008. Home owners made up 62.1 percent and 59.8 percent of the 2005 and 2008 samples, respectively. Respondents who lived in households with minors made up about one-quarter of the sample in each period.

Table 7

Denver Survey Respondent Characteristics, Pre- and Post-311 Implementation (%)

Variables	2005	2008	Difference (2008 - 2005)
Total Contact	57.5	75.4	17.9***
Income			
Low income: <\$50,000	52.1	51.1	-1.0
Middle income: \$50,000 - \$99,999	33.3	27.7	-5.6*
High income: \$100,000 or more	14.6	21.3	6.7***
Race			
White	66.4	72.1	5.7
Minority	33.6	27.9	-5.7
Age			
Young adult: 18-34	42.9	36.6	-6.3*
Older adult: 35-54	37.7	40.8	3.1
Senior: 55+	19.4	22.5	3.1
Services rating (mean)	2.6	2.5	-0.1*
Home owner	62.1	59.8	-2.3
Have minor children	25.7	24.8	-0.9
No. of observations	702	667	

Note. *** p<0.01, ** p<0.05, * p<0.1.

Contacting rates within groups.

One of the key points of interest in this study is whether participation rates differ among groups with different characteristics and how those rates differ pre- and post-311 implementation. The results in Table 8 present some preliminary bivariate analyses of this issue. First, the third column of the table shows only positive 2008-2005 differences for all groups, indicating that all groups experienced an increase in their rate of contacting in the post-311 period. All the differences are statistically significant at the 0.01 level except for the difference for the high income group, which is statistically significant at the 0.05 level.

Table 8 shows that in the pre-311 period, contacting rates differed substantially among the three income groups, with the high income group out-contacting the low income group by a margin of 21.2 percentage points (72.0 percent - 50.8 percent). The rate of contacting for both groups (and for the middle income group, too) increased by statistically significant amounts between the two periods. However, the rate of increase for the low income group outpaced that for the high income group so that, by the post-311 period, the high income-low income difference in contacting rates narrowed to 12.0 percentage points. Each difference in contacting rates for each pair of income groups in 2008 is smaller than the difference in contacting rate for the corresponding pair of income groups in 2005.

Table 8 shows that a majority of whites (60.3 percent) contacted in 2005 and that proportion grew by 17.0 percentage points to 77.3 percent in 2008. In comparison, a little more than half (51.8 percent) of minorities in the 2005 sample contacted but that share increased by 18.6 percentage points to 70.4 percent, narrowing the white-minority contacting advantage. Older adults experienced the largest increase (20.6 percentage points) in contacting rate to become the age group with the highest contacting rate in 2008. The differences in contacting rates between each pair of age categories narrowed between 2005 and 2008 except for the older adult-senior gap, which widened marginally by 0.9 percentage point.

Table 8

Contacting Rates within Groups in Denver, Pre- and Post-311 Implementation (%)

Key Independent Variables	Contact in 2005	Contact in 2008	Difference (2008 – 2005)
Income			
Low income: <\$50,000	50.8	71.4	20.6***
Middle income: \$50,000 - \$99,999	61.5	76.7	15.2***
High income: \$100,000 or more	72.0	83.4	11.4**
Race			
White	60.3	77.3	17.0***
Minority	51.8	70.4	18.6***
Age			
Young adult: 18-34	60.4	75.2	14.8***
Older adult: 35-54	57.3	77.9	20.6***
Senior: 55+	51.3	71.0	19.7***
Home ownership			
Home owner	62.8	78.2	15.4***
Renter	48.7	71.2	22.5***
Have minor children			
Yes	55.9	80.2	24.3***
No	60.0	73.8	13.8***
No. of observations	702	667	

Note. *** p<0.01, ** p<0.05, * p<0.1.

311 contacting versus non-311 contacting rates within groups.

Table 9 explores differences among groups in their use of 311 as a method for contacting versus non-311 methods for contacting city government. Overall, 41.6 percent of the sample responded that they had contacted 311 while 33.8 percent of the sample indicated that they used non-311 channels to make contact with the city government. Furthermore, with the exception of the high income group and renters, every group was more likely to contact via 311 than via non-311 channels (see difference column of Table 9). Though not conclusive, this evidence is suggestive that 311 may have been responsible for the higher total contacting rates observed in Tables 7 and 8.

Table 9 shows that the two lower income groups had higher rates of 311 contacting than of non-311 contacting. Meanwhile, the high income group was 8.8 percentage points more likely to engage in a non-311 form of contacting than in 311 contacting. The difference between each pair of income groups in their 311 contacting rate was smaller than the difference in their non-311 contacting rates except for the low income-middle income pair.

Almost half (48.2 percent) of minorities contacted 311 while only 39.1 percent of whites contacted 311. While whites had a similar rate of non-311 contacting as 311 contacting, minorities had a substantially lower rate of non-311 contacting—only 22.3 percent of minorities engaged in non-311 contacting. So, while whites contacted via non-311 channels at a higher rate than minorities, the white-minority gap in 311 contacting was not only smaller but in the opposite direction as well. Although each age group had a higher likelihood of using the 311 channel as opposed to non-311 channels for contacting, seniors were by far the most likely to do so, being 20.0 percentage points more likely to use 311 than non-311 channels. Also, they had the highest rate of 311 contacting among the age groups. The gaps between each pair of age

groups in their 311 contacting rates were not consistently narrower than the gaps in their non-311 contacting rates.

Home owners were not only more likely to contact via 311 than via non-311 channels but they were also more likely than renters to contact 311. Renters were about equally likely to use either channel. A similar pattern held between those from households with minors and those from households without minors. Those living with minors had a higher rate of 311 contacting than those living without minors and that former rate was also higher than their rate of non-311 contacting.

Table 9

Contacting Rates within Groups in Denver for 311 and Non-311 Contacting (%)

Variables	311 Contacting	Non-311 Contacting	Difference (Non-311 – 311)
Overall contacting rate	41.6	33.8	-7.8
Income			
Low income: <\$50,000	41.7	29.6	-12.1
Middle income: \$50,000 - \$99,999	44.7	32.0	-12.7
High income: \$100,000 or more	37.3	46.1	8.8
Race			
White	39.1	38.2	-0.9
Minority	48.2	22.3	-25.9
Age			
Young adult: 18-34	38.3	36.9	-1.4
Older adult: 35-54	42.5	35.5	-7.0
Senior: 55+	45.5	25.5	-20.0
Home ownership			
Home owner	45.7	32.5	-13.2
Renter	35.5	35.7	0.2
Have minor children			
Yes	49.7	30.4	-19.3
No	38.9	34.9	-4.0

Logistic Regression Analysis²⁰

Pre- and post-311 total contacting.

With the availability of 311 for contacting the city in 2008, citizens had a convenient way to access virtually any part of city government. Total contacting in 2008 should display a more equitable pattern of participation, with any previously existing differences in contacting across socioeconomic and demographic groups being reduced or wiped out post-311 adoption. The first three columns of Table 10 show the effect of the independent variables on the logit coefficients (log-odds of total contacting) in the pre-311 (2005) and post-311 (2008) years, together with the difference in the logit coefficients between the two years (in the third column). The logit coefficients in Table 10 are most helpful for highlighting the differences in the effects of the variables on total contacting between the 2005 and 2008 models. However, for ease of interpretation of these effects, I discuss the probability effects--for the same two models--presented in the last two columns of Table 10, instead of the logit coefficients.

In 2005, controlling for all the other variables in the model, there remained a statistically significant difference (at the 0.1 significance level) in contacting between the highest and lowest income groups. On average, high income earners were 11.1 percentage points more likely to contact the city than low income earners (the reference group). For the demographic characteristics, while there was no statistically significant racial difference in contacting, there were significant differences among age groups. Older adults and seniors were less likely than young adults (the reference group) to contact. These results were statistically significant at the 0.05 and 0.01 significance levels, respectively. On average, older adults and seniors were 11.1 percentage points and 18.4 percentage points, respectively, less likely to contact in 2005 than

²⁰ For the sake of brevity, all discussions of coefficients are interpreted as partial effects, with the remaining independent variables in the model held constant unless otherwise stated.

young adults. In 2008, all the socioeconomic and demographic effects were smaller than in 2005 and none of these effects was statistically significant. For example, the age effects for 2008 indicate that older adults were now 1.0 percentage point more likely to contact than young adults and seniors were now only 2.4 percentage points less likely to contact than young adults. The pattern of weakening effects for the socioeconomic and demographic variables between 2005 and 2008 points to a more equitable pattern of contacting in the post-311 period and supports hypotheses H2a and H2c.

Residents' perception of a need in their community should motivate contacting and, given the lower level of effort required when 311 facilitates access to city government, perceived need should be a powerful predictor of contacting post-311. The evidence for perceived need, as measured by the services rating variable in this framework, is moderate. Whereas the services rating did not have a statistically significant effect on contacting in 2005, it was a significant predictor of contacting in 2008 (at the 0.1 significance level). For each one-point perceived deterioration in service quality (that is, one-point increase in the services rating scale towards "poor"), on average, the probability of contacting increased by only 5.5 percentage points in 2005 but by 11.4 percentage points in 2008. In other words, the stronger the perceived need, the higher the probability of contacting and the effect appeared stronger post-311. One possible interpretation of the stronger post-311 result is that as awareness and knowledge of 311 grow, needs may exert a stronger influence on contacting. The results for the services rating effect provide support for hypothesis H3a.

The interest in government variable was a statistically significant (at the 0.01 significance level) factor in contacting in 2005 but not in 2008. In 2005, those who had an interest in government affairs were almost 15 percentage points more likely to contact the city than those

who did not have an interest in government. Meeting attendance was another significant indicator of contacting behavior. In 2005, those who attended public meetings were 10.5 percentage points more likely to contact than those who did not and the result is statistically significant at the 0.1 significance level. In 2008, meeting attendance was associated with a 12.2 percentage point increase in the likelihood of contacting and the result is statistically significant at the 0.01 significance level.

Table 10

Factors Influencing Total Contact in Denver in 2005 and 2008, Logistic Regression Results

VARIABLES	Logit Coefficient			Probability Change (%)	
	Model 1 2005	Model 2 2008	Difference	Model 1 2005	Model 2 2008
Middle income	0.14 (0.59)	0.13 (0.44)	-0.015 (-0.039)	3.3	2.3
High income	0.50* (1.65)	0.48 (1.54)	-0.022 (-0.049)	11.1	8.0
White	0.40 (1.58)	0.37 (1.18)	-0.029 (-0.071)	9.0	6.7
Older adult	-0.51** (-2.04)	0.058 (0.21)	0.57 (1.51)	-11.1	1.0
Senior	-0.84*** (-3.03)	-0.14 (-0.39)	0.70 (1.59)	-18.4	-2.4
Services rating	0.25 (0.92)	0.66* (1.94)	0.41 (0.95)	5.5	11.4
Home owner	0.67*** (2.70)	0.20 (0.73)	-0.46 (-1.25)	15.0	3.5
Have minor children	-0.073 (-0.27)	0.26 (0.77)	0.33 (0.78)	-1.6	4.3
Interest in government	0.66*** (3.06)	0.38 (1.56)	-0.27 (-0.84)	14.7	6.6
Political efficacy	-0.015 (-0.063)	-0.27 (-1.02)	-0.25 (-0.72)	-0.3	-4.7
Meeting attendance	0.47* (1.86)	0.75*** (2.62)	0.28 (0.73)	10.5	12.2
Volunteer	0.32 (1.50)	0.043 (0.18)	-0.28 (-0.87)	7.2	0.8
Constant	-1.32* (-1.65)	-1.38 (-1.52)	-0.066 (-0.054)		
No. of observations	702	667	1,369		

Note. Robust z-statistics in parentheses.

*** p<0.01, ** p<0.05, * p<0.1.

A comparison between 311 contacting and non-311 contacting in 2008.

I present separate logit models for 311 contacting and non-311 contacting in Table 11 to determine whether the pattern of effects differs for the two types of contacting in 2008.²¹ Model 1 shows that there were no statistically significant differences between either of the two upper income groups and the low income group in their likelihood of contacting 311. This is evidence to support the claim of equity in 311 contacting. However, model 2 shows that, on average, being in the high income group increased the probability of engaging in non-311 contacting by 14.2 percentage points compared to being in the low income group and the difference was statistically significant at the 0.05 significance level. In sum, the income effects between the two models lend weak support to hypothesis H2b.

On average, compared to being a minority, being white offered no significant advantage in 311 contacting but made a significant difference (13.4 percentage points) in the probability of non-311 contacting. Whites' advantage in non-311 contacting was statistically significant at the 0.05 significance level. The race equality in 311 contacting and inequality in non-311 contacting provides strong statistical evidence in support of hypothesis H2d. Age was not a significant predictor of either type of contact as there were no statistically significant differences between either of the two older groups and young adults (the reference group) in their probabilities of engaging in either 311 or non-311 contacting. Neither were there clear patterns in the group differences as we move from 311 contacting to non-311 contacting. The age results, therefore, do not provide evidence in support of hypothesis H2d.

The services rating variable did not have a statistically significant effect on either 311 contacting or non-311 contacting. However, the effect of perceived need was in the expected

²¹ I also ran a multinomial logit model for comparison (see Appendix H for multinomial logit results). The APEs were nearly identical for most of the independent variables and close for the remaining independent variables.

direction for both 311 and non-311 contacting. The findings on perceived need provide no support for hypothesis H3b.

Both measures of stakeholding had the expected effects on each type of contacting. While both home ownership and having minors in the household had a substantive effect on the probability of 311 contacting (10.9 percentage points and 9.5 percentage points, respectively), only the home ownership effect achieved statistical significance at the 0.1 significance level. Neither of the stakeholding variables had a statistically significant effect on non-311 contacting. In fact, after controlling for the other independent variables in the model, each stakeholding variable had a negative effect on the probability of non-311 contacting. The results on home ownership and having minors in the household provide only some support for hypothesis H4.

Additionally, the models show that interest in government was a statistically significant factor in 311 contacting (at the 0.05 significance level). Those who had an interest in government were 12.7 percentage points more likely to contact via 311 than those who did not have an interest in government. Interest in government might be important because that interest increases the likelihood of learning about 311. However, the interest in government variable did not have a statistically significant effect on whether or not the individual contacted via non-311 channels. Volunteering had a statistically significant effect (at the 0.05 significance level) on the likelihood of contacting 311. Volunteers were 10.2 percentage points more likely to contact 311 than non-volunteers. The volunteer variable also had a statistically significant effect (at the 0.1 significance level) on contacting via non-311 channels; however, the effect was, surprisingly, to lower the likelihood of non-311 contacting by 9.7 percentage points.

Table 11

Factors Influencing 311 and Non-311 Contacting in Denver in 2008, Logistic Regression Results

VARIABLES	Model 1: 311 Contact		Model 2: Non-311 Contact	
	Logit Coefficient	Probability Change (%)	Logit Coefficient	Probability Change (%)
Middle income	0.15 (0.55)	3.5	-0.064 (-0.24)	-1.3
High income	-0.29 (-0.98)	-6.4	0.64** (2.11)	14.2
White	-0.26 (-0.91)	-5.8	0.67** (2.35)	13.4
Older adult	-0.019 (-0.068)	-0.4	0.054 (0.20)	1.1
Senior	0.11 (0.35)	2.6	-0.28 (-0.79)	-5.7
Services rating	0.23 (0.76)	5.2	0.35 (1.21)	7.4
Home owner	0.49* (1.84)	10.9	-0.34 (-1.21)	-7.1
Have minor children	0.42 (1.54)	9.5	-0.28 (-1.00)	-5.7
Interest in government	0.56** (2.54)	12.7	-0.29 (-1.25)	-6.1
Political efficacy	-0.31 (-1.21)	-6.9	0.089 (0.33)	1.9
Meeting attendance	0.31 (1.24)	7.2	0.24 (0.87)	5.1
Volunteer	0.45** (1.96)	10.2	-0.46* (-1.96)	-9.7
Constant	-1.65* (-1.90)		-1.63* (-1.93)	
No. of observations	667		667	

Note. Robust z-statistics in parentheses.

*** p<0.01, ** p<0.05, * p<0.1.

Summary

The quantitative analysis on Denver yielded statistical support for several of the hypotheses. Others were only weakly supported while a few were rejected altogether due to lack of supporting evidence. Many of the initial effects and patterns seen in the preliminary descriptive statistics and bivariate analysis carried over to the logistic analysis. Table 12 summarizes the evidence presented in testing the hypotheses.

The results provide evidence that contacting rates increased significantly in the post-311 period compared to rates in the pre-311 period (hypothesis H1). Furthermore, the rate increases were across all groups. The next most important hypotheses are those that address the equity implications of 311 (hypotheses H2a to H2d). SES had the expected effect of being a weaker predictor of contacting post-311 (hypothesis H2a) but offered only weak evidence in terms of whether its impact on 311 and non-311 contacting differed significantly (hypothesis H2b). For the demographic variables, race provided the strongest evidence of equalization of access for total contacting post-311 (hypothesis H2c) and for 311 contacting relative to non-311 access (hypothesis H2d). However, the age measure performed well for hypothesis H2c but not so for hypotheses H2d. The findings on the effect of perceived need on total contacting were consistent with the literature (hypothesis H3a); however, the findings did not show a differentiation in its effects for 311 versus non-311 contacting (hypothesis H3b). Finally, home ownership showed the anticipated strong positive effect on 311 contacting compared to non-311 contacting, lending support to hypothesis H4. However, the other measure of stakeholding, having minors in the household, offered only weak evidence in support of the hypothesis.

Table 12

Summary Results on Hypotheses from Quantitative Phase (Denver Case)

Hypotheses	Description	Status	Evidence
H1	Post-311 contacting rates will be higher than pre-311 contacting rates.	Confirmed	-Table 7: total contact rate difference of 17.9 percentage points, significant at the 0.01 level -Table 8: pre-post contacting differences for all groups showed increase and significant at the 0.05 or 0.01 significance levels
H2a	The association between SES and contacting will be weaker after adopting 311.	Confirmed	Table 10: supported
H2b	The association between SES and 311 contacting will be weaker than the association between SES and non-311 contacting.	Weak evidence	Table 11: some/weak evidence
H2c	The association between demographic characteristics and contacting will be weaker after adopting 311.		
	Race	Confirmed	Table 10: supported
	Age	Confirmed	Table 10: supported - strong evidence

Hypotheses	Description	Status	Evidence
H2d	The association between demographic characteristics – race, age and sex – and 311 contacting will be weaker than the association between demographic characteristics and non-311 contacting.		
	Race	Confirmed	Table 11: supported - strong evidence
	Age	Rejected	Table 11: evidence does not support hypothesis
H3a	Perceived need will have a strong positive association with contacting, especially after 311.	Confirmed	Table 10: supported
H3b	Perceived need will have a stronger positive association with 311 contacting than with non-311 contacting.	Rejected	Table 11: evidence does not support hypothesis
H4	Having a stake in the community will have a stronger association with contacting via 311 than with non-311 contacting.		
	Home owner	Confirmed	Table 11: supported
	Have minor children	Weak evidence	Table 11: some/weak evidence

Interpretation: Discussion of the Quantitative and Qualitative Findings

This chapter has presented quantitative evidence of the effect of the 311 implementation in Denver on contacting patterns, with strong evidence which suggests that there were significant equity effects on contacting post-311 implementation. These quantitative results represent the main findings for the Denver case. The qualitative findings gave insights into the implementation process itself and highlighted some challenges as well as strategies that the implementers used to address those challenges. In this section, I discuss how this qualitative analysis enriches the quantitative findings by linking the quantitative results to the city's actual 311 implementation and management practices.

The strong political support that Denver's 311 system received, particularly from the mayor's office, was critical for elevating 311's profile in the city. The elevated profile for 311 during implementation appeared to aid the city's efforts to bring public awareness to the innovation as a facilitator of access to city government. The multi-faceted and extensive public education campaign may have ensured that a diverse cross-section of the city's population became aware of 311 and been more likely to engage with the city via that contact channel. The city's effort to work with neighborhood organizations to publicize 311 within their communities also appears to have contributed to widely disseminating the message of 311 to the city's residents. Put together, these offer plausible explanations for the quantitative analysis findings of high rates of contacting in the post-311 period, and particularly for 311 contacting, as seen amongst such groups as minorities and those with a stake in their communities - home owners.

Denver implemented 311 with a supporting CRM system behind it from the outset. The city also undertook an extended soft launch to test the 311/CRM system prior to launch. The structure of the 311 operations also included extended service hours for getting in contact with

the city. These were critical features of Denver's 311 implementation process that may have ensured that the city was well-prepared to engage with its residents in this new way and to do so effectively by the time 311 was officially launched and open to the public. Effective engagement in this context means being able to serve residents' needs efficiently and with a high standard of customer service. It also means giving the residents a means to hold the city accountable in their engagement in order to give the public confidence that the new system was really working for them. Residents' ability to track their requests through the city government was an important feature for ensuring accountability in the engagement process and engendering confidence to make greater use of 311.

Both the quantitative and the qualitative findings lend support to the claim that the city of Denver's 311 implementation process was effective and facilitated the city's success in meeting the goals (such as ease of access) set out for 311. The extensive public education efforts surrounding 311 and the political and administrative support that the initiative received appear to have been the biggest contributing factors to the success of the implementation and its subsequent impact on contacting. This may be a useful finding to local governments that are interested in engaging their residents in the local government administrative process and, more importantly, in providing a convenient channel to government that is equitable.

CHAPTER V: FINDINGS ON MINNEAPOLIS

This chapter presents the qualitative and quantitative findings for the City of Minneapolis. These findings are presented separately. The chapter also includes a discussion at the end which interprets the quantitative results in light of the qualitative findings.

Qualitative Findings

The findings draw from information gathered from reviewing documents, particularly a comprehensive 2008 case study report on Minneapolis's experience in establishing its 311 system, prepared by the City of Minneapolis and The Macro Group for the US Department of Justice's COPS program (The City of Minneapolis and The Macro Group, 2008). The findings are also informed by and greatly enriched by the experiences of the four Minneapolis key informants.

Minneapolis launched its 311 system on January 4, 2006 (The City of Minneapolis and The Macro Group, 2008, p. 10). According to interviewee 301, the idea to consider 311 originated from a city council member who was exposed to the innovation at a national association meeting of elected officials where 311 systems had been discussed. The council member returned to Minneapolis and proposed the idea to the city. The council member, therefore, was a policy entrepreneur for the adoption of the innovation, by spreading the idea from his national network to his jurisdiction. The city employed the services of an external agent to conduct a process assessment of city operations, which highlighted deficiencies in the city's service delivery system and gave urgency to the need for a 311 system (The City of Minneapolis

and The Macro Group, 2008, p. 19). In the weak mayor-strong council government of Minneapolis, the proposal to adopt 311 proceeded because it received majority support from the city council.

Although the idea to innovate by implementing a 311 system did not originate from the mayor's office, the office quickly became a major champion of the initiative as well. One interviewee said of the initiative: "They [the mayor's office] were strong behind it" (Minneapolis interviewee 304). Another interviewee described the significance of the role played by the mayor's office as follows:

He [the mayor] would be disappointed that the initial idea [for 311] came from a council member but it really did. But he took that and he was the champion of this the whole time. So, all of the time that this project was underway he was the one that really gave it the public voice and the importance of doing it and helping within the city [...] The mayor was really the public voice and that is important on a massive transformation in a city like this (Minneapolis interviewee 301).

The finding that the mayor was a strong proponent of the 311 initiative is consistent with the finding from the O'Byrne (2015, p. 102) Minneapolis case study that the mayor was a "policy entrepreneur" in the 311 adoption process.

Goals of Minneapolis 311

The application that the City of Minneapolis submitted for grant funding from the Department of Justice's COPS program for the 311 initiative indicated that the city was motivated by a number of reasons to implement a 311 system (The City of Minneapolis and The Macro Group, 2008, pp. 13-15). According to interviewees, the most important goals for the

city's 311 system included a focus on improving resident interaction with the city through better customer service. The city recognized that its existing means for residents to make contact were unsatisfactory. In the words of interviewee 301, "That link that residents had with city government was kind of messy at best and frustrating at worst." This messiness and frustration stemmed primarily from the fact that the city had many telephone numbers that residents had to go through when accessing the government, often with callers being transferred from one department to another, including, according to The City of Minneapolis and The Macro Group (2008, p. 114), when attempting to access different parts of police services. In the words of one interviewee:

A lot of times, we really felt that people would get what some folks call 'the city hall shuffle.' I think that was a phrase coined, I think, by Baltimore 311. And we really felt that that was happening more than it should and by having 311 be the central clearinghouse, people, all they had to know was call 311 and we'll help figure out who to talk to if it's not right with the 311 customer service representatives (Minneapolis interviewee 302).

According to the interviewees, the goal of improving resident access to city government dealt with the city's "front door." Also important to the city was how its back-end processes functioned. The city hoped that implementing 311 and the associated CRM system would result in process improvements at the department level, thereby making the city's service delivery more efficient. More long-term, the goal was to produce performance indicators to be able to practice performance measurement and management:

This was never about just a front door to the city. This was always about what the connection to the back-end of the city would drive in business process improvement. This was always about correcting, reforming our systems and our processes, not just about satisfying the front door to the resident – that was a big piece. But we knew that the system would drive how we delivered services so much better. And that takes years after it's been implemented (Minneapolis interviewee 301).

...maybe second or third to citizen access as being the main reason for starting 311 was the idea that as 311 came up and became operational and developed, the job - the work order system and so forth - we knew it would force all of the departments who were involved to do some process improvement. And we really felt that that was appropriate. If we had process improvement and if we had milestones for how long a particular kind of work would need to be taken care of, we could start measuring how well the city was doing for the tax payer. We really felt that was very, very important to take care of that for the tax payer (Minneapolis interviewee 302).

The final major motivating factor for implementing 311 was to ease pressure on the city's 911 emergency system. Between 30 and 40 percent of the calls to the Minneapolis 911 number were non-emergency calls (The City of Minneapolis and The Macro Group, 2008, p. 59).

Steps in the Implementation Process

Once the decision to implement 311 had been made, the city's Business Information Services department (similar to the Information Technology or Technology Department in most cities) became the lead department responsible for implementation in the initial phases. This department falls under the authority of the city coordinator. The city ultimately created a 311 call center division that, together with the 911 call center division, fell under the 911/311 department, which was headed by an assistant city coordinator, who in turn reported to the city coordinator (Fleming, 2008; The City of Minneapolis and The Macro Group, 2008). However, several years later, the city reorganized 311 into its own separate (from 911) line of service, but retained its reporting to the city coordinator (City of Minneapolis, 2015, pp. 191-192). The rationale for this reorganization was to avoid the misperception that 311 was simply an instrument of 911 and to emphasize that 311 was meant to service all city departments:

I think that [separation of 311 and 911] was partly to recognize that it wasn't just a police or fire or EMS [emergency medical services] organization at 311. It was serving all city departments and all facets of city government – almost all (Minneapolis interviewee 302).

It [911/311] was split up because it wasn't a good fit. [...] They're call centers that do completely different things and they measure their success on different metrics so it's not a good mix (Minneapolis interviewee 303).

In the preparation phases, the city consulted with other jurisdictions that had prior experience with implementing 311, including Baltimore (The City of Minneapolis and The Macro Group, 2008, p. 10). At various stages in the implementation process, the city instituted “soft launches” where it tested parts of the 311 system with a few service requests (The City of Minneapolis and The Macro Group, 2008). However, part-way through implementation, the city decided to change CRM software provider due to problems they experienced with the initial software (The City of Minneapolis and The Macro Group, 2008). As noted by interviewee 304, this decision affected the implementation timeline and left little time for a final thorough soft launch that would have allowed for extensive testing of the 311 system before the January 4, 2006 start date:

There were a few shortcuts taken that, in retrospect, I wish we hadn't let them get by with because we didn't have what you call a long time to do a soft launch or anything. It was kind of directly into the nitty-gritty almost immediately (Minneapolis interviewee 304).

Other than the effect of the unanticipated change in software provider, interviewee 303 noted that the city implemented 311 gradually, with a simple arrangement, which they felt was more appropriate as it was easier to manage than a more complex system. Three-one-one provided services via several channels besides the telephone, including email and online access (The City of Minneapolis and The Macro Group, 2008, p. 16). The initial 311 system was set to operate Monday to Friday, 7 am to 11 pm (The City of Minneapolis and The Macro Group,

2008). The limited hours were due in part to fiscal constraints. It would be several years before the city would extend 311 service to weekends and one interviewee felt this was a limitation to the 311 service:

The bad thing [about the tight fiscal environment], perhaps, was that initially, 311 was envisioned to be a 7 by 24 kind of a department and we started with a [limited weekday schedule]. And we all felt that longer hours or more days would be an even more important service and it wasn't until years later that 311 finally had weekend service (Minneapolis interviewee 302).

Marketing the 311 System

In the weeks leading up to the launch of 311, the city of Minneapolis engaged in a massive public education initiative that included both external and internal components (The City of Minneapolis and The Macro Group, 2008). The internal effort included providing training to relevant city employees on the 311 system and educating all employees about the system and what it could do for the city (The City of Minneapolis and The Macro Group, 2008).

Interview 301 provided highlights of the internal employee education initiative:

One of the things we did early that I think served us very well is we pulled 500 people together into a massive day-long orientation. This was very early in the project so this was to give them a sense about possibility and to show them videos of other cities and to show resident satisfaction issues and to have people talk about change. So we really paid a lot of attention to how to handle that transition (Minneapolis interviewee 301).

The external effort was a multi-faceted campaign that included messages on city and public transit vehicles, posters at transit stops and in some city correspondence with residents (The City of Minneapolis and The Macro Group, 2008, pp. 85-92). Interviewee 303 added that the promotion efforts also included direct, in-person community outreach, including attending events and distributing 311-related mementos. The ICMA report on Minneapolis 311 also

documents the city's efforts to work through community organizations to spread the word about 311 (Fleming, 2008, p. 10). Interviewees noted that the message had to be constant, consistent and widespread because it involved a significant change in the mind-set of the public. However, the city found that the public's familiarity with 911 was an asset that they could tap into to ease the public into using 311 in a similar manner:

So, first of all, just to do basic education of dialing three numbers to answer anything that you want to ask is a big challenge in a city of half a million people. And if it hadn't been for 911, which is, in some respects - at least in the United States people know that those three numbers get you something really important - in some respects, it was nice to play off of, 'Here's what you call for an emergency, here's what you call for everything else.' And we did do that and I think other cities have done that and it's because it's not common to go to your phone and dial three numbers (Minneapolis interviewee 301).

One significant aspect of the Minneapolis education campaign was its extensive efforts to make the information widely accessible to the city's diverse population:

And so that very basic education thing is the first big challenge. And then the second one that I'd put right behind it is the diversity of a large city and the fact that there are 83 languages spoken in Minneapolis public schools. And we had seven official languages in the city and there was a council action about all important city communications had to be translated into all seven languages so that includes, Oromo and Somali and Hmong and a lot of very unique languages. And so, if in fact the point of 311 is to broadly service everyone that has a right to any city question being answered efficiently and effectively, then you simply have to reach into every community and try to make that as pervasive as possible (Minneapolis interviewee 301).

The effort to reach as broad a cross-section of the city's residents as possible reflects the city's broader policy of inclusivity and equal access. In fact, a 2003 city council resolution led to the creation of the city's limited English proficiency (LEP) plan in 2004, which sought to ensure more equitable access to city services for residents with limited English language ability (City of Minneapolis, 2004, p. 3). Furthermore, during the implementation of 311, the city was also cognizant of and sensitive to the possibility that some segments of the population were less

inclined to have any involvement with government. Thus, making access to the government equal for all groups was an important goal to the city:

We did feel and try to pay attention to the fact that we thought some communities were less prone to call the authorities. And that was true of the Hispanic community, we felt. Definitely true of the Hmong community, we felt. And so we never necessarily solved it. We were aware of the fact that we probably weren't getting as much phone traffic from some of those ethnic groups as others. We definitely, definitely tried (Minneapolis interviewee 302).

Interviewee 302 noted that one issue the city had to deal with in its marketing strategy was educating the public about which services fell under the purview of the city. There were calls and requests to 311 that came from outside the city and could not be addressed by Minneapolis. Also, there were calls that originated from within Minneapolis but which pertained to suburban or county services, for which the city did not have responsibility.

Challenges in the Implementation Process

The decision to implement 311 in Minneapolis passed because it had strong initial institutional and political support from elected officials. However, as implementation progressed, a number of obstacles emerged. These obstacles ranged from technical challenges - the main one being changing CRM provider during project implementation - to resistance from some department staff and lukewarm support from some of the city's elected officials. Over time, those responsible for the implementation process adopted strategies in an attempt to adapt to these challenges and galvanize support for the initiative.

Implementing 311 in Minneapolis represented a significant culture change in many of the departments. Prior to 311, several of the city's departments did not have in place applications for

organizing their work. One interviewee shared an anecdote to illustrate the informal process in place within one department for handling service requests:

[Department name redacted] had no real application or anything behind them. I remember the anecdotal story they said, ‘Oh yeah, they get their service requests over the phone and they write them on a scrap of paper and put them in a cigar box on top of the filing cabinet and then the person who comes in grabs them.’ That’s how bad it was (Minneapolis interviewee 304).

Implementing such a sweeping organizational change that fundamentally alters the departments’ processes and the way they operate required significant adjustments on the part of the departments and their staff. Some department staff were apprehensive about the changes that implementing 311 would usher in:

The administrative part of [department name redacted] was on-board. It was like pulling teeth trying to get some of the lower managers and especially the workers, they saw it as, ‘You’re going to double our work’ [...] because they very seldom got calls unless they got transferred on from the council or something like that about individual services that were needed to be done... They were afraid because they were being held to an SLA [service level agreement] on [these services] (Minneapolis interviewee 304).

Indications are that most of the other city departments, particularly those that had a history of using applications to manage their work processes were more accepting of the change to have 311 take over their individual call taking duties because they saw efficiency gains in being able to concentrate on service delivery. However, a few others were reluctant to roll their numbers into 311 because of concern that 311 would lead to a separation between their customer service and service delivery, which would ultimately affect accountability:

It [getting buy-in from some city departments] was not easy. It wasn’t not easy because necessarily of pushback, although we experienced a few instances of pushback. It’s not easy because it is extraordinarily complex to take a department that did those things sometimes adequately, other times poorly, and say that we’re pulling out that front door from your department and putting it elsewhere. And in the future you will be deliverers of the service but you won’t be the interfacers with the public - that’s going to be completely pulled out. [...] They felt like they were losing control. [...] So, yes, there

was some pushback but the hard part wasn't from the pushback. The hard part was really developing an entirely new way of working and thinking within city government (Minneapolis interviewee 301).

Staff were concerned about experiencing changes in their job descriptions as 311 technology alters the way their departments function:

Oh, yeah, [it was challenging] because you're changing folks' jobs. They're no longer answering the phone and so then they're saying, 'Well, what am I going to do?' Well, there's always something to do in city government. That isn't a problem. But it's the fact then that their job is changing so there's resistance to doing that (Minneapolis interviewee 303).

From the perspective of the interviewees, the reluctance, however, appears to have been short-lived as the departments and their staff quickly realized the benefits of working with a centralized call center:

It didn't take really that long for people to realize how effective it could be and that if they work together with that new front-facing group of people [at 311], they really got to focus on pure delivery (Minneapolis interviewee 301).

In an effort to ensure staff cooperation in this new initiative, the city had to allay staff concerns about job security in the midst of the changes:

Originally, we talked about the layoffs that would be necessary to help pay for 311, and in the end the city backed off on doing a lot of layoffs. So even if there were people in the departments that used to play that front-facing role, we didn't kind of go through and do a lot of firing. And that helped, you know, that it wasn't about laying people off and getting those salary savings in order to pay for 311. Some of that had happened but we tried to manage that within attrition and just changing... a lot of people their jobs were redefined within those departments (Minneapolis interviewee 301).

One interviewee believed that the tightening fiscal situation in which the departments operated in the mid-2000s may have been a contributing factor in the departments' willingness to embrace 311 as a partner in service delivery:

There was considerable fiscal pressure on the departments to do the same amount of stuff with perhaps less people and resources and so that, to some extent, I think prompted some of the departments to rely on 311 to offload their work order processing and their call answering. And so 311 was there as a place to rely on for those departments who were so strapped that they had to cut out some ability to do those things that 311 took over. So that was a good thing (Minneapolis interviewee 302).

One interviewee offered an example of a department that had initially shown reluctance about using the 311 system but ended up embracing it when it found the system useful in making a case for securing additional resources for the department. The interviewee believed that the integrated 311/CRM system offered insights into department performance, which may have ultimately influenced a resource allocation decision:

Oddly enough, after a couple of years, I think it was in 2008 when the economy really tanked and everybody's budget went down, they [the department] were able to get a one-time influx of money for [their work] because they could take the reports and prove that they were getting many more reports of [service needs] than they were able to fix with the resources that they had. So, it was funny because, after that, [the department] turned around. They were a lot more willing to take the calls and organize their work around it. And they were finding it was easier to get more done (Minneapolis interviewee 304).

Despite what appeared to be generally high levels of support for 311 from the city's elected officials, some interviewees noted that, at times, there was a little hesitation among some of these officials. This was especially the case with newer members of the city council who had difficulty seeing the value of a centralized gateway to city government:

There was definitely some nervousness amongst some of them [city council members] that the 311 might supplant their own offices for citizen access (Minneapolis interviewee 302).

The city's internal education efforts played a major role in securing the support of elected officials (The City of Minneapolis and The Macro Group, 2008, p. 93). The strategy, as in the case with the departments, was educating the stakeholders on the potential benefits to them of cooperating with 311 and dispelling their fears:

In the end, we really had to work those 13 relationships with the 13 city council members closely on this. And in the end what we really sold this on is, while they surely were in those positions and when things went well, they were praised, but they also understood how often things didn't go well in that connection with residents. And so their pain was great enough; that's one reason that they wanted to certainly try to make it better overall. The second reason, of course, is that serving their residents well in their wards is really their chief role. So if that's the argument that's being made, it's hard for them to argue against. But the third one was, because with 311 you get this huge power of data and reporting, we negotiated the set of information and reports that they would get regularly. And the level of sophistication about what they knew about who was calling in their ward, from their ward and what those topics were and how that was reported to them was way more sophisticated than they ever had prior to that, even if their own office was taking the calls. So they saw that qualitative bump into the information that they would have. And the fourth one that I really think was actually very important: we made a commitment that if a resident said they wanted to talk to the council member, we didn't ask any questions. We forwarded them to the council member. Because the last thing we wanted this to be perceived as is that we're trying to get in the way of residents' ability to get to that council member. Sometimes, it was the resident that felt like it was a block more than the council member worrying about it being a block. There are a number of residents who would be regular callers, who were, I think, also a little bit nervous about loss of access (Minneapolis interviewee 301).

The city's education and partnering strategy with elected officials appeared to elicit support among these officials:

From time to time we'd find a city council member who was really negative or really nervous at first back in '06, who kind of came around and said, 'Hey, this is great. It's helping us out. We're able to deal with the sticky constituent questions, not the routine things that 311 takes care. So that's a good balance.' I think it turned out to be popular amongst the city council members, generally (Minneapolis interviewee 302).

Summary

Like many other cities that have implemented 311, Minneapolis was motivated to undertake this technological innovation because of a desire to better serve its residents and achieve efficiencies in departmental operations. Like most later adopters of 311, the city took inspiration from early adopters, including Baltimore, and attempted to learn from their experiences. Despite extensive planning, the city still faced some challenges in its implementation of 311. Interviewees noted that, in the ensuing years, 311 use in Minneapolis grew and the system continues to be an integral part of the city's engagement efforts with its residents and of the city's service delivery systems.

The city's challenges in ensuring that 311 is an effective tool in their administrative process include the unique challenge of being able to reach a very diverse ethnic population to ensure equitable access to the city. Meeting this challenge has been facilitated by the city's official position and broader policy of inclusivity. As expected, internal dynamics from the organizational change associated with innovating in city government proved to be a challenge to the implementation process. However, the implementers of 311 tried a variety of strategies to manage that change process and, in the opinion of the interviewees, with time, as the benefits of 311 became more apparent, that challenge appeared easier to manage:

So, there's a proving ground that has to occur once this gets implemented, that shows people that, in the end, the calibre of service - the efficiency of it, the responsiveness, the data, the reporting, the transparency, all of those things are hugely enhanced from almost any experience that they'd ever had before in that kind of connection. And once they've seen that, you've got all the support you need. But getting to that point, where it really proves itself, that's hard work (Minneapolis interviewee 301).

Quantitative Findings

The quantitative section of this chapter focuses on exploring the descriptive, bivariate and logistic regression results from Minneapolis's survey data. The discussion here considers the statistical evidence as they pertain to hypotheses H1 to H4.

Descriptive Statistics for Minneapolis

Sample characteristics.

Table 13 presents the characteristics of the samples from the 2005 and 2008 Minneapolis Resident Satisfaction Surveys. The rate of contacting remained stable between the pre- and post-311 implementation periods. The increase of 0.2 percentage point in contacting rates between the two periods was not statistically significant. This marginal increase does not provide support for hypothesis H1.

Respondents in the lowest income category (annual income below \$50,000) made up a majority of the sample in both periods. However, their share declined by 5.1 percentage points in 2008. The loss in share was taken up by the high income group in the sample while the share of middle income earners remained steady.

The proportions of whites and minorities in the samples remained largely unchanged between the pre- and post-311 implementation periods. Whites were a majority in both periods, making up about 71 percent of the samples. Young adults were the largest age group in 2005 but the group experienced a statistically significant decline (5.5 percentage points) in their share in

2008. Older adults increased their share in the sample from 37.4 percent in 2005 to 42.2 percent in 2008. The sample was roughly evenly split between males and females in each period.

The mean of the services rating variable was 2.1 in each period. Home owners made up almost 56 percent of the sample in each period. A little over 36 percent of the sample in 2005 had minors in their household while a slightly smaller percentage – 34.2 percent – lived in households with minors in 2008.

Table 13

Minneapolis Survey Respondent Characteristics, Pre- and Post-311 Implementation (%)

Variables	2005	2008	Difference (2008 – 2005)
Total Contact	41.3	41.5	0.2
Income			
Low income: <\$50,000	58.0	52.9	-5.1*
Middle income: \$50,000 - \$99,999	30.8	30.7	-0.1
High income: \$100,000 or more	11.2	16.4	5.2***
Race			
White	71.3	71.1	-0.2
Minority	28.7	28.9	0.2
Age			
Young adult: 18-34	44.2	38.7	-5.5***
Older adult: 35-54	37.4	42.2	4.8*
Senior: 55+	18.5	19.1	0.6
Sex			
Male	50.0	50.8	0.8
Female	50.0	49.2	-0.8
Services rating (mean)	2.1	2.1	0.0
Home owner	55.7	55.6	-0.1
Have minor children	36.2	34.2	-2.0
No. of observations	1,046	984	

Note. *** p<0.01, ** p<0.05, * p<0.1.

Contacting rates within groups.

In addition to knowing whether there were changes in the overall rate of contacting between the pre- and post-311 implementation periods, it is important to know how contacting varied by group. In Table 14, I present a bivariate analysis that examined contacting rates for various groups in the sample. Surprisingly, Table 14 shows that eight of the 14 groups had lower rates of contacting in the post-311 period. However, none of these declines was statistically significant.

The six remaining groups each experienced an increase in their contacting rate. These six included the only two groups to have a statistically significant difference (at the 0.1 significance level) in their contacting rate post-311: seniors and females. Seniors increased their contacting rate by 7.0 percentage points to overtake young adults in 2008. Females increased their contacting rate by 6.5 percentage points to surpass males in 2008. These significant increases are important from an equity perspective. An additional two groups from the six that increased their contacting rates may be described as traditionally less active participants: low income earners and minorities. Again, the increased participation rates for these groups, particularly in the midst of the declines, is important to highlight from the equity perspective. The final two groups that experienced an increased rate of contacting in 2008 were renters and respondents from households without minors. In each of those cases, though, their counterparts (home owners and those in households with minors, respectively) retained their contacting advantage over them in 2008.

These results provide weak evidence that contacting rates increased. This is consistent with the marginal increase in the overall contacting rate presented in Table 13. The results in

Tables 13 and 14 together are not sufficient to confidently declare that contacting rates increased in the post-311 implementation period as the evidence is weak (hypothesis H1).

There was no clear pattern in how the gaps in contacting rates between each pair of income groups changed across the two periods. The racial gap narrowed by 1.7 percentage points between 2005 and 2008. The relative positions of the sexes were not only reversed but widened considerably. Whereas in 2005 males were 2.9 percentage points more likely than females to contact, in 2008, they were 9.6 percentage points less likely than females to contact. In this bivariate analysis, as with income, there are no clear patterns in how the relationship between age and contacting changed between the two periods.

Table 14

Contacting Rates within Groups in Minneapolis, Pre- and Post-311 Implementation (%)

Key Independent Variables	Contact in 2005	Contact in 2008	Difference (2008 – 2005)
Income			
Low income: <\$50,000	38.5	40.8	2.3
Middle income: \$50,000 - \$99,999	46.0	43.9	-2.1
High income: \$100,000 or more	43.2	39.3	-3.9
Race			
White	43.8	43.5	-0.3
Minority	35.3	36.7	1.3
Age			
Young adult: 18-34	40.3	38.1	-2.1
Older adult: 35-54	45.9	44.5	-1.3
Senior: 55+	34.8	41.7	7.0*
Sex			
Male	42.8	36.8	-6.0
Female	39.9	46.4	6.5*
Home ownership			
Home owner	47.3	46.2	-1.1
Renter	33.8	35.7	1.8
Have minor children			
Yes	45.6	43.2	-2.4
No	38.9	40.6	1.7
No. of observations	1,046	984	

Note. *** p<0.01, ** p<0.05, * p<0.1.

311 contacting versus non-311 contacting rates within groups.

In Table 15, I summarize the bivariate relationship between the key independent variables and each of the two types of contacting that took place in 2008. Table 15 shows that, in 2008, there was more contacting via non-311 channels than via 311. However, the difference in channel usage was small (1.6 percentage points). This pattern holds for most groups, except the high income group, older adults and men.

Contacting rates among income groups were more similar for 311 contacting than for non-311 contacting, suggesting that SES may have had a weaker effect on 311 contacting than on non-311 contacting. Surprisingly, there was a much larger racial gap (in favor of whites) for 311 contacting (5.7 percentage points) than for non-311 contacting (1.1 percentage points). A similar pattern holds for age groups, where the differences among the age groups were smaller for non-311 contacting compared to 311 contacting. Women used both 311 and non-311 channels at a higher rate than men, but the gap was smaller in the case of the 311 channel.

Home owners had higher rates of contacting for both 311 and non-311 contacting than renters. The difference between the two groups was larger for 311 contacting than for non-311 contacting. Furthermore, home owners had a slightly lower rate of 311 contacting than of non-311 contacting. A similar pattern existed between respondents who lived in households with minors and those who did not. Those who lived with minors had a 0.6 percentage point lower likelihood of contacting via 311 than via non-311 channels.

Table 15

Contacting Rates within Groups in Minneapolis for 311 and Non-311 Contacting (%)

Variables	311 Contacting	Non-311 Contacting	Difference (Non-311 – 311)
Overall contacting rate	20.0	21.6	1.6
Income			
Low income: <\$50,000	20.2	20.6	0.4
Middle income: \$50,000 - \$99,999	19.5	24.4	4.9
High income: \$100,000 or more	20.0	19.3	-0.7
Race			
White	21.6	21.9	0.3
Minority	15.9	20.8	4.9
Age			
Young adult: 18-34	16.6	21.5	4.9
Older adult: 35-54	23.0	21.5	-1.5
Senior: 55+	20.0	21.8	1.8
Sex			
Male	18.5	18.3	-0.2
Female	21.4	25.0	3.6
Home ownership			
Home owner	22.8	23.4	0.6
Renter	16.4	19.3	2.9
Have minor children			
Yes	21.3	21.9	0.6
No	19.2	21.4	2.2

Logistic Regression Analysis²²

Pre- and post-311 total contacting.

Table 16 presents the results from the logit analysis. The first two columns show the logit coefficients – the effect of the independent variables on the log-odds of contacting – in 2005 and in 2008, respectively. The third column shows the difference in the effects between the two years. The last two columns show the probability changes – the APE – associated with the logit coefficients in the first two columns.

Income was not a significant predictor of contacting in either 2005 or 2008. This result does not support hypothesis H2a. It is noteworthy, though, that the probability changes in 2008 indicate that both middle and high income earners were, on average, 5.6 percentage points and 9.3 percentage points, respectively, less likely to contact than low income earners. In 2005, middle income earners were 0.3 percentage point more likely to contact than low income earners, on average, and high income earners were only 3.3 percentage points less likely to contact than low income earners.

Race was a statistically significant factor (at the 0.1 significance level) in contacting in 2005 but lost its significance in the post-311 period. In 2005, on average, being white rather than a minority resulted in a 7.7-percentage point increase in the probability of contacting. By 2008, that white advantage dropped to 5.2 percentage points. The age differences in contacting were not statistically significant in either period. While in 2005 sex was not a statistically significant predictor of contacting, in 2008, it was significant at the 0.05 significance level. The strength of this change in the sex effect from 2005 to 2008 is further evidenced by the statistical significance

²² For the sake of brevity, all discussions of coefficients are interpreted as partial effects, with the remaining independent variables in the model held constant unless otherwise stated.

(at the 0.05 significance level) of the difference in column three. In terms of probability effects, whereas in 2005 men were, on average, 3.1 percentage points more likely to contact than women, by 2008, they were, on average, 8.1 percentage points less likely to contact than women. Among the demographic variables, only race contributes conclusive evidence towards confirming hypothesis H2c.

The services rating variable had the anticipated strong positive association with contacting in 2005. The variable was statistically significant at the 0.05 significance level in 2005. In 2005, on average, for each one-point increase in need (that is, as satisfaction with service quality deteriorated towards “very dissatisfied”), the likelihood of contacting increased by 13.1 percentage points. The variable’s effect changed in unexpected ways in 2008—it lost statistical significance as a predictor of contacting and had a small negative effect instead. Furthermore, column three shows that this decline in the effect of the services rating variable on contacting between the two periods was statistically significant at the 0.1 significance level. These findings provide evidence against hypothesis H3a.

Other statistically significant variables in the models were the psychological engagement variables. Interest in government and political efficacy were statistically significant factors (both at the 0.05 significance level) in the likelihood of contacting in 2005 but only political efficacy had a statistically significant effect in 2008 (at the 0.01 significance level). In 2005, those who had an interest in government were 15.6 percentage points more likely to contact the city than those who did not have an interest in government. By 2008, that probability difference had increased to 24.7 percentage points. In 2005, survey respondents who felt politically efficacious were 7.7 percentage points more likely to contact the city than respondents who did not feel politically efficacious.

Table 16

Factors Influencing Total Contact in Minneapolis in 2005 and 2008, Logistic Regression Results

VARIABLES	Logit Coefficient			Probability Change (%)	
	Model 1 2005	Model 2 2008	Difference	Model 1 2005	Model 2 2008
Middle income	0.014 (0.076)	-0.24 (-1.21)	-0.26 (-0.96)	0.3	-5.6
High income	-0.14 (-0.58)	-0.41 (-1.58)	-0.27 (-0.74)	-3.3	-9.3
White	0.34* (1.70)	0.22 (1.10)	-0.11 (-0.39)	7.7	5.2
Older adult	0.10 (0.57)	0.19 (0.97)	0.093 (0.35)	2.4	4.5
Senior	-0.34 (-1.61)	0.019 (0.087)	0.36 (1.16)	-7.6	0.4
Male	0.13 (0.88)	-0.35** (-2.19)	-0.48** (-2.19)	3.1	-8.1
Services rating	0.57** (2.30)	-0.020 (-0.079)	-0.59* (-1.66)	13.1	-0.5
Home owner	0.55*** (3.02)	0.44** (2.20)	-0.11 (-0.42)	12.8	10.1
Have minor children	0.22 (1.25)	0.085 (0.45)	-0.14 (-0.53)	5.2	2.0
Interest in government	0.72** (2.02)	1.21*** (4.03)	0.49 (1.04)	15.6	24.7
Political efficacy	0.33** (2.05)	0.0089 (0.052)	-0.32 (-1.37)	7.7	0.2
Constant	-3.06*** (-4.19)	-1.61** (-2.40)	1.44 (1.46)		
No. of observations	1,046	984	2,030		

Note. Robust z-statistics in parentheses.

*** p<0.01, ** p<0.05, * p<0.1.

A comparison between 311 contacting and non-311 contacting in 2008.

Table 17 shows separate logit models for 311 contacting and for non-311 contacting.²³ Overall, the pattern of SES and demographic effects in Table 17 do not speak to more equity in 311 contacting compared to non-311 contacting. Whereas the income differences in non-311 contacting were statistically insignificant, there was a statistically significant (at the 0.1 significance level) difference between the middle income and low income groups in their likelihood of engaging in 311 contacting. The two income group differences in 311 contacting were larger than those for non-311 contacting. Although the evidence does not support hypothesis H2b's assertion of equity in terms of decreasing SES effects, it is important to note that the 311 contacting differences were in favor of the lowest income group.

Whites had no statistically significant advantage over minorities in their likelihood of contacting either by 311 or by non-311 means. However, the probability difference between whites and minorities in the likelihood of 311 contacting was 4.9 percentage points while it was only 0.3 percentage point for the likelihood of non-311 contacting. Similarly, age group differences were not statistically significant for either type of contacting but the effects were larger in the case of 311 contacting. The race and age effects do not support hypothesis H2d. The female advantage in 311 contacting was not statistically significant but was significant at the 0.05 significance level for non-311 contacting, thus providing some statistical support for hypothesis H2d.

The perceived need variable (services rating) provides no evidence to support hypothesis H3b. The services rating variable had the unexpected effect of lowering the probability of 311

²³ See Appendix I for corresponding multinomial logit model. Since the multinomial logit results are nearly identical to the logit results in Table 17, I do not discuss them here.

contacting while increasing the likelihood of non-311 contacting. However, neither of these effects was statistically significant.

Of the two stakeholding variables, the effects of home ownership were consistent with hypothesis H4 while having minor children in the household does not provide as conclusive evidence. There was a statistically significant difference (at the 0.1 significance level) between home owners and renters in their likelihood of contacting 311. Home owners were 6.1 percentage points more likely than renters to contact 311. The home ownership probability effect for non-311 contacting, though in the same direction, was only 4.0 percentage points and statistically insignificant. Although living with minors increased the likelihood of contacting 311 by 2.5 percentage points but decreased the probability of non-311 contacting by 0.5 percentage point, the effects were not statistically significant.

Interest in government was a significant variable in both the 311 contacting and non-311 contacting models. Those who had an interest in government were 13.3 percentage points more likely to contact the city via 311 than those who did not have an interest in government. This result is statistically significant at the 0.01 significance level. For non-311 contacting, having an interest in government increased the probability of contacting by 11.5 percentage points compared to not having an interest in government. The effect is statistically significant at the 0.05 significance level.

Table 17

*Factors Influencing 311 and Non-311 Contacting in Minneapolis in 2008, Logistic Regression**Results*

VARIABLES	Model 1: 311 Contact		Model 2: Non-311 Contact	
	Logit Coefficient	Probability Change (%)	Logit Coefficient	Probability Change (%)
Middle income	-0.45* (-1.90)	-6.9	0.073 (0.31)	1.2
High income	-0.43 (-1.22)	-6.7	-0.17 (-0.63)	-2.8
White	0.33 (1.23)	4.9	0.016 (0.067)	0.3
Older adult	0.34 (1.39)	5.3	-0.041 (-0.18)	-0.7
Senior	0.11 (0.39)	1.6	-0.059 (-0.22)	-1.0
Male	-0.13 (-0.67)	-2.0	-0.37** (-1.97)	-6.1
Services rating	-0.087 (-0.25)	-1.4	0.053 (0.19)	0.9
Home owner	0.40* (1.65)	6.1	0.24 (1.01)	4.0
Have minor children	0.16 (0.67)	2.5	-0.032 (-0.15)	-0.5
Interest in government	1.15*** (2.80)	13.3	0.85** (2.22)	11.5
Political efficacy	0.14 (0.68)	2.2	-0.12 (-0.58)	-1.9
Constant	-2.78*** (-2.78)		-2.05*** (-2.72)	
No. of observations	984		984	

Note. Robust z-statistics in parentheses.

*** p<0.01, ** p<0.05, * p<0.1.

Summary

The quantitative analysis for Minneapolis did not confirm most of the hypotheses. Table 18 summarizes the evidence evaluated in testing the hypotheses. First, it was surprising to note that there was little difference in contacting rates pre- and post-311 implementation. However, returning to the equity focus of this study, the two instances of significant changes – seniors and females – offer some interesting results on this issue.

The expectation that 311 would be associated with reduced SES and demographic differences in contacting was not borne out in the data except in the case of race. Among the disconfirming evidence, there were some interesting observations. For instance, although the results did not show equity in contacting in 2008 among income groups, it was interesting to find that the lowest income group was more likely than either of the upper income groups to engage in contacting. This higher likelihood of contacting for the lowest income group carried over to 311 contacting as well. These suggest, perhaps, that 311 had a profound effect in encouraging participation by lower income earners. There is some evidence to suggest that 311 may have likewise had an effect on racial minorities in that it raised their likelihood of participation relative to their white counterparts. Sex differences were also interesting even though they did not confirm the hypotheses. Post-311, sex differences in all types of contacting were in favor of females.

After controlling for the effects of the other independent variables in the framework, perceived need did not appear to be a contributor to contacting in Minneapolis post-311. The results from the stakeholding analysis were inconclusive. The stakeholding hypotheses were upheld with the home ownership measure but not with the minor children measure.

Table 18

Summary Results on Hypotheses from Quantitative Phase (Minneapolis Case)

Hypotheses	Description	Status	Evidence
H1	Post-311 contacting rates will be higher than pre-311 contacting rates.	Weak evidence	-Table 13: total contact rate difference of 0.2 percentage point was statistically insignificant -Table 14: most pre-post contacting differences for groups showed decrease but the only two statistically significant changes were increased rates for seniors and females
H2a	The association between SES and contacting will be weaker after adopting 311.	Rejected	Table 16: evidence does not support hypothesis (although both middle and high income earners had lower probabilities of contacting in 2008)
H2b	The association between SES and 311 contacting will be weaker than the association between SES and non-311 contacting.	Rejected	Table 17: evidence does not support hypothesis (311 contacting most likely for low income group)
H2c	The association between demographic characteristics and contacting will be weaker after adopting 311.		
	Race	Confirmed	Table 16: strong evidence
	Age	Rejected	Table 16: evidence does not support hypothesis
	Sex	Rejected	Table 16: evidence does not support hypothesis (instead, strong reversal of male-female gap in 2008)

Hypotheses	Description	Status	Evidence
H2d	The association between demographic characteristics – race, age and sex – and 311 contacting will be weaker than the association between demographic characteristics and non-311 contacting.		
	Race	Rejected	Table 17: evidence does not support hypothesis
	Age	Rejected	Table 17: evidence does not support hypothesis
	Sex	Confirmed	Table 17: strong evidence
H3a	Perceived need will have a strong positive association with contacting, especially after 311.	Rejected	Table 16: evidence does not support hypothesis
H3b	Perceived need will have a stronger positive association with 311 contacting than with non-311 contacting.	Rejected	Table 17: evidence does not support hypothesis
H4	Having a stake in the community will have a stronger association with contacting via 311 than with non-311 contacting.		
	Home owner	Confirmed	Table 17: strong evidence
	Have minor children	Weak evidence	Table 17: some/weak evidence

Interpretation: Discussion of the Quantitative and Qualitative Findings

Most of the results from the quantitative analysis for Minneapolis were unexpected and did not confirm the hypotheses. The qualitative findings provided insights into the study context and how Minneapolis's implementation process unfolded. These findings may now offer the opportunity to interpret the main (quantitative) findings from the study of the Minneapolis case.

By the accounts discussed here, the interviewees perceived 311 implementation in Minneapolis to be successful. However, the quantitative analysis performed in this chapter does not suggest that the success necessarily translated into this study's anticipated outcomes as measured through the quantitative data used in this study. Instead, the quantitative results showed a surprising amount of consistency between the pre- and post-311 periods, with variations in only a few instances. With respect to the low contacting rates in 2008, interviewee 303 offered some insights, noting that contacting rates fluctuate regularly and may be influenced by the amount of advertising being undertaken at that point in time, thereby hinting that the 2008 period may, perhaps, have been a period of low promotion and hence low visibility for 311:

When 311 was first operational, advertising money was available. Since advertising is generally not used, unless it is in the form of a public service announcement, an overall downward contact trend has occurred, and did occur since the call center inception in 2006 (Minneapolis interviewee 303).

The constancy in the findings between 2005 and 2008 was also noted in the National Research Center (NRC) report of the Minneapolis 2008 survey results (National Research Center, 2008c). Of relevance to this study is the Center's contingency table analysis finding that awareness of the city's 311 number was at only 59 percent for the original sample of 1,258 adults, (National Research Center, 2008c, p. 23). The report further noted that certain groups – including some of the demographic groups defined similarly in this study – had a lower

likelihood of reporting having knowledge of 311, including minorities, young adults and renters (National Research Center, 2008c, p. 23). Minorities had one of the lowest awareness rates among the socioeconomic and demographic groups analyzed in the report: 46 percent (National Research Center, 2008c, p. 67). The low levels of awareness with 311 provide a plausible explanation for the surprisingly low 311 contacting rates and the unexpected effects observed in the analysis. The 311 messaging did not appear to have penetrated some of these groups as expected, at least by 2008. Interviewee 303 offered one possible explanation - that these groups were more likely to have had shorter residencies in the city and therefore been less likely to have a reason to contact the city. Also, the challenges of educating the diverse population of Minneapolis highlighted in the qualitative analysis may have been difficult to overcome.

The perceived successful implementation of 311 in Minneapolis may have been translated into other outcomes not captured in this study – such as more responsive 911 operations, as documented elsewhere (see, for example, The City of Minneapolis and The Macro Group, 2008). The NRC’s findings indicate that, perhaps, the city had more success in achieving its goal of better customer service. Even though the quantity of contacts did not increase, it appears that the quality of contacts improved in 2008. Contactors in 2008 reported higher levels of satisfaction with all aspects of their interaction with the government personnel they last engaged with, and the increase in rating was statistically significant for 5 of the 6 aspects rated (National Research Center, 2008c, pp. 25-26). Also, 80 percent of those who contacted via 311 gave either a “good” or “very good” rating on the “ease of getting in touch with the employee” compared to 75 percent of those who contacted via non-311 channels (National Research Center, 2008c, p. 27). Among contactors, 311 agents were rated among the most professional city staff, receiving higher satisfaction scores than staff of the 911 center and staff of the police department,

and rated only 3.0 percentage points behind the staff of the fire department (National Research Center, 2008c, p. 2).

While this study of Minneapolis did not find evidence of increased contacting post-311 implementation, there is evidence to suggest that 311's effects may have been on other outcomes. Findings reported elsewhere show that 311 implementation may have influenced positive outcomes such as increased satisfaction with the quality of residents' contacts with the city. The lack of an effect on contacting rates and the lack of awareness of Minneapolis 311 suggest that either the initiative took longer to take root in the city or that the period chosen for this project to study the post-implementation effects may have been too short. This study does not analyze subsequent years to investigate whether the effects change over time. This is a limitation of the study. In the period studied here, the city's public education efforts may not have yielded the outcomes expected in this study but the outcomes noted elsewhere suggest that other aspects of the implementation process, such as the city's management of the internal change dynamics, may have borne fruit.

CHAPTER VI: FINDINGS ON KANSAS CITY

The third findings chapter begins by presenting the qualitative findings from the document review and six interviews with key informants on Kansas City's 311 system. The chapter proceeds to present some quantitative findings for Kansas City. It concludes with a discussion that incorporates the qualitative findings into the quantitative findings.

Qualitative Findings

Kansas City has a track record of using technology to facilitate citizen access to city government services that dates back to the early 1970s (Eichenthal, Fleming, & Keshav, 2009, p. 3). The city established what was known as the Action Center – a centralized point of access that residents could call, long before the advent of modern centralized call center technologies (Eichenthal et al., 2009). According to Kansas City interviewee 202, the center was intended to be a “one-stop shop” and materialized from the city's desire to facilitate residents' access to the city, as part of efforts to improve citizen engagement. The Action Center was housed in the city manager's office and used a paper system in which agents answered calls and typed callers' requests for forwarding to the appropriate city departments for resolution. The receiving departments would then type the requests into their systems. Over time, the Action Center became increasingly inefficient and ineffective in its operations. Technologically, the Action Center system was not integrated with the systems of the city departments. In fact, over time, departments developed their own technologies, specific to their functions and they operated independently of each other, resulting in inefficiencies (Kansas City interviewee 201).

According to interviewee 201, the road towards a 311 system for Kansas City began in the early 2000s when the city manager's office undertook an initiative called Kansas City Government Optimization (KC-GO). KC-GO aimed to improve city operations, by developing private sector-inspired strategies, for some of its major departments (City of Kansas City, 2003, p. 546; Kansas City interviewee 201). This ambitious program required high quality data to facilitate the development of benchmarks for assessing progress and for decision making. The city quickly realized that such data were not available for Kansas City.

The birth of Kansas City's 311 system was due to the confluence of two main factors: (1) the outdated Action Center and (2) the need for quality data for performance management (Kansas City interviewee 201). According to Eichenthal et al. (2009), by virtue of its role in city operations, the city manager's office took the lead in transforming the Action Center and pooling together other city customer service functions into what became Kansas City's 311 system. In the words of Kansas City interviewee 204, "the city manager's office is where that conversation really started." Although the principal impetus for the innovation came from the city manager's office, the interviewees noted that initiative received widespread support from the mayor and the city council: "Certainly, the mayor was so very supportive of this work. We brought the press in when we launched it to have her make the first 311 call" (Kansas City interviewee 202). As interviewee 203 noted, "The mayor, city manager and a handful of city council members were all very supportive of this effort. The primary individual was the city manager because he was responsible for managing all of our citizen interaction and operations of the city." According to interviewee 203, "the city manager was a good intermediary, mediator with the council members."

A 2009 ICMA report (Eichenthal et al., 2009) documents the chronology of events and the features of the system around the time of launch. The report notes that in October 2006 the city launched its 311 number and in January 2007, it started using the Oracle PeopleSoft customer relationship management system as well (Eichenthal et al., 2009, p. 3). The city implemented 311 with 36 customer service agents and, in addition to the telephone line, residents had a choice of several other channels for contacting the service: fax, email and the Web (Eichenthal et al., 2009, p. 2). The center operated on a weekday schedule of 7 am to 8 pm and weekend schedule of 8 am to 5 pm (Eichenthal et al., 2009, p. 3).

Goals of Kansas City's 311 System

The central goal for Kansas City's 311 system was to improve the city's service delivery. There were two components to this goal: (1) obtain data for performance management and (2) simplify the contacting process for residents to improve the quality of customer service:

So after about a year of studying and looking at other cities, we determined we would go with the 311. So, I mean, it still enabled our residents to have the one phone number but at the same time a big generator of why we chose to do 311 was because we really wanted data. We really valued having that data (Kansas City interviewee 201).

The goal was to be more responsive to citizens and to make it easier for them to tell us about issues and problems that they were having and then for us to be able to use that data to deal with those issues and hoped that it would improve citizen satisfaction with services (Kansas City interviewee 206).

Additionally,

The city saw difficulty in the number of phone numbers that citizens were able to call to get work done. It required us to look at combining a central place for contact while the work continued to be done in the various departments of the city. So, we saw just a lot of

conflict: somebody would have to call two or three or four different numbers to get something done and we wanted to alleviate that problem (Kansas City interviewee 203).

Kansas City took a long-term view of the customer service relationship, to use that and the data obtained through the 311 system to set the stage for deep and meaningful engagement with its residents:

A big emphasis was for customer service. Not just so much how a call-taker answered and talked on the phone. But kind of resonate engagement aimed at customer service so that we would be able to communicate with our residents not only on that one issue that they may have reported, but city-wide that we could communicate with our residents to say, 'here's what's going on in your neighborhood; here are some issues that you have in your neighborhood.' Because we would have our data to help target that (Kansas City interviewee 201).

Furthermore, the city hoped that 311 would help relieve the 911 system of some of its non-emergency calls (City of Virginia Beach Department of Management Services, 2011, p. 25).

Steps in the Implementation Process

After the decision was made to move to the 311 model for handling resident contacts, the city's implementers examined other cities' 311 implementation in an effort to learn from their experiences with 311 systems – an example of “social learning” (Boehmke & Witmer, 2004).

The 311 center was organized as a division in the city manager's department. This organizational structure appeared to be most beneficial for the effectiveness of the 311 system:

There are times that the lead 311 person needs to use a hammer to get things done. And being that the division is in the city manager's department, I would suggest to you that it

works most effectively being located where it is. I mean, the mayor's office would not have the time or the resources to do the follow-up that the manager's department has to do sometimes with regard to the status of certain cases... I, quite frankly, don't believe that under our model, it will work as well anywhere else in city government (Kansas City interviewee 202).

The importance of operating with the authority of the city manager's office backing 311 to support its work in coaxing departments to improve operations is echoed by other interviewees:

It [the 311/CRM system] has shined a light on areas where we have conflicts, inefficiencies... So it's highlighted organizational deficiencies that it's been important to have the city manager's office behind trying to resolve those conflicts and issues as they come up because, again, he has that authority. And then the other piece of it is the longer term view that the data coming out of our customer relationship management offers an opportunity to streamline and improve city services even when there's not that sort of conflict. So, having the city manager and the city manager's office behind efforts to focus on that data and utilize performance management strategies to improve city services has been really important (Kansas City interviewee 205).

I think probably that was the best way to do it [house 311 in the city manager's department] given the structure of the city government there with the city manager. The city manager is very powerful in that government. You couldn't have it housed in a particular department and have it hold the other departments accountable. You could probably house it in a budget office or something like that but that wouldn't make much sense. So, I think that, ultimately, it was probably where it needed to be in the city manager's office (Kansas City interviewee 206).

The organizational structure of 311 appeared to have been advantageous in another respect. Being so close to the city manager seems to have made not only political capital available to the program but also material resources as well:

Over time, it's become clear that, especially as it becomes more established, 311 is really an essential service. And so, over time, has required additional resources within a very short timeframe. And so being able to prioritize those – since the city manager is sort of the ultimate authority over the budget – I mean it has to go through the mayor and

council but, you know, administratively, he has the ability to modify things in the budget. So, from a resource standpoint, that's been important (Kansas City interviewee 205).

Marketing the Kansas City 311 System

Kansas City undertook a big marketing campaign to introduce 311 to its residents. The city's marketing strategy was largely a community-based approach. This approach was driven by the city's goal of encouraging involvement that would ultimately develop into meaningful engagement with its residents. The city staff mostly socialized the public in their own neighborhoods, a "grassroots...boots-on-the-ground sort of approach" (Kansas City interviewee 201).

The city has a neighborhood and housing department that keeps abreast of neighborhood leadership developments, which facilitated the grassroots marketing strategy. The marketing campaign was able to tap into this well-established system of community leaders to be able to address community meetings to inform them of how 311 could serve their communities. Among the programs that the city had for engaging with neighborhood leaders was what was known as a "lunch and learn," in which they brought community leaders together to discuss ways that they could best partner with the city by using the 311 system to tackle issues in their communities. This on-the-ground approach to engagement allowed the city to meet the specific needs of their constituents, including, in some cases, privacy concerns:

In some cases, some neighborhoods wanted to be able to track cases centrally that they had entered but didn't necessarily want a person's name associated with them because, in some cases, there's privacy concerns. They don't want somebody to be able to see that they entered a case. So, we would create a customer record for the neighborhood association so that we could both enter the cases with the neighborhood association as the

customer and then also we could easily run reports for them to tell them all the cases that they had open and the status (Kansas City interviewee 205).

We've always tried to communicate with residents on their preferred method. So we put together this paper form and we encouraged neighborhoods to hand those forms out so that members of a neighborhood could have like on their block watch programs and those sort of things, not just report crime but they could report any type of issue that they saw. They could write them on those forms, they could bring the forms back to their neighborhood organization, then the neighborhood organization could submit the forms all at one time or however they prefer to do it. So, it gave the neighborhood sort of an overall glimpse of everything that was coming in from different residents. And it also allowed us then to communicate back directly to the neighborhood. People don't want to give their name when they report. They want to report anonymously for fear of retaliation or something. So, they could still get communication but we would deal with it through the neighborhood. So, that way, it really kind of helped strengthen the neighborhood approach to addressing the issues (Kansas City interviewee 201).

Another component of the city's outreach efforts was partnering with other non-profits such as the United Way, which uses 211, to be a resource for spreading the word to their clients about 311 services.

Interviewees indicated that the city made some use of media in its marketing campaign. There were television ads in which elected officials promoted 311. Some city staff spoke on the radio about the 311 system. Additionally, the city made some use of the local newspaper to get publicity, as the paper was conveniently located in the city's building. The city also published informational brochures and produced instructional videos detailing the contact and request process and posted those on the city's channel. These videos were essential for dispelling some misconceptions among the public about how the 311 system operated:

There was a little bit of the concept of the 311 – because it was still called the *Action Center* (and we've since dropped that for this very reason) – that the staff in the 311 Action Center would be the people performing the actual *action*. Like, if I called in to report the missed trash, the person I spoke to was going to get off the phone, get in their truck and come pick up my trash. A lot of our marketing was to get them to understand the process: you're just calling a call center (Kansas City interviewee 201).

Other conventional visual means for publicizing the 311 system included advertising on buses, billboards, posters and bumper stickers.

The city was cognizant of the fact that other cities had fallen into difficulties over residents' confusion as to when to use 911 and when to use 311. In an effort to avoid such issues in Kansas City, the city made sure to emphasize the difference between the two systems during its public education campaign. Internally, the city conducted staff training on using the new 311 system (Kansas City interviewee 204).

Challenges in the Implementation Process

Despite the city's planning, institutional support and marketing efforts, Kansas City faced several challenges in implementing the 311 system. There were two main sources of the implementation challenges. The first source, ironically, was the legacy of the Action Center. The second source of challenges was the internal culture change associated with introducing the new system into the city government.

Whereas one would have expected the existence of the Action Center to ease the transition process to a 311/CRM system, according to one interviewee, its purported history of inefficiency and ineffectiveness in the public's consciousness may have tainted the public's perception of the 311 system. The public's apparent negative perception of the new system, without giving it the benefit of the doubt, may have been problematic because it appeared to be preventing them from using the system initially. Part of the problem seemed to stem from the city naming the new 311 system, "the 311 *Action Center*." The city therefore faced the challenge of changing public perception about the new system:

What we had to face was – and part of it was because we had kept the Action Center name – ‘I had called them before and they did not do anything.’ We had to go up against that a little bit. There was not a new set of expectations from our residents that had used it before because, even though it was a different number that they called, in their mind, it was still the same old Action Center. So, we battled that. That was really about for two years. Our usage was... I mean, some of the numbers rolled over automatically but what we found in our surveys on the number of residents that were using us, it was not very high. We tried to eliminate the term ‘the 311 Action Center’ as part of our ploy to get people to think of it a little bit differently and we just went with ‘the 311 Call Center’ (Kansas City interviewee 201).

Another impact that the Action Center legacy had on the 311 implementation process was that, in some cases, the staff who were brought over from the Action Center to the 311 center resisted the changes in processes that the new model brought. In the words of interviewee 205, “There were people who pushed back: ‘That’s not how the Action Center did it.’”

The Action Center staff were not the only agents within city government who resisted some of the changes in processes that the 311 system introduced:

City departments wanted to maintain control over their own service requests or communications with residents and their own data. There is sometimes a little bit of a challenge in that there’s sort of a ‘keep your nose out of our business’ (Kansas City interviewee 201).

That [working with different departments] was probably our biggest challenge. Our government operated with different – and still operates with different departments but, what was different is there was a lot of autonomy at the director level. The director ran the department and each director felt like they ran their own entity. So, when it came time to receive calls and be accountable to a call center, receive requests from a call center and being accountable for that, they did not want to do that. So they looked for work-around. So, we had a culture change that was very important that we had to go through (Kansas City interviewee 203).

One possible reason for some departments’ initially less-than-enthusiastic response to 311 was a concern that it was increasing their workload and exposing their resource constraints, which they

felt affected their efficiency in addressing the service requests they received. This reaction may also have been influenced by the economic and fiscal challenges at the time:

There was pushback and tension. A case number would be assigned and then when the case was not dealt with within a certain time, you would go back to the department and say, ‘What’s up with this?’ And the departments, [...] they felt that we were holding them accountable in new and different ways but we weren’t giving them adequate resources. [...] Legitimately or not, departments felt that this was certainly not helpful and they did push back [...] and the department folk said, ‘Yeah, that’s right. We know [of these service problems]. We ran out of money for this year’s allocation [to address these needs] three months ago. What would you like us to do?’ There was tremendous tension and pushback from departments. On the one hand it is the normal sort of challenges and struggles of bureaucracy in any government. On the other hand, they had a very legitimate point. It’s just very, very difficult – particularly in the middle of a recession – to get the resources you need in a city with a significant population of poor people, much more so than in suburban cities. So, yes, there was tension, some of it was bureaucratic in-fighting, some of it was a little bit legitimate (Kansas City interviewee 206).

The interviewees’ perception is that the resistance to using the new 311 system may have affected the efficiency of the customer service operations:

I would say it [the challenge] was framed mostly around utilizing the software system because, for many departments, it represented a brand new tool and many of them felt like it added to their workload. I think in some cases, this was probably represented to departments as external to their operations. Three-one-one is going to take the calls so maybe that even releases you from some obligation because you don’t have to take the phone calls (Kansas City interviewee 205).

What occurred in the beginning is they [some of the departments] would take care of the problem but they would not notify when it was complete. So we started meeting with the department directors to say how effective their response rates were. But they felt they weren’t accountable for that because they were resolving the problem and we didn’t, at the call center, have the close-out in a timely manner. So that was one of the biggest things to address internally (Kansas City interviewee 203).

The implementers attempted to manage the challenge of less cooperative departments by elevating cooperative departments - that saw benefits from using 311 in the form of better customer satisfaction scores on their citizen surveys and efficiency gains - to the role of “poster departments” (Kansas City interviewee 201). Additionally, the efforts to stem the lack of cooperation received administrative support from the city manager.

One interviewee felt that one department was a bit challenging to work with: the Information Technology department. The issue in this case was that the department was seen as taking a lead role in the implementation process that may have overreached its capacity:

The IT department felt that it had a responsibility to be the project lead, the project driver as opposed to provide the necessary IT support. And in my humble opinion, the IT department at that time was not qualified to do that because it had no idea how city departments went about their work, how they went about resolution. They should have recognized the fact that they were merely customers in the process (Kansas City interviewee 202).

In addition to the reluctance of some department heads to use the new system, there was a phase during which staff seemed to struggle to use the unfamiliar system. Despite staff training prior to launch, the 311/CRM system software tested staff skills, and apparently, their writing skills in particular. Providing details about cases in the CRM system was critical for accountability and to the effectiveness of the customer service operations:

As you might imagine with a workforce that had a wide range of communication skill sets, you had some people who could type very clean, nice messages and some people would do some kind of broken sentence structure remarks in there. Because the public could access those and see what the status of their case was and if they found something that looked like it was kind of cryptically written, that wasn't always flattering for the city because you might have somebody who's entering that information in who wasn't hired as a writer. They were hired as some type of a technician or some type of a laborer (Kansas City interviewee 204).

To tackle this challenge, the city developed standardized responses for cases (as far as was possible) that employees could easily access from a menu. Interviewee 204 described another challenge that became apparent during the adjustment phase: employees who were not yet comfortable with using the system fell behind on their cases, which they would then pass along to other departments that they felt may have responsibility over the matter. However, the design of the CRM captured such instances of inappropriate offloading of cases, among other inappropriate uses of the system.

The implementation challenge originating externally from the public dealt mainly with the public's failure to use the new three-digit number. Some residents continued to call the old numbers for service, and departments were obliged to take and respond to these requests. With the old systems continuing to run in parallel to the new 311 system, the efficiency of the entire city customer service apparatus would have been reduced. The departments had to be strategic in how they handled the direct calls from the public. Even though they did not turn away any requests, they used the interaction with callers as an opportunity to gently educate them about the 311 system.

Another way that the public's bypassing of the 311 system posed challenges during the initial period was that they continued to turn to their council member's office for their service needs. In this case, instead of the council members' offices referring their constituents to 311, their well-meaning council aides often took it upon themselves to use their departmental contacts to try to seek solutions for the constituents. This created several problems for 311:

The primary one being that that meant 311 didn't have any awareness of the issue and so if someone else was to call in on the same thing, we're able to see there's an existing case for this and we don't open a duplicate. But if someone else was to call, there'd be nothing in the system, we would create a case and then the department would be doubly notified of it. The other issue being that it kind of pushed back against the idea of having standard process and timeframes (Kansas City interviewee 205).

There was also concern that a few of the city council members were reluctant to embrace the new 311 system out of a fear that it might weaken their position of authority in the eyes of their constituents:

I think that they liked being able to be the broker, so to speak, of which street tree got cut down, which dangerous building... They used the data when they needed to, to make political points but I don't think that they... I don't think they liked it much. [...] Dealing with constituent complaints was a source of power and influence for them. They whined and complained about dealing with constituent complaints but I think they actually liked it (Kansas City interviewee 206).

According to the interviewees, this particular problem persisted for about the first two years of the 311 program but has since been resolved through training of council aides about the value of 311 as a resource that benefits everyone, including themselves (Kansas City interviewee 205).

One of the technical hitches that the city had to deal with during implementation was securing access to the 311 service for cellular phone users. The city had to negotiate agreements with cell service providers. The challenge for the city was that the city's cell service providers wanted to secure financial benefits for their compliance in permitting cell access to 311:

We had to have agreements with all of our cell phone companies that if somebody dialed 311, it would re-route to our number. The cell phone companies wanted various financial considerations and they wanted the business side instead of just agreeing to work with the city in the public side. So, we had a number of organizations, companies that we had to work with to get them on board. And that took probably from the time we implemented, we did not have all the cell phone companies involved that would participate with us. So it probably took another year before we got them all on board (Kansas City interviewee 203).

According to Eichenthal et al. (2009, p. 4), Kansas City 311 achieved comprehensive (though not complete) coverage of city non-emergency services, as 311 was not responsible for non-emergency requests that were related to police services. This was due to an artifact of the

structure of city government. The Kansas City police department was the responsibility of a separate board and not the city manager's office (Eichenthal et al., 2009, p. 4; Kansas City interviewee 201).

Summary

Kansas City's implementation of 311 shows that, despite a city's best intentions and best efforts to implement the innovation, unforeseen challenges are still likely that can potentially affect the effectiveness of the 311 system. Kansas City's case also shows that with administrative and staff commitment to the process, strategies can be devised to address these implementation challenges. One interviewee opined that Kansas City government's employees were motivated to make the necessary improvements to their 311 system because of how important it was to painting a positive image of the city:

I think that there's an awareness that since 311 is very public facing and, in fact, is a customer resource, that it reflects really poorly if it's regarded as a broken system; if it's regarded as something where you can call but nothing gets done. There was a recognition by departments and staff as well as the city manager that that was an issue that needed to be addressed (Kansas City interviewee 205).

The 311 implementers and managers seemed to place a premium on ensuring access via multiple channels of contact. Despite having technologically advanced methods such as Web access to 311, the city felt it was important to keep low-tech options such as paper-based forms and fax available, particularly for the sake of some segments of the population:

What we did was, part of it was meeting with the different neighborhood leaders and we put together an actual – and that's actually out on the 311 Web page too now – but we put together a form (yes, it was paper) because we found that some, especially our older

neighborhoods, where we had some of the more egregious issues, most of those residents were older and still prefer pencil and paper as opposed to some sort of technology. [...] Over time, a number of the neighborhoods, they come back to us all different ways. Some will fax them in, some will put them in a big packet and mail them. In other neighborhoods that are a little more up on technology, when they are turned back in, the neighborhood activists or leaders will go in and enter them in our online system. We've really tried [to be comprehensive in our contact channels]. I mean we battle that now, especially, because, you know, so many times someone will be like, 'Oh, why do you still have people fax? That's outdated.' It's like, no; actually, we receive more service requests that come in on our fax machine than we do on Twitter. We got to meet everybody where they are (Kansas City interviewee 201).

To sort of streamline that [problem reporting to 311] for neighborhoods, we developed a system where they could, in one fell swoop, notate all of the issues that they found in their neighborhood or in a given block and then fax those in. Fax because that was just... you know, some of our neighborhoods are still not (incredibly) using digital channels and so they would fax it in and then we would enter all the cases for them (Kansas City interviewee 205).

Even ten years on, 311 continues to be an evolving organism and with each cycle of evolution, new challenges emerge. One aspect of this constant evolution is the evolving technologies involved in 311, influenced by broader technological advancements in society. This places 311 jurisdictions under constant pressure to keep up, to ensure that the customer service experience of their residents lives up to the expectations set by their customer service experiences in the private sector. Fair or not, these expectations are likely to have a bearing on residents' ratings of their customer service experiences with government:

I do think the role of technology in just managing requests has really changed in a couple of ways. One is that there's been a big evolution in customer relationship management systems. I think when we procured ours, there were barely any and there were none that were specifically engineered for government and now I think there's a really broad range that are engineered for government. And then the aspect of the different options: Web applications and being able to enter service requests via Twitter and text. We've been able to evolve but it's very hard for us to keep up with the technology evolution outside and so even our Web application, which we launched a couple of years ago, if we were a private company, we would be refreshing that all the time but we don't have internal resources that are focused on that. And so, I do think that that's a challenge because customers are starting to have

expectations of the public sector agencies that mimic the customer service experiences they're having in the private sector but the technology resources are not the same (Kansas City interviewee 205).

Quantitative Findings

Due to limitations in Kansas City's Citizen Survey questions compared to the other two cases in this study, it was not possible to conduct all the analyses conducted for Denver and Minneapolis for Kansas City. In particular, because there was no overall or general contacting question in either the pre- or post-311 periods specified for this study, there was no measure of total contacting to analyze. This data limitation also meant that it was not possible to conduct any pre-311 implementation analysis even though the city conducted a 2005 survey. Therefore, the analysis here is limited to examining differences in the post-311 period and particularly in 311 contacting versus no contacting. This is a limitation to the three-case study strategy.

Descriptive Statistics for Kansas City

Sample characteristics.

Table 19 shows that in 2008, the contacting rate for 311 was 32.9 percent. The final sample of 4,031 adults consisted of a majority (58.8 percent) with annual income below \$60,000. Whites were the majority racial group, making up 64.9 percent of the sample. There were slightly more females than males in the sample—52.3 percent. The satisfaction rating for service quality for Kansas City was on a re-coded five-point scale from 1 for “very satisfied” to 5 for “very dissatisfied.” The mean services rating in 2008 on the re-coded scale was 2.8. A majority

of the survey respondents (82.5 percent) were home owners. A little less than one-third of the sample lived in homes with individuals who were 19 years or younger.²⁴ The data set captures a third measure of stakeholding – residency tenure – which measures the number of years the survey respondent had lived in Kansas City. The mean residency tenure was 33.3 years.

Table 19

Kansas City Survey Respondent Characteristics (%)

Variables	2008
311 Contact	32.9
Income	
Low income: <\$60,000	58.8
Middle income: \$60,000 - \$99,999	23.5
High income: \$100,000 or more	17.7
Race	
White	64.9
Minority	35.1
Sex	
Male	47.7
Female	52.3
Services rating (mean)	2.8
Home owner	82.5
Have minor children	29.9
Residency tenure (mean in years)	33.3
No. of observations	4,031

²⁴ The age categories did not permit having a cutoff at 17 years. Therefore, the “have minor children” measure in the Kansas City model serves only as a rough proxy for the variable. This is a data limitation in the Kansas City analysis as it makes the discussion here less comparable to the other two case studies.

311 contacting rates within groups.

Table 20 is a summary of cross-tabulations of 311 contact with the key independent variables of interest in this study. The table shows rates of 311 contacting for various groups defined by the independent variables. For income groups, the middle income earners had the highest rate of contacting – 36.5 percent. The other two income groups did not have markedly different rates of 311 contacting; each contacted at a rate above 30 percent as well.

Whites and minorities contacted 311 at similar rates. While 32.7 percent of whites contacted 311 in 2008, 33.2 percent of minorities made contact with 311. Females contacted 311 at a rate that was 3.2 percentage points higher than males' rate of 311 contacting. Home owners contacted 311 at more than one and a half times the rate that renters contacted 311: 35.3 percent for home owners compared to 21.8 percent for renters. Households with minors and those without contacted 311 at nearly identical rates: 32.8 percent for those with minors and 32.9 percent for those without minors.

Table 20

311 Contacting Rates within Groups in Kansas City (%)

Key Independent Variables	311 Contact
Income	
Low income: <\$60,000	32.1
Middle income: \$60,000 - \$99,999	36.5
High income: \$100,000 or more	30.8
Race	
White	32.7
Minority	33.2
Sex	
Male	31.2
Female	34.4
Home ownership	
Home owner	35.3
Renter	21.8
Have minor children	
Yes	32.8
No	32.9
No. of observations	4,031

Logistic Regression Analysis: 311 Contacting in 2008

The first column of Table 21 shows the logit coefficients for the model of 311 contacting. The results show that several of the independent variables of interest had statistically significant effects on the likelihood of contacting 311 in 2008. There was a statistically significant difference (at the 0.05 significance level) between the lowest income group and the highest income group in their likelihood of contacting 311. On average, being in the high income group rather than the low income group lowered the probability of contacting 311 by 4.6 percentage

points. There was no statistically significant difference between the middle income group and the low income group in their likelihood of contacting 311.

Among racial groups, there was no statistically significant difference in 311 contacting. Neither was there a substantive difference in the probability of contacting for the two groups. There was a statistically significant difference between the sexes at the 0.05 significance level in their 311 contacting behavior. The APE shows that men were 3.1 percentage points less likely than women to contact 311.

Perceived need (services rating) had a strong positive impact on whether a respondent contacted 311. The effect was statistically significant at the 0.01 significance level. For each one-point deterioration in satisfaction with the quality of services (increasing perceived need), the probability that survey respondents contacted 311 increased by 8.0 percentage points.

Two of the stakeholding variables - home ownership and residency tenure - in the model had effects on 311 contacting that were statistically significant at the 0.01 significance level. On average, being a home owner as opposed to being a renter increased the likelihood of contacting 311 by 13.3 percentage points. This was the strongest APE in the model. Each additional year of living in the city (that is, a 1-year increase in residency tenure) increased the probability of contacting 311 by one-tenth of a percentage point. Those who lived with minors did not have a statistically significant advantage in 311 contacting over those who lived without minors.

Of the three psychological engagement variables in the Kansas City 311 contacting model, only interest in government was statistically significant. The variable is significant at the 0.01 significance level. Survey respondents who expressed interest in government were 11.8 percentage points more likely to contact the city using the 311 system than respondents who did not have an interest in government.

Table 21

Factors Influencing 311 Contacting in Kansas City in 2008, Logistic Regression Results

VARIABLES	Logit Coefficient	Probability Change (%)
Middle income	0.082 (0.95)	1.8
High income	-0.22** (-2.20)	-4.6
White	0.0065 (0.085)	0.1
Male	-0.15** (-2.11)	-3.1
Services rating	0.38*** (5.38)	8.0
Home owner	0.68*** (6.54)	13.3
Have minor children	0.040 (0.51)	0.8
Residency tenure	0.0048*** (2.76)	0.1
Interest in government	0.54*** (7.69)	11.8
Political efficacy	0.036 (0.34)	0.8
Awareness	0.052 (0.57)	1.1
Constant	-2.70*** (-10.4)	
No. of observations	4,031	

Note. Robust z-statistics in parentheses.

*** p<0.01, ** p<0.05, * p<0.1.

Summary

Although limited in scope due to data constraints, the quantitative analysis for the Kansas City case offered some interesting insights into patterns of 311 contacting in 2008. None of the research hypotheses could be directly tested here. Instead I will offer some comments on the key findings in the quantitative analysis.

There was evidence of some equity in the 311 contacting pattern in 2008. Of note is the almost identical likelihood of contacting for whites and minorities after controlling for the other characteristics in the model. When there were inequities in the likelihood of contacting, they favored groups that are traditionally thought of as less activist, that is, lower income earners and females. Arguably, from an equity perspective, this may be an acceptable “second best” result.

The effects of perceived need and two of the stakeholding variables were consistent with expectations from the literature. The inability to detect an effect for the minor children variable in this model may be due to a measurement problem. The measure used here potentially includes households with no minors but that have adults aged 18 and/or 19 years. However, the minor children measure of stakeholding is generally found to be a less potent influence on contacting than the home ownership measure (see, for example, Thomas & Melkers, 1999).

Interpretation: Discussion of the Quantitative and Qualitative Findings

Without the pre-311 analysis or a measure of non-311 contacting in the post-311 period, it is difficult to draw any definitive conclusions about the possible impact of 311 implementation on the outcomes of interest. The discussion here will offer some tentative conclusions about how

311 implementation in Kansas City may have influenced the 311 contacting patterns seen in the quantitative analysis.

On the surface, Kansas City's 311 contacting rate in 2008 appears modest. Considering the initial challenges 311 faced with having to overcome the stigma of being associated with the ineffective and antiquated Action Center, an almost one-third contacting rate for the city within two years of implementation was a substantial achievement. The fact that the city's messaging seemed to have resonated even more with socioeconomic and demographic groups that, generally, are known to be less activist is also a notable outcome.

The strong effects of the perceived need and two stakeholding variables were striking. Kansas City's "boots-on-the-ground" approach to promoting 311 among the public during and around the implementation period may have played a role in fostering an attitude of contacting among residents who had a strong stake in the community. The city's partnership with neighborhood organizations and leaders to bring 311 to them, in their communities, and to share the results of their contacting efforts with them in reports, may have increased community stakeholders' interest in using this channel for contacting. It likely created a mental association of 311 with their lives in their immediate community that made it a reasonable success as an accessible means of contacting the city. Also, the strong positive effect of the interest in government variable on 311 contacting may have been because having an interest in government may have made awareness of the 311 service more likely in the first place.

CHAPTER VII: DISCUSSION

In this chapter I offer a synthesis of the research findings from the preceding three cases. I provide a brief summary of the key results from each of the three cases and offer a comparative analysis of the three cases. The discussion will also inform an assessment of proposition P1 – that 311-related outcomes (contacting rates and patterns) will reflect the effectiveness of the implementation of the 311 innovation.

Summary of Qualitative Findings from the Three Cases

The qualitative analyses in the three cases revealed some common themes from the implementation experiences of the three cities. Table 22 summarizes the key findings on the components or structure of the implementation processes. The table shows that, apart from the many similarities in the processes, there were some differences that were influenced by environmental factors, such as the city's organizational structure/form of government and demographic characteristics, which may have made a difference in the outcomes of their implementation.

Once the cities had decided to innovate by adopting the 311 model, the initiative received political support from the political authority who had most responsibility for city operations in their unique context. The structure of the government also resulted in differences in the organization of the 311 centers, with the centers being housed so as to report to the mayor in Denver, to the city coordinator in Minneapolis and to the city manager in the case of Kansas City.

The cities shared the same goals for their 311 systems, including a strong emphasis on enhancing the resident's experience with government by easing access to services and improving the quality of customer service. By implementing comprehensive 311/CRM systems, the cities also hoped to improve government operations from the "back-end" by capitalizing on the vast and rich new sources of data that they could capture through the new system. Finally, consideration for 911 efficiency was yet still another important factor in the implementation.

The qualitative findings gave insights into the extensive planning that went into the implementation of 311 in the three cities. Among them were the cities' efforts to learn from best practices in other cities that had previously implemented a 311 system. Baltimore, as the leading 311 system in the country, received a great deal of interest from the cities.

The governments invested heavily in introducing the innovation to their respective cities, both internally, within city government, and externally with their residents. They used similar marketing strategies to reach their constituents, although the mix of strategies appeared to vary a bit. Interviewees from Kansas City and Denver emphasized their grass-roots/neighborhood approach more so than the interviewees from Minneapolis.

The common implementation challenges came from the internal messaging within the governments. The 311 innovation was not just a discrete or standalone policy change within the government. It ushered in technological changes, changes in inter-departmental relations and required an organizational culture change in departments and offices to ensure an effective implementation. These challenges proved difficult to manage but the cities each found strategies for encouraging internal cooperation, efforts that benefitted from the political support of the innovation's champions. In addition to this common challenge, interviewees from Minneapolis and Kansas City noted additional challenges pertaining to their unique circumstances. In

Minneapolis, the city's education efforts struggled to break through to its diverse population, while in Kansas City, the Action Center's unflattering legacy appeared to have left a negative impression with residents that the 311 implementers had to work to overcome.

Table 22

Comparison of Qualitative Findings across the Three Case Studies

Theme	Denver	Minneapolis	Kansas City
Main source of political support after decision to adopt	Mayor's office	Mayor's office	City manager's office
Organization of 311	Initially under General Services. Later under Technology Services Agency, reporting to the mayor's office.	Under city coordinator's authority	Under city manager's authority
	7 days a week, 6 am – 11 pm	Monday – Friday, 7 am – 11 pm	Monday – Friday, 7 am – 8 pm; Saturday – Sunday, 8 am – 5 pm.
Goals			
Ease of access to government services	✓	✓	✓
Better customer service	✓	✓	✓
Improve efficiency of government service delivery/performance monitoring/measurement	✓	✓	✓
Alleviate pressure on 911	✓	✓	✓
Learning from other 311 cities before implementation	✓	✓	✓

Theme	Denver	Minneapolis	Kansas City
Marketing and education efforts			
Advertising	✓	✓	✓
Community outreach	✓	✓	✓
Main implementation challenges	<ul style="list-style-type: none"> •Managing internal culture change dynamics within city government 	<ul style="list-style-type: none"> • Managing internal culture change dynamics within city government •Educating city’s diverse population •CRM provider change due to technical difficulties 	<ul style="list-style-type: none"> • Managing internal culture change dynamics within city government •Overcoming Action Center’s legacy of ineffectiveness

Table 23 presents an assessment of how the three cities managed the implementation process and the organizational change associated with it, based on the criteria developed from Fernandez and Rainey (2006). The differences in the implementation strategies across the three study sites translated into the cities meeting the eight criteria in a variety of ways. While all three cities appeared to have met criteria C1-C6 (in their own way), the analysis did not find evidence that they satisfied criteria C7 and C8.

For criteria C1 and C2, the assessment shows that the leaders of the initiative and implementers made efforts to communicate the need for and potential value of 311 to partners (departments and other stakeholders), which also contributed towards meeting criteria C3. When challenges arose in obtaining cooperation from partners during implementation, the presence of committed leadership and champions in each city (criteria C4) helped smooth over those obstacles. The main external stakeholders that the cities prioritized were the residents. While the cities engaged in a diversity of approaches to reach residents, the discussion from the interviewees seemed to suggest that this was least challenging or most successful for Denver and Kansas City, and most challenging for Minneapolis, given the composition of latter's population (C5). While all three cities implemented in the mid-2000s – a period of fiscal challenges and pressures – they appeared to have made efforts to provide the necessary funding support to the 311 initiative. In addition to financial support, the cities all ensured that they placed the 311 system, organizationally, in a position within city government that would have granted the system access to other resources that it might require; whether it be technical support or political/administrative authority (C6).

Criteria C7 and C8 are more long-term considerations. Still, within the two-year assessment window of this study, there is some evidence that these criteria were more difficult to

manage and may have required a longer time period to address. Despite the cities' intentions to implement 311 as comprehensively as possible, all three cases were left with segments of the local government that, for one reason or another, were not subsumed under the 311 system and so continue to operate as before. However, there were some positive developments related to the last two criteria that are worth noting. For example, Kansas City made efforts to institutionalize use of data obtained from the 311/CRM system, beyond just improving customer service, by using it in the budget process, thereby having a more long-lasting and far-reaching impact on local government operations (Eichenthal et al., 2009). In terms of structuring the 311 system's operations to ensure "completeness" (C8) in the sense of wider availability of the system, while all three systems offered a variety of channels of contact, in terms of the calling hours for the centers, Minneapolis had the fewest number of hours of live service.

Table 23

Assessment of Implementation Processes across the Three Case Studies

Criteria	Description	Denver	Minneapolis	Kansas City
C1	Make sure that the change is needed	Mayor came into office with an agenda for improving city government operations and had a vision that was recognized by the government for achieving this goal	The process assessment conducted before implementation highlighted problems in the city’s service delivery system and a need for a solution	Outdated Action Center and a need for data to improve city operations underscored the need to implement 311
C2	Have a plan for managing change	Mayor’s strategy for improving efficiency and accountability included a clear role for 311 for achieving these goals	Outlined in the grant application to the COPS program for 311 implementation funding. Goals, objectives and deliverables were outlined (The City of Minneapolis and The Macro Group, 2008)	Part of an outlined city strategy towards developing a performance measurement system
C3	Galvanize support within the organization	<ul style="list-style-type: none"> • Working to allay staff concerns about the changes associated with introducing 311 by, for example, assuring employees of job security • Working with agencies to show how 311 can meet their needs 	<ul style="list-style-type: none"> • Massive organized introduction to 311 for employees across the city • Allaying employee fears by not resorting to layoffs to fund 311 	<ul style="list-style-type: none"> • Having “poster departments” to help encourage other departments to see the potential value of 311 to them • City manager as an intermediary with the city council

Criteria	Description	Denver	Minneapolis	Kansas City
C4	Obtain leadership support	Mayor provided strong support, acting both as a policy entrepreneur and a champion during implementation	The mayor championed the initiative throughout the implementation process	Powerful city manager with authority over city department operations led the initiative
C5	Obtain support from external partners	Working with neighborhood organizations	Community outreach through community organizations	“Boots-on-the ground” approach to community outreach
C6	Ensure adequate resources are available to support implementation	Provided technical support (for example, placing 311 in Technology Services so it could receive the necessary attention)	Challenge from technical issues/software vendor switch during implementation	Housing 311 within city manager’s department ensured it was well-placed to access resources: financial and political
C7	Ensure the change takes hold in the organization	Some old legacy systems remained	Some old legacy systems remained	Some old legacy systems remained but efforts were made to integrate 311 into city budgeting processes (Eichenthal et al., 2009)
C8	Ensure a complete implementation	Not all agencies have been rolled into the city’s 311 system	<ul style="list-style-type: none"> • Not all agencies have been rolled into the city’s 311 • Initially, relatively limited service hours 	Not all non-emergency requests are handled by 311; police continue to handle most that are related to police services

Summary of Quantitative Findings from the Three Cases

Tables 24 and 25 present a qualitative overview of the key quantitative results from the three findings chapters. The summaries show that Denver's analysis provides the most consistent support of this study's hypotheses. Between the two cases for which total contacting data were available for analysis, Denver had the highest rates of total contacting in both the pre- and post-311 implementation periods (50.8 percent and 71.4 percent compared with 41.3 percent and 41.5 percent for Minneapolis). For the first hypothesis, the evidence from Denver showed that there was a significant increase in total contacting rates after 311 was implemented, while the evidence from Minneapolis showed no statistically detectable difference in total contacting rates in the post-311 implementation period. For 311 contacting rates, again, the Denver data showed the highest rates of contacting (41.6 percent) followed by Kansas City (32.9 percent) and then Minneapolis (20.0 percent).

The equity implications at the heart of this study hinge critically on the effects of SES and demographic variables on contacting – both on total contacting and on 311 contacting. The summary tables show that 311's strongest equity effects were not likely to come along income lines – the sole measure of SES in this study. The demographic variable with the most consistent equity effect was race. With the exception of the rejection of hypothesis H2d in the case of Minneapolis, race differences in contacting during the post-311 implementation period were weakened or eliminated. In the case of the post-only analysis in Kansas City (Table 25), the lack of a race difference in 311 contacting lends some additional support to the discussion of racial equity, although, without the pre-311 analysis for comparison, it is more difficult to make the link to the introduction of 311. Still, the racial equity in 2008 is noteworthy. The age variable did not provide any meaningful results in terms of affecting contacting patterns. The sex

variable generated some interesting results in the two cases (Minneapolis and Kansas City) where it was available for inclusion in the analysis. In both cases, the models failed to show equity along sex lines but in these instances, the results showed the sex differences were in favor of females. Though not the ideal outcome expected in this study, the shift in favor of females may be considered a meaningful finding as it reveals a reversal of traditional positions for men and women. The results may be evidence to suggest that 311 possibly helps equalize participation across venues. If men (as is traditionally argued) have higher rates of participation in other venues, 311 provides an opportunity for women to gain some ground in the participation arena over their male counterparts.

The results for perceived need were not consistent across the cases. While in the cases of Denver and Kansas City there was evidence that perceived need had strong positive effects on contacting that were consistent with expectations based on the literature, the variable did not have the expected effect of being a stronger predictor of 311 contacting than of non-311 contacting in either Denver or Minneapolis. Home ownership produced the strongest and most consistent evidence on the impact of stakeholding on contacting via 311. Having minor children failed to generate any conclusive results.

Table 24

Comparison of Quantitative Findings across the Denver and Minneapolis Case Studies

Hypotheses	Description	Denver ^a	Minneapolis ^a
H1	Post-311 contacting rates will be higher than pre-311 contacting rates.	✓	?
H2a	The association between SES and contacting will be weaker after adopting 311.	✓	✗
H2b	The association between SES and 311 contacting will be weaker than the association between SES and non-311 contacting.	?	✗
H2c	The association between demographic characteristics and contacting will be weaker after adopting 311.		
	Race	✓	✓
	Age	✓	✗
	Sex		✗
H2d	The association between demographic characteristics – race, age and sex – and 311 contacting will be weaker than the association between demographic characteristics and non-311 contacting.		
	Race	✓	✗
	Age	✗	✗
	Sex		✓
H3a	Perceived need will have a strong positive association with contacting, especially after 311.	✓	✗

Hypotheses	Description	Denver^a	Minneapolis^a
H3b	Perceived need will have a stronger positive association with 311 contacting than with non-311 contacting.	✘	✘
H4	Having a stake in the community will have a stronger association with contacting via 311 than with non-311 contacting.		
	Home ownership	✓	✓
	Have minor children	?	?

Note. ^aKey: “✓” indicates hypothesis was confirmed; “✘” indicates hypothesis rejected; and “?” indicates inconclusive evidence.

Table 25

Qualitative Summary of Kansas City Quantitative Findings on 311 Contacting

Variable	Effect^a	Comment
Income	?	Some possibly positive equity implications
Race	no effect	Positive equity implication
Sex (Male)	-ve	Unexpected
Perceived need	+ve	Consistent with expectations
Home owner	+ve	Consistent with expectations
Have minor children	no effect	Possible measurement problem
Residency tenure	+ve	Consistent with expectations

Note. ^aKey: “?” indicates inconclusive result; “no effect” indicates statistically insignificant effect; “-ve” indicates statistically significant negative effect; and “+ve” indicates statistically significant positive effect.

Cross-Case Analysis

The combined qualitative and quantitative findings from across the three case studies paint a holistic image of how 311 may have impacted certain outcomes of interest – contacting rates and equity – and how aspects of the 311 implementation process and the management of the implementation process itself may have influenced those outcomes. The findings show that the most successful outcomes, as measured in this study, were found in the Denver case. The qualitative analysis of Denver’s implementation process provides plausible explanations for its relative success compared to the other two cases. This result provides some evidence in support of proposition P1.

Denver appeared to face either the fewest challenges or the most tractable challenges in its experience with implementing 311. The qualitative evaluation showed that all the cities had a major challenge in managing the internal changes brought on by introducing 311 to their city governments. Minneapolis and Kansas City, though, faced additional constraints that were beyond their control. Minneapolis had the added challenge of dealing with software problems and educating a diverse minority population. Kansas City had to overcome the unflattering association with the city's old Action Center, at least during the period covered in this study. These additional factors likely slowed the rate at which the idea of using 311 for contacting spread in those two cities, compared to the Denver case.

The mix of the approaches used in the education strategy also appears to have been important for mobilizing certain groups or segments of the population to contact. Denver and Kansas City appear to have had more success with mobilizing at the community level - again, this approach may have been facilitated by having more homogeneous populations or minority populations than in the Minneapolis case. Involving communities as part of the education efforts may have influenced the strong and consistent effect of contacting by home owners, those who had a high stake in the quality of services provided in their local community.

Additionally, the structure of the 311 systems themselves may have also had a bearing on the outcomes observed. Denver had the widest availability, as measured by operating hours, while Minneapolis had the most limited. This may plausibly have determined directly the amount of contacting that took place, at least via the telephone channel.

The Fernandez and Rainey (2006) criteria proved useful for identifying the features of each city's implementation process and for assessing whether each city met the criteria for successfully managing the implementation process. However, the criteria fell short of providing

an explanation for the differences in outcomes observed among the cities. Other factors, such as the structure of the 311 systems, appear to have been relevant factors in determining the differences in outcomes (such as contacting rates) among the cities.

CHAPTER VIII: CONCLUSION

Summary

This study has uncovered and quantified some possible effects of the introduction of 311 technology in local government on the public's contacting of government. However, these outcomes are not guaranteed for jurisdictions and are dependent on key features of the implementation process and its management. The implementation process may itself be affected by contextual factors unique to the implementing city and may or may not be within the control of the government.

Of the three study sites analyzed, the Denver case showed the strongest and most consistent outcomes. The city's strong implementation, which included such elements as strong political and institutional support for the 311 innovation, a strong marketing and education campaign that targeted communities and a strong change management strategy, contributed positively to the contacting outcomes. While the other two cities had some of these same components, they were also subject to other contextual factors that likely limited the impact of their 311 systems on the contacting outcomes in the period studied in this research.

The results supported most of the hypotheses and were consistent with the literature on contacting, particularly in the case of the strongest implementation – Denver – where contacting rates increased significantly and there were several indications of significant equity effects in contacting among socioeconomic and demographic groups after 311 implementation. Even in the case of the other two cities, there was some evidence of a movement towards more equity in contacting. When there was not equity, the changes in contacting post-311 showed some interesting and striking reversals among traditionally activist versus less activist groups. While these do not qualify as “equity” in the sense of equal access, an argument can be made that this

represents an acceptable second best outcome in that, they may allow for an equalization of participation across types of participation venues. Kansas City's limited case study analysis also provided some evidence of equity (among racial groups) in the post-311 period.

Limitations

Some limitations to this study's design, data and findings would affect generalizing beyond this sample and are acknowledged. First, the study design relied on a simple pre- and post-311 implementation design that used only one period of data before and one-period of data after implementation. This design limits the study's ability to establish a strong trend in contacting patterns. For example, it does not allow the study to determine whether the changes observed between those two periods were sustained or whether they were merely aberrations in the short data series.

Second, the study design relied heavily on secondary quantitative data obtained with different survey instruments both within cases and across cases. Different question wording across years, even within the same city, may affect the comparability of concepts and variables. A case in point was the difficulty of capturing households with minor children using the Kansas City survey. Another limitation of using survey instruments that were not specifically designed for the purposes of this study is that it was not possible to have consistent measures of some variables, including the psychological engagement variables, resulting in disparate measures. Of relevance to the current study also is the fact that the scope of the 311 analysis was limited by the wording of the 311 contacting questions, all of which made specific reference to calling or contacting via telephone, omitting other available 311 channels at the time (such as online

access), thereby making it impossible to obtain a complete measure of 311 contacting. Including these omitted channels could substantially change the results of the analysis of contacting rates, for example. Also, although two of the surveys were conducted by the same firm, they tended to be tailored to the specific city. Furthermore, the three-case study design suffered from not having the complete set of data for the third case – Kansas City. The partial analysis of the Kansas City case limited the amount of evidence available to confirm the reliability of the study’s results.

Third, this study had a narrow focus on a limited set of outcomes pertaining to 311 implementation. The study examined 311’s impact on contacting rates and equity but not on the quality of the contacts. The overview of the independent bivariate findings in the NRC (2008c) Minneapolis survey report showed that quality of contact may have been an important outcome of the 311 process and warrants closer examination in a multivariate model. Had quality been included as another outcome measure in this study, perhaps the final assessment of the Minneapolis case may have been different.

Finally, a word of caution about the discussion in the qualitative sections. The sampling strategy for the informants relied partly on recommendations from earlier informants to help identify other potential interviewees. Informants may have been inclined to recommend individuals with whom they shared similar experiences. While this may have resulted in my ability to corroborate or “triangulate” (Rogers & Goodrick, 2010, p. 446) findings across several informants, it may have potentially also resulted in a more limited range of opinions and experiences being represented in the analysis, especially given the small samples.²⁵

²⁵ Triangulation “relates to strategies to overcome the potential bias that can arise from the use of a single method, single data source, single observer, or single theoretical base” (Rogers & Goodrick, 2010, p. 446).

Policy Implications

The importance of this study's findings is in documenting the effect that the 311 technological innovation has had, at least in the three cities included in the case studies. Contacting as a mode of public participation is important not just to democracy as a whole but to public management specifically. Contacting can be an effective and efficient mechanism for transmitting valuable information from the public to the public managers and policy makers who serve them. Citing London (1994) and Van de Donk and Meyer (1995), Kakabadse, Kakabadse, and Kouzmin (2003, pp. 49-50) state that public "feedback [...] allows public officials to consider a broader range of policy options on any given issue, based on the real-life concerns and testimonies of everyday citizens." Arguably, increased and broader participation from the public improves this process.

The findings are valuable for jurisdictions that are considering broadening their set of options for public participation. Participation patterns differ by venue or channel. The promise of 311 is that, when successfully implemented, it may help to reach groups that are traditionally less active in other venues and perhaps equalize access for participation, either within the 311 channel itself or across venues. This informs the work on effective participatory mechanisms and approaches to designing such mechanisms (Fung, 2006; Thomas, 2012). Within 311 systems themselves, the cases described in this study have shown the continuing relevance of multi-channel systems that facilitate access via a variety of means - both high tech and low tech - even as more advanced options for communicating become available.

This study's findings offer some considerations that 311 implementers may bear in mind when designing and executing their implementation strategies. While 311 is intended to streamline access to city government by having one centralized gateway, it is important that it

not become viewed as an obstruction of direct resident access to some participation venues, such as access to elected political leaders (city council representatives, etc.). The example cited in the Minneapolis case offers insights into how some residents may potentially construe 311 as standing in the way of their right to gain access to their leaders. The case also offers an example of a strategy for dealing with this situation that preserves citizens' rights to their leader while still allowing 311 to serve its purpose.

A second consideration is the expectations of residents. As a previous point noted, low tech options for contacting are still important and are necessary for facilitating contacts by certain segments of the population. However, with increasing advances in technology, some residents become more demanding of their governments, holding them to the same standards of accessibility and service as private sector service providers for communication options. As noted in the case descriptions, though, local governments operate with a different set of fiscal and other constraints that do not allow them to innovate as quickly as the private sector.

One of the main reasons for several of the challenges to implementing a 311 system that have been highlighted in this study (particularly the difficulty of securing cooperation within city government) is the decentralized structure of local government. As shown in the cases, local government structures are complex. In some cases, there is a mix of different governance structures for different entities operating within the same city, which facilitates, to a certain extent, entities operating independently of each other, resulting in a situation that interviewee 204 described as "working in pure silos." Implementing a collaborative system such as 311 challenges that independence. Overcoming this challenge would be one of the key aspects of a plan for managing the organizational change associated with 311 implementation.

The findings also offer insights into key features for ensuring successful implementation of 311 and adds to the knowledge from industry and public practitioners. The findings add to understanding on which aspects of implementation are tied to different outcomes. This would be useful for informing practice on how to manage the different dimensions of a 311 implementation process to ensure effectiveness where various outcomes are concerned. To achieve improved customer service and resident satisfaction, it is important for implementers to manage the internal change dynamics that the innovation brings to the work of government departments. To achieve increased contacting as well, the external marketing needs to be customized to address the unique characteristics of the population in the implementing city. Also, a more grassroots or community-level approach to public education appears to be associated with better contacting outcomes.

Further Work

By necessity, this study was pre-defined to have a relatively narrow focus. However, it may be expanded in any number of directions to build knowledge on the 311 phenomenon in local government. This study focused on a short period of time – from just one year before 311 launch up to two years after launch. Future work can focus on establishing a trend to determine if what was observed in the short-term was sustained over time. It would be particularly instructive to see if/when the Minneapolis case began to see significant changes in contacting rates. It would also be helpful to analyze subsequent periods' data for comparison in the case of Kansas City.

As a comprehensive engagement initiative, given the case study discussions about the continuing relevance of such low-tech channels as fax in some communities, 311's multi-channel potential is critical for ensuring widespread access to government through the contacting mode of participation. This study did not explore the various 311 contacting channels offered by the governments in the three cases. Over time, contact channels have mushroomed in tandem with broader advancements in information and communications technology. It would be informative to conduct the analyses carried out in this study separately for the various contacting channels to determine how patterns differ across 311 channels.

In the case of some cities, the data on contacting provides the opportunity for a finer level of analysis rather than the more aggregated or coarse measure of contacting used in this study. For example, Denver's survey question on 311 contacting provides a rough measure of frequency of contact. Much of the richness of that data was lost when the 311 contacting variable was operationalized as a dichotomous variable: contactors versus non-contactors. Operationalizing contacting variables, where possible, as ordinal variables to identify more frequent contactors, known as "frequent fliers" (Gootman, 2010), will permit finer modeling of contacting behavior. This approach may allow for the development of a typology of contactors.

With an established record of 311 use in some 311 cities, coupled with the "open" movements in government, which seek to encourage transparency in government, many cities are now making their 311 data freely available online to the public (Nath, 2011, pp. 19-20).²⁶ Each of the three cases has an open data website where 311 request data are available for download.²⁷

²⁶ The "open movement" includes "open 311" and "open data" (see also O'Byrne, 2015, p. 48). See Open311 website <http://www.open311.org/> for more information on open311. See Open Knowledge International website <http://opendatahandbook.org/> for more information on open data.

²⁷ City and County of Denver (2015b) open data page: <http://data.denvergov.org/>
City of Minneapolis (2014) open data page: <http://opendata.minneapolismn.gov/>
City of Kansas City (2012) open data page: <https://data.kcmo.org/>

These data are fostering a new stream of research in which scholars have begun to examine patterns of 311 use, mostly at an aggregated/area level (see, for example, studies by Cavallo et al., 2014; Clark et al., 2013). Analyzing service request data for the three cases can add another layer to understanding the impact that 311 has by looking at the reasons or needs that motivate 311 contacting, the distribution of those requests across neighborhoods and how these evolve over time. Three-one-one research is poised to continue generating new insights and new interesting lines of research that can inform public management practices at the local government level.

APPENDIX A: THE CITY OF DENVER 2005 AND 2008 CITIZEN SURVEY QUESTIONS

Variable	2005 Questions	2008 Questions
Contact City	12. Have you had any in-person or phone contact with an employee of the City of Denver within the last 12 months (including police, receptionists, planners or any others)? 1. No 2. Yes	13. Have you had any in-person or phone contact with an employee of the City of Denver within the last 12 months (including police, receptionists, planners or any others)? 1. No 2. Yes
311 Contact		18. Please check the response that comes closest to your opinion for each of the following questions: f. In the last 12 months, about how many times, if ever, have you or other household members called the City's 311 number? 1. Once or twice 2. 3 to 12 times 3. 13 to 26 times 4. More than 26 times 5. Never 6. Unaware of 311 services
Income	27. How much do you anticipate your household's total income before taxes will be for the current year? (Please include in your total income money from all sources for all persons living in your household.) 1. less than \$24,999 2. \$25,000 to \$49,999 3. \$50,000 to \$99,999 4. \$100,000 or more	D9. How much do you anticipate your household's total income before taxes will be for the current year? (Please include in your total income money from all sources for all persons living in your household.) 1. less than \$24,999 2. \$25,000 to \$49,999 3. \$50,000 to \$99,999 4. \$100,000 to \$149,999 5. \$150,000 or more
Race	29. What is your race? (Mark one or more races to indicate what race you consider yourself to be) 1. American Indian or Alaskan Native 2. Asian or Pacific Islander 3. Black or African American 4. White/Caucasian 5. Other	D11. What is your race? (Mark one or more races to indicate what race you consider yourself to be) 1. American Indian or Alaskan Native 2. Asian, Asian Indian or Pacific Islander 3. Black or African American 4. White 5. Other
Age	30. In which category is your age? 1. 18-24 years	D12. In which category is your age? 1. 18-24 years

Variable	2005 Questions	2008 Questions
	2. 25-34 years 3. 35-44 years 4. 45-54 years 5. 55-64 years 6. 65-74 years 7. 75 years or older	2. 25-34 years 3. 35-44 years 4. 45-54 years 5. 55-64 years 6. 65-74 years 7. 75 years or older
Services rating	10. How do you rate the quality of each of the following services in Denver: a. Police services; b. fire services; c. ambulance/emergency medical services; d. crime prevention; e. traffic enforcement; f. garbage collection; g. recycling; h. yard waste pick-up; i. street repair; j. street cleaning; k. street lighting; l. snow removal; m. traffic signal timing; o. bus/transit services; p. city parks; q. recreation centers/facilities; u. land use, planning and zoning; v. code enforcement (weeds, abandoned buildings, etc); w. animal control; x. economic development; y. health services; z. services to seniors; aa. Services to youth; ab. Services to low-income people; ac. Public library services; ad. Public information services; ae. Public schools 1. Excellent 2. Good 3. Fair 4. Poor 5. Don't know	11. Please rate the quality of each of the following services in Denver: a. Police services; b. fire services; c. ambulance or emergency medical services; d. crime prevention; e. traffic enforcement; f. street repair; g. street cleaning; h. street lighting; i. snow removal; j. traffic signal timing; k. bus/transit services; l. garbage collection; m. recycling; n. yard waste pick-up; o. city parks; q. recreation centers/facilities; r. land use, planning and zoning; s. code enforcement (weeds, abandoned buildings, etc); t. animal control; u. economic development; v. health services; w. services to seniors; x. Services to youth; y. Services to low-income people; z. Public library services; aa. Public information services; ab. Public schools 1. Excellent 2. Good 3. Fair 4. Poor 5. Don't know
Home owner	21. Is this house, apartment, or mobile home... 1. Rented for cash or occupied without cash payment? 2. Owned by you or someone in this house with a mortgage or free and clear?	D5. Is this house, apartment, or mobile home... 1. Rented for cash or occupied without cash payment? 2. Owned by you or someone in this house with a mortgage or free and clear?
Have minor children	22. Do any children 12 or under live in your household? 1. No 2. Yes 23. Do any teenagers aged between 13 and 17 live in your household? 1. No 2. Yes	D7. Do any children 17 or under live in your household? 1. No 2. Yes
Interest in government	9. In the last 12 months, about how many times, if ever, have you or other household members participated in the	9. In the last 12 months, about how many times, if ever, have you or other household members participated in the

Variable	2005 Questions	2008 Questions
	<p>following activities in Denver? g. Watched a meeting of local elected officials or other local public meeting on cable television 1. Never 2. Once or twice 3. 3 to 12 times 4. 13 to 26 times 5. More than 26 times</p>	<p>following activities in Denver? g. Watched a meeting of local elected officials or other local public meeting on cable television 1. Never 2. Once or twice 3. 3 to 12 times 4. 13 to 26 times 5. More than 26 times</p>
Political efficacy	<p>14. Please rate the following statements by circling the number that most clearly represents your opinion: d. The City of Denver government listens to citizens 1. Strongly agree 2. Somewhat agree 3. Neither agree nor disagree 4. Somewhat disagree 5. Strongly disagree 6. Don't know</p>	<p>15. Please rate the following categories of Denver government performance: d. The job Denver government does at listening to citizens 1. Excellent 2. Good 3. Fair 4. Poor 5. Don't know</p>
Meeting attendance	<p>9. In the last 12 months, about how many times, if ever, have you or other household members participated in the following activities in Denver? f. Attended a meeting of local elected officials or other local public meeting 1. Never 2. Once or twice 3. 3 to 12 times 4. 13 to 26 times 5. More than 26 times</p>	<p>9. In the last 12 months, about how many times, if ever, have you or other household members participated in the following activities in Denver? f. Attended a meeting of local elected officials or other local public meeting 1. Never 2. Once or twice 3. 3 to 12 times 4. 13 to 26 times 5. More than 26 times</p>
Volunteer	<p>9. In the last 12 months, about how many times, if ever, have you or other household members participated in the following activities in Denver? i. Volunteered your time to some group/activity in Denver 1. Never 2. Once or twice 3. 3 to 12 times 4. 13 to 26 times 5. More than 26 times</p>	<p>9. In the last 12 months, about how many times, if ever, have you or other household members participated in the following activities in Denver? k. Volunteered your time to some group or activity in Denver 1. Never 2. Once or twice 3. 3 to 12 times 4. 13 to 26 times 5. More than 26 times</p>

Note. Sources: The City of Denver 2005 Citizen Survey (National Research Center, 2005a) and The City of Denver 2008 Citizen Survey (National Research Center, 2008a).

APPENDIX B: MINNEAPOLIS 2005 AND 2008 RESIDENT SATISFACTION SURVEY QUESTIONS

Variable	2005 Questions	2008 Questions
Contact City	12. In the last 12 months, have you contacted the City to get information or services? 1. YES 2. NO 98. DON'T KNOW 99. REFUSED	12. In the last 12 months, have you contacted the City to get information or services? 1. YES 2. NO 98. DON'T KNOW 99. REFUSED
311 Contact		13. How did you contact the City (i.e., in person, by telephone, by mail, by email or visit the City's Web site?) 3. BY TELEPHONE – 311
Income	30. Please stop me when I reach the category that includes your household's annual income. 1. Less than \$10,000 2. \$10,000 to less than \$15,000 3. \$15,000 to less than \$25,000 4. \$25,000 to less than \$35,000 5. \$35,000 to less than \$50,000 6. \$50,000 to less than \$75,000 7. \$75,000 to less than \$100,000 8. \$100,000 to less than \$150,000 9. \$150,000 to less than \$200,000 10. \$200,000 or more 98. DON'T KNOW 99. REFUSED	30. Please stop me when I reach the category that includes your household's annual income for 2007. [READ LIST] 1. Less than \$10,000 2. \$10,000 to less than \$15,000 3. \$15,000 to less than \$25,000 4. \$25,000 to less than \$35,000 5. \$35,000 to less than \$50,000 6. \$50,000 to less than \$75,000 7. \$75,000 to less than \$100,000 8. \$100,000 to less than \$150,000 9. \$150,000 to less than \$200,000 10. \$200,000 or more 98. DON'T KNOW 99. REFUSED
Race	32. Now, can you tell me what best describes your racial origin? 1. WHITE 2. BLACK, AFRICAN AMERICAN OR AFRICAN 3. AMERICAN INDIAN/NATIVE AMERICAN OR	32. Now, can you tell me what best describes your racial origin? 1. WHITE 2. BLACK, AFRICAN AMERICAN OR AFRICAN 3. AMERICAN INDIAN/NATIVE AMERICAN OR

Variable	2005 Questions	2008 Questions
	ALASKAN NATIVE 4. ASIAN, NATIVE HAWAIIAN OR OTHER PACIFIC ISLANDER 5. HMONG 6. SOMALIAN 7. VIETNAMESE 8. LAOTIAN 9. ETHIOPIAN 10. HISPANIC/SPANISH/LATINO 11. TWO OR MORE RACES 12. SOME OTHER RACE 99. REFUSED	ALASKAN NATIVE 4. ASIAN, NATIVE HAWAIIAN OR OTHER PACIFIC ISLANDER 5. HMONG 6. SOMALI 7. VIETNAMESE 8. LAO 9. ETHIOPIAN/OROMO 10. HISPANIC/SPANISH 11. TWO OR MORE RACES 12. SOME OTHER RACE 99. REFUSED
Age	29. Please stop me when I reach the category that includes your age. 1. 18 to 24 years 2. 25 to 34 years 3. 35 to 44 years 4. 45 to 54 years 5. 55 to 64 years 6. 65 years and over 99. REFUSED	29. Please stop me when I reach the category that includes your age. 1. 18 to 24 years 2. 25 to 34 years 3. 35 to 44 years 4. 45 to 54 years 5. 55 to 64 years 6. 65 years and over 99. REFUSED
Sex	38. RECORD GENDER 1. MALE 2. FEMALE	38. RECORD GENDER 1. MALE 2. FEMALE
Services rating	18. I will now read a list of services provided by City of Minneapolis government. For each please tell me how satisfied or dissatisfied you are with the way the City provides the service. What about...? a. Protecting the environment, including air, water and land b. Preparing for disasters	18. I will now read a list of services provided by the City of Minneapolis government. For each please tell me how satisfied or dissatisfied you are with the way the City provides the service. What about...? a. Protecting the environment, including air, water and land b. Preparing for disasters c. Affordable housing development

Variable	2005 Questions	2008 Questions
	c. Affordable housing development d. Revitalizing Downtown e. Revitalizing Neighborhoods g. Keeping streets clean h. Cleaning up graffiti i. Dealing with problem businesses and unkempt properties j. Garbage collection and recycling programs k. Animal control services l. Police services m. Fire protection and emergency medical response n. Providing quality drinking water o. Providing sewer services p. Protecting health and well-being of residents q. Providing park and recreation services Would you say you are... 1. Very satisfied 2. Satisfied 3. Dissatisfied 4. Very dissatisfied 98. DON'T KNOW/NO OPINION 99. REFUSED	d. Revitalizing Downtown e. Revitalizing neighborhoods g. Keeping streets clean h. Cleaning up graffiti i. Dealing with problem businesses and unkempt properties j. Garbage collection and recycling programs k. Animal control services l. Police services m. Fire protection and emergency medical response n. Providing quality drinking water o. Providing sewer services p. Protecting health and well-being of residents q. Providing park and recreation services Would you say you are... 1. Very satisfied 2. Satisfied 3. Dissatisfied 4. Very dissatisfied 98. DON'T KNOW/NO OPINION 99. REFUSED
Home owner	25. Do you currently own or rent your current residence? 1. Own 2. Rent 98. DON'T KNOW 99. REFUSED	25. Do you currently own or rent your current residence? 1. Own 2. Rent 98. DON'T KNOW 99. REFUSED
Have minor children	26. Please tell me if each of the following statements is true of your household/members of your household? What about... a. There are children under the age of 18	26. Please tell me if each of the following statements is true of your household/members of your household? What about... a. There are children under the age of 18

Variable	2005 Questions	2008 Questions
	<p>Would you say...</p> <p>1. YES 2. NO 98. DON'T KNOW 99. REFUSED</p>	<p>Would you say...</p> <p>1. YES 2. NO 98. DON'T KNOW 99. REFUSED</p>
Interest in government	<p>21. How likely or unlikely are you to use each of the following approaches to try to influence a City decision on an issue you care about? What about...</p> <p>a. Contacting my elected official b. Joining a City advisory group c. Contacting my neighborhood group d. Attending a community meeting e. Contacting City staff f. Working with a group not affiliated with the City</p> <p>Would you say you...</p> <p>1. Very likely 2. Somewhat likely 3. Somewhat unlikely 4. Very unlikely 98. DON'T KNOW/NO OPINION 99. REFUSED</p>	<p>21. How likely or unlikely are you to use each of the following approaches to try to influence a City decision on an issue you care about? What about...</p> <p>a. Contacting my elected official b. Joining a City advisory group c. Contacting my neighborhood group d. Attending a community meeting e. Contacting City staff f. Working with a group not affiliated with the City</p> <p>Would you say you...</p> <p>1. Very likely 2. Somewhat likely 3. Somewhat unlikely 4. Very unlikely 98. DON'T KNOW/NO OPINION 99. REFUSED</p>
Political efficacy	<p>23. Now I'd like your opinion on how you feel the City governs. How would you rate Minneapolis City Government on...?</p> <p>e. Providing meaningful opportunities for citizens to give input on important issues</p> <p>Would you say...</p> <p>1. Very good 2. Good 3. Only fair 4. Poor</p>	<p>23. Now I'd like your opinion on how you feel the City governs. How would you rate the Minneapolis City Government on...?</p> <p>e. Providing meaningful opportunities for citizens to give input on important issues</p> <p>Would you say...</p> <p>1. Very good 2. Good 3. Only fair 4. Poor</p>

Variable	2005 Questions	2008 Questions
	98. DON'T KNOW 99. REFUSED	98. DON'T KNOW 99. REFUSED

Note. Source: City of Minneapolis 2005 Residents Survey (National Research Center, 2005b) and City of Minneapolis 2008 Residents Survey (National Research Center, 2008b).

APPENDIX C: CITY OF KANSAS CITY, MISSOURI CITIZEN SURVEY QUESTIONS

Variable	2008 Questions
311 Contact	Q7c Have you called 311 in the last year? (1) Yes (2) No
Income	Q16. Would you say your total annual household income is: (1) Under \$30,000 (2) \$30,000 to \$59,999 (3) \$60,000 to \$99,999 (4) \$100,000 or more
Race	Q14. Which of the following best describes your race/ethnicity? (Check all that apply) (1) Asian/Pacific Islander (2) White (3) American Indian/Eskimo (4) Black/African American (5) Other
Sex	Q17. Your gender (1) Male (2) Female
Services rating	Please rate each item on a scale of 1 to 5 where 5 means “very satisfied” and 1 means “very dissatisfied.” Q1b Overall quality of city parks and recreation programs and facilities Q1c Overall maintenance of city streets, buildings and facilities Q1d Overall quality of city water utilities Q1e Overall enforcement of city codes and ordinances Q1h Overall quality of the city’s stormwater runoff/stormwater management system Q1i Overall quality of local public health services Q1j Overall flow of traffic Q5d The city’s overall efforts to prevent crime Q5e Enforcement of local traffic laws Q5f Overall quality of police services Q5h Overall quality of local fire protection and rescue services Q5i Quality of local ambulance service Q5k Quality of animal control Q5z Availability of information about city programs and services Q6f Maintenance of traffic signals Q6i Snow removal on major city streets during the past 12 months Q6j Snow removal on streets in residential areas during the past 12 months Q6m Overall quality of trash collection services Q6n Adequacy of city street lighting Q6t Enforcing codes designed to protect public safety and public health
Home owner	Q12 Do you own or rent your current residence? (1) Own (2) Rent
Have minor children	Q11 How many persons living in your household (counting yourself)? (1) Under age 5 (2) Ages 5-9 (3) Ages 10-19 (4) Ages 20-34 (5) Ages 35-44 (6) Ages 45-54 (7) Ages 55-64 (8) Ages 65-74 (9) Ages 75+

Variable	2008 Questions
Residency tenure	Q13 Approximately how many years have you lived in Kansas City, Missouri?
Interest in government	Q4 Would you be willing to attend a focus group or public meeting to discuss city issues? (1) Yes (2) No
Political efficacy	Please rate each item on a scale of 1 to 5 where 5 means “very satisfied” and 1 means “very dissatisfied.” Q5bb Level of public involvement in local decision making
Awareness	Please rate each item on a scale of 1 to 5 where 5 means “very satisfied” and 1 means “very dissatisfied.” Q5aa City efforts to keep you informed about local issues

Note. Source: 2008 City of Kansas City, Missouri Citizen Survey (ETC Institute, 2008).

APPENDIX D: IRB STUDY APPLICATION APPROVAL LETTER

INSTITUTIONAL REVIEW BOARD

Mail: P.O. Box 3999
Atlanta, Georgia 30302-3999
Phone: 404/413-3500
Fax: 404/413-3504

In Person: Dahlberg Hall
30 Courtland St, Suite 217



December 01, 2015

Principal Investigator: John Thomas

Key Personnel: Lewis, Gregory; Sewordor, Emefa; Thomas, John

Study Department: Public Management and Policy

Study Title: Technology and Public Engagement in the Administrative Process: How 311 Affects Citizen-Initiated Contacts with Local Government

Funding Agency:

Review Type: Expedited 5, 7

IRB Number: H16224

Reference Number: 336395

Approval Date:
12/01/2015

Expiration Date:
11/30/2016

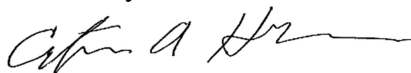
The Georgia State University Institutional Review Board (IRB) reviewed and approved the above referenced study in accordance with 45 CFR 46.111. The IRB has reviewed and approved the study and any informed consent forms, recruitment materials, and other research materials that are marked as approved in the application. The approval period is listed above. Research that has been approved by the IRB may be subject to further appropriate review and approval or disapproval by officials of the Institution.

Federal regulations require researchers to follow specific procedures in a timely manner. For the protection of all concerned, the IRB calls your attention to the following obligations that you have as Principal Investigator of this study.

1. For any changes to the study (except to protect the safety of participants), an Amendment Application must be submitted to the IRB. The Amendment Application must be reviewed and approved before any changes can take place.
2. Any unanticipated/adverse events or problems occurring as a result of participation in this study must be reported immediately to the IRB using the Unanticipated/Adverse Event Form.
3. Principal investigators are responsible for ensuring that informed consent is properly documented in accordance with 45 CFR 46.116.
 - A Waiver of Documentation of Consent has been approved for this study in accordance with the requirements set forth in 45 CFR 46.117 c.
4. For any research that is conducted beyond the approval period, a Renewal Application must be submitted at least 30 days prior to the expiration date. The Renewal Application must be approved by the IRB before the expiration date else automatic termination of this study will occur. If the study expires, all research activities associated with the study must cease and a new application must be approved before any work can continue.
5. When the study is completed, a Study Closure Report must be submitted to the IRB.

All of the above referenced forms are available online at <http://protocol.gsu.edu>. Please do not hesitate to contact the Office of Research Integrity (404-413-3500) if you have any questions or concerns.

Sincerely,



Cynthia A. Hoffner, IRB Vice-Chair

Federal Wide Assurance Number: 00000129

APPENDIX E: RECRUITMENT EMAIL TO PROSPECTIVE INTERVIEWEES

INVITATION EMAIL TO 311 OFFICIALS AND PERSONNEL

SUBJECT: REQUEST FOR YOUR EXPERT KNOWLEDGE ON THE HISTORY AND IMPLEMENTATION OF YOUR CITY'S 311 SYSTEM

Dear _____,

I am contacting you for an interview because of your expertise and knowledge about your city's 311 non-emergency system. Your expertise, knowledge, opinions, and perceptions are the only elements required to be interviewed. The interview should last no more than **30 minutes** and will be conducted via telephone or video conference. Should you agree to be interviewed, I will follow up to arrange a time that is convenient for you. I hope you will participate.

This interview forms an integral part of my broader doctoral dissertation study on the impact of the introduction of a 311 non-emergency system on citizens who contact local government. I am interested in whether 311 systems have changed the numbers and demographics of who contacts city governments. The interview portion will help develop a richer understanding of the context in which your city implemented its 311 system. If you have questions about the study, please contact me at 404-413-0131 (esewordor1@student.gsu.edu) or my advisor, Dr. John Clayton Thomas at 404-413-0113 (jcthomas@gsu.edu). If you have questions regarding your rights as a participant in this study, contact Susan Vogtner in the Georgia State University Office of Research Integrity at 404-413-3513 (svogtner@gsu.edu).

You are free to decline this invitation if you feel that your participation would violate the terms of your employment with the city. You are also welcome to seek permission from your manager before participating if you deem it necessary. I am also prepared to seek permission from the city if you require that as a condition for your participation in this study.

Thanks in advance for your consideration and response.

Emefa Sewordor
Doctoral Candidate & Graduate Research Assistant
Andrew Young School of Policy Studies
Georgia State University
14 Marietta Street NW
Atlanta, GA 30303

Phone: 404-413-0131
E-mail: esewordor1@student.gsu.edu
Website: <http://pmap.gsu.edu/>

APPENDIX F: INFORMED CONSENT DOCUMENT

Georgia State University
Department of Public Management and Policy
Informed Consent

Title: Technology and Public Engagement in the Administrative Process: How 311 Affects Citizen-Initiated Contacts with Local Government

Principal Investigator: Dr. John Clayton Thomas

Student Principal Investigator: Emeña Sewordor

I. Purpose:

You are invited to participate in a research study. The purpose of this research is to assess the impact of the introduction of a 311 non-emergency call system on the profile – that is, the demographic and socio-economic characteristics – of citizens who contact local government. Data will be collected in three (3) cities. The research question is “What has been the effect of 311 technology on citizen behavior?” One aspect of the research will develop a richer understanding of the study contexts by conducting interviews with relevant personnel familiar with the 311 non-emergency systems in the three cities. This aspect of the study will focus specifically on the 311 implementation process, including the level of political and administrative support for the initiative and the level of marketing or promotion for the innovation.

You are invited to participate because you have been identified as a city official or 311 personnel who is knowledgeable about your city’s 311 implementation process. A total of 60 participants will be recruited for this study. Participation will require 30 minutes of your time for a one-time interview.

II. Procedures:

If you decide to participate, you will be interviewed over the telephone or via video conference about the history of your city’s 311 implementation process. If you consent to participate, the interview will be audio recorded. Your participation in the interview is voluntary and you may end your participation at any time during the interview.

III. Risks:

In this study, you will not have any more risks than you would in a normal day of life.

IV. Benefits:

Participation in this study may not benefit you personally. Overall, we hope to gain information about the implementation process for the 311 non-emergency system.

Version Date: November 30, 2015

1

GSU
APPROVED IRB NUMBER: II16224
IRB APPROVAL DATE: 12/01/2015
IRB EXPIRATION DATE: 11/30/2016

V. Voluntary Participation and Withdrawal:

Participation in research is voluntary. You do not have to be in this study. If you decide to be in the study and change your mind, you have the right to drop out at any time. You may skip questions or stop participating at any time.

VI. Confidentiality:

We will keep your records private to the extent allowed by law. Dr. Thomas and Ms. Sewordor will have access to the information you provide. Information may also be shared with those who make sure the study is done correctly (GSU Institutional Review Board, the Office for Human Research Protection (OHRP)). We will use a study number rather than your name on study records. The interview audio recordings and information you provide will be stored on devices that are only accessible to the investigators. Your name and other facts that might point to you will not appear when we present this study or publish its results. The findings will be summarized and reported in group form. However, the cities will be identified when we report the findings. If we decide to quote anything you say, you will not be identified personally. After 5 years, any printed copies of the transcripts will be destroyed by shredding and any remaining electronic data will be deleted.

VII. Contact Persons:

Contact Dr. John Clayton Thomas at 404-413-0113 or jctomas@gsu.edu and Emefa Sewordor at 404-413-0131 or esewordor1@student.gsu.edu if you have questions, concerns, or complaints about this study. You can also call if you think you have been harmed by the study. Call Susan Vogtner in the Georgia State University Office of Research Integrity at 404-413-3513 or svogtner1@gsu.edu if you want to talk to someone who is not part of the study team. You can talk about questions, concerns, offer input, obtain information, or suggestions about the study. You can also call Susan Vogtner if you have questions or concerns about your rights in this study.

VIII. Copy of Consent Form to Participant:

You can print a copy of the form for your records.

If you are willing to volunteer for this research and to be audio recorded, please repeat the following sentence, "I consent to be interviewed."

APPENDIX G: INTERVIEW QUESTIONS

Theme	Questions
Case Description	<ul style="list-style-type: none"> • When did your 311 system start?^a • What are the main goals of your 311 system?
Marketing and Promotion*	<ul style="list-style-type: none"> • Where did the principal impetus come from for adopting 311? Was this a priority for the mayor's office? Was this a priority for some other office or department (please state the name of the office or department)? • What did the city do to educate the public about the system when it was first implemented? (Follow-ups) Was there a marketing campaign? If so, can you tell what components it entailed? Did you advertise? If so, where and how? Did you use newspapers, radio, television, what else? Are there any marketing materials you used that I could get copies of? • For how long were the education and promotion efforts sustained? • What challenges, if any, did you face in your efforts to market and promote the 311 system?
Management	<ul style="list-style-type: none"> • How is your 311 system organized and managed? • What organizational challenges is your 311 system facing? • How are those challenges being overcome?
Governance	<ul style="list-style-type: none"> • How are citizens and other organizations involved in your 311 system?

Note. Source: Adapted from Nam and Pardo (2012, p. 5).

^aAuthor's addition.

APPENDIX H: MULTINOMIAL LOGIT MODEL FOR CONTACT TYPES IN DENVER

USING 2008 DATA

VARIABLES	No Contact	311 Contact		Non-311 Contact	
	Probability Change (%)	Coefficient	Probability Change (%)	Coefficient	Probability Change (%)
Middle income	-2.4	0.18 (0.54)	3.3	0.064 (0.20)	-1.0
High income	-8.2	0.21 (0.60)	-6.0	0.77** (2.13)	14.2
White	-6.8	0.12 (0.33)	-6.3	0.72** (2.04)	13.1
Older adult	-1.2	0.045 (0.14)	-0.3	0.096 (0.31)	1.5
Senior	2.2	-0.0071 (-0.019)	3.3	-0.27 (-0.67)	-5.5
Services rating	-11.4	0.59 (1.57)	3.8	0.73* (1.95)	7.5
Home owner	-3.5	0.44 (1.40)	10.7	-0.074 (-0.22)	-7.2
Have minor children	-4.3	0.44 (1.21)	9.7	0.017 (0.046)	-5.4
Interest in government	-6.6	0.61** (2.26)	12.6	0.10 (0.35)	-6.0
Political efficacy	4.8	-0.38 (-1.30)	-6.8	-0.14 (-0.45)	2.0
Meeting attendance	-11.9	0.74** (2.36)	6.6	0.74** (2.17)	5.4
Volunteer	-0.9	0.31 (1.16)	10.4	-0.26 (-0.94)	-9.5
Constant		-2.04** (-1.98)		-2.22** (-2.18)	
Observations	667				

Note. Robust z-statistics in parentheses. Base contact category is “no contact.”

*** p<0.01, ** p<0.05, * p<0.1.

APPENDIX I: MULTINOMIAL LOGIT MODEL FOR CONTACT TYPES IN
MINNEAPOLIS USING 2008 DATA

VARIABLES	No Contact	311 Contact		Non-311 Contact	
	Probability Change (%)	Coefficient	Probability Change (%)	Coefficient	Probability Change (%)
Middle income	5.6	-0.47* (-1.87)	-6.9	-0.052 (-0.21)	1.3
High income	9.5	-0.53 (-1.43)	-6.8	-0.32 (-1.09)	-2.7
White	-5.2	0.36 (1.31)	4.9	0.11 (0.43)	0.2
Older adult	-4.5	0.36 (1.38)	5.3	0.052 (0.22)	-0.8
Senior	-0.5	0.094 (0.33)	1.5	-0.041 (-0.15)	-1.1
Male	8.1	-0.26 (-1.26)	-2.0	-0.44** (-2.25)	-6.1
Services rating	0.5	-0.078 (-0.21)	-1.4	0.032 (0.11)	0.9
Home owner	-10.2	0.51** (2.02)	6.1	0.38 (1.52)	4.0
Have minor children	-2.0	0.16 (0.66)	2.5	0.012 (0.054)	-0.6
Interest in government	-24.6	1.36*** (3.29)	13.2	1.08*** (2.81)	11.4
Political efficacy	-0.2	0.12 (0.53)	2.2	-0.088 (-0.42)	-2.0
Constant		-2.65*** (-2.61)		-2.02*** (-2.67)	
Observations	984				

Note. Robust z-statistics in parentheses. Base contact category is “no contact.”

*** p<0.01, ** p<0.05, * p<0.1.

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VITA

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