Modeling municipal service integration: a comparative case study of New York and Philadelphia 311 systems

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MODELING MUNICIPAL SERVICE INTEGRATION: A COMPARATIVE
CASE STUDY OF NEW YORK AND PHILADELPHIA 311 SYSTEMS

by

Taewoo Nam

A Dissertation
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Taewoo Nam

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ABSTRACT

An increasing number of city governments are looking to the consolidation of municipal services to make their cities more efficient, effective, transparent, and accountable. A 311 system, as a consolidated channel for non-emergency contact services, is one strategy being employed. Despite growing attention to 311 systems as a preferred approach to city-level service integration, there is a paucity of research on integration of the related city services. Considering the gap in theoretical and practical knowledge of city-level service integration, this study addresses two questions: 1) How do city governments integrate critical city services? and 2) What influences city-level service integration and what is the nature of that influence? The study examines 311 centers in New York and Philadelphia as cases of city-level service integration.

Based on the analysis of semi-structured interviews with 311 center staff and city government officials, the study first builds a framework for multidimensional understanding of success factors for and main challenges to city-level service integration. The relationships between technological, organizational, and cross-organizational factors and challenges are identified and examined. Since city-level service integration is one important instance of smart city initiatives being carried out around the globe, this study provides a theoretical foundation for research on initiatives focused on making cities smarter through the integration of services.

Using a cross-case comparison of the two 311 center cases, this study then produces a learning-curve model to guide cities in developing systematic approaches to the integration and consolidation of diverse services across different policy domains and
across multiple departments and agencies. The model captures the evolution of service integration capabilities over time. A service integration organization moves from the first phase of technological readiness and preparation to the phase 2 characterized as organizational expansion, and finally to the phase 3, stabilization of further expanded capabilities for service integration.
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and practice from frequent discussions with her. She devoted a great deal of her time to taking field trips with me for data collection in New York and Philadelphia. From various joint activities in data collection and analysis, she nurtured my research capabilities. I am happy to say this dissertation is a result of my research collaboration with her. I would like to thank two other committee members, Dr. Sharon S. Dawes and Dr. J. Ramon Gil-Garcia. Their energetic devotion to digital government scholarship has always motivated my passion for academic research. They guided me not only by giving feedback on my ideas, but also by challenging my research capability. To me, Theresa, Sharon, and Ramon all are role models as academic scholars who suggest practical insights to society.

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ABBREVIATIONS

CAU Community Affairs Unit (NYC)
CCR Contact (Call) Center Representative
COOP Continuity of Operations plan
CRM Customer Relationship Management
CSR Customer Service Representative
DCA Department of Cultural Affairs (NYC)
DEP Department of Environmental Protection (NYC)
DoITT Department of Information Technology and Telecommunications (NYC)
DORIS Department of Records and Information Services (NYC)
DOT Department of Transportation (NYC)
DPR Department of Park and Recreation (NYC, Philadelphia)
HPD Housing Preservation and Development (NYC)
IVR Interactive Voice Response
KPI Key Performance Indicators
L&I Department of License and Inspections (Philadelphia)
MAC Mayor’s Action Center (NYC)
MDO Managing Director’s Office (Philadelphia)
MMR Mayor’s Management Report (NYC)
MOO Mayor’s Office of Operations (NYC)
NYPD New York Police Department (NYC)
OEM Office of Emergency Management (NYC)
OMB Office of Management and Budget (NYC)
QA Quality Assurance (NYC311)
PPD Philadelphia Police Department (Philadelphia)
Reps Call Center Representatives
TLC Taxi and Limousine Commission (NYC)

Note. CSR, CCR, Reps, and call takers indicate the same position and role.
CHAPTER 1. INTRODUCTION

More than half of the world population now lives in urban areas, and the urban population is expected to increase to five billion by 2030 (United Nations Population Fund: see www.unfpa.org). A third of the U.S. population resides in only ten metropolises (2010 US Census Data: see www.2010.census.gov). As such, while rapid urbanization and urban growth continues, city governments will lead in addressing the most pressing policy issues of the future. Cities face a variety of concerns and problems such as waste management, utilities, transportation, public safety, environmental pollution, climate change, and deteriorating infrastructures. Recessionary pressures, budget cuts, and increasing demands from citizens exacerbate the challenges for city governments and require them to find smarter ways to work. Many cities are looking to the consolidation of municipal services as one way of making their cities “smarter”—more efficient, more effective, more transparent, more accountable, and more sustainable (Chourabi et al., 2012; Nam & Pardo, 2011a, b; Washburn et al., 2010).

This study focuses on one particular strategy for making cities smarter: “311” systems that integrate channels for requesting services and information at the city level. 311 systems, first launched in Baltimore in 1996, have rapidly spread across the United States, and are being considered in many cities throughout the world. These systems are providing quick and easy access to non-emergency municipal services and information through a single, consolidated channel. The channel extends from the three-digit toll-free dial number by way of any possible means that people can use to communicate with their municipal government, including email, text messaging, social media, and more recently,
smart phone applications. An increasing number of city governments have established 311 non-emergency service programs. These programs are comprised of a city government agency that manages the consolidated channel and a suite of 311-enabled systems encompassing a call center, digital media for communication, and in some cities such as Philadelphia, a walk-in center.

The 311 contact center serves as a front line of municipal services for residents, businesses, and visitors. Its back office functions support efficient resource allocation and informed decision making. Data-driven management enabled by 311 services has the powerful capability of improving city management in an age of budget constraints and limited resources.

While many cities with 311 non-emergency contact centers have greatly contributed to customer services and city management (Barnhouse, 2008; Eichenthal et al., 2009; Fleming, 2007, 2008a, b; Fleming & Barnhouse, 2006; Fleming & Phelan, 2010; Fleming et al., 2008, 2009; McGalliard, 2008; Phelan, 2010), there is a paucity of academic research that investigates various functions of 311 contact centers as a single, consolidated channel to all non-emergency municipal services (Reddick, 2010, 2011; Schellong, 2007, 2008; Schellong & Langenberg, 2007). In particular, any research in the field of public administration and management has not addressed the cases of 311 contact centers.

Hence, in regard to empirical research of 311 contact centers, many terrains still remain unexplored. For example, although service integration is being considered an important way to improve service delivery (Gann et al., 2011; Harrison et al., 2010; Washburn et al., 2010), 311 contact centers as a consolidated channel of municipal
services have been understudied with existing theoretical perspectives of service integration.

The study of 311 systems is an important and timely research topic, as city governments are increasingly adopting 311 systems as one of the keys to serving citizens in an innovative and more efficient way through implementing a consolidated channel to municipal services. Using an inductive study and comparative case study of 311 contact centers in New York and Philadelphia, this dissertation explores how 311 contact centers create city-level service integration capabilities, thereby suggesting a theoretical and practical framework to examine the consolidation of municipal services.

This study ultimately produces a model that helps cities develop systematic approaches to integrating and consolidating diverse services across different policy domains and across multiple departments and agencies. This research is a first-of-its-kind and thus, exploratory effort to understand the nature of the activities cities carry out to create integrated services at the city level. Given the paucity of academic research, the exploratory research also seeks to create new understanding about city-level service integration by filling the gap in current theoretical and practical knowledge about 311 contact centers.

Many important inquiries of municipal service integration have been left unanswered. Among them, this research sheds light on 311 system-enabled service integration in city governments as a primary point of interest. The following research question is addressed in this cross-case comparative study:

- How are municipal service integration initiatives understood and implemented in different cities?
This research question is raised to build in-depth understanding of commonalities and differences in implementation and operation of 311 programs as city-level service integration initiatives in disparate environments and organizational settings.

Within this broader question, this study further addresses:

- *How do city governments integrate critical city services?*
- *What influences city-level service integration and what is the nature of that influence?*

This dissertation is structured into seven chapters, including the foregoing introduction. Chapter 2 reviews a rich body of literature related to the integration of public services and the 311 non-emergency contact program. The scope and range of service integration literature is comprised of research from multiple disciplinary areas. The chapter discusses various streams of service integration literature and then creates a preliminary understanding of service integration based on the existing literature. Along with the review of service integration literature, the chapter introduces basic components and functions of 311 non-emergency services. Chapter 3 describes the research design and method. The chapter explains the whole research process from case selection and data collection to data analysis, and methodological concerns of this case study. Focusing on the cases of New York and Philadelphia, respectively, Chapter 4 and 5 present and discuss the results of the analysis on qualitative data from semi-structured interviews. Chapter 6 presents the results of a cross-case comparative analysis and explores commonalities and differences between the two 311 non-emergency contact centers. This chapter also presents a model that aids in comprehension of 311 system-enabled service integration within the context of a city. Chapter 7, the final chapter, recapitulates the
analysis, and discusses theoretical and practical implications, research limitations, and further research proposals. The subsequent pages after the concluding chapter include the list of references and appendices (the interview protocol and interview consent form).
CHAPTER 2. REVIEW OF BACKGROUND LITERATURE

This chapter consists of two sections. The first section reviews a wide array of the extensive literature on service integration in the context of government. Since 311 non-emergency contact centers are seen as an effort to integrate city services, the literature review of service integration in government is necessary for understanding the capabilities of 311 contact centers. Four theoretical bases are identified from the prior literature: human services integration, e-government integration, citizen-centered service delivery, and shared service.

The second section reviews the literature of 311 systems as a powerful tool for Citizen Relationship Management (CRM). The literature includes case studies of 311 service centers across the United States. The review of current practices explores various changes in government influenced by 311 non-emergency services. Both sections conclude with a summary and identified gaps in existing literature. Since this study follows inductive logic, the results of this literature review are used not as theoretical propositions for empirical tests, but rather, as guidelines for primary data collection (semi-structured interview protocol).

1. Reviewing the literature of service integration

This section introduces multiple perspectives to understand service integration, and discusses enabling/inhibiting factors of service integration.
1.1. Perspectives of service integration

1.1.1. Human service perspective

The term “service integration” in government has been used in the social or human service field since the middle 1960s when the earliest and most notable efforts were made by the U.S. Department of Health, Education, and Welfare’s (HEW) Services Integration Target of Opportunity (SITO) and Partnership projects (Agranoff, 1991; Hassett & Austin, 1997; Kagan, 1991; Redburn, 1977; Waldfogel, 1997). The question of how to improve the delivery of human services, adequately respond to multi-problem clients (the multiple needs of persons at risk), and reduce fragmentation, duplication, discontinuity, inaccessibility, and unavailability of services has concerned scholars and policymakers (Agranoff, 1991; Kahn & Kamerman, 1992; Myrtle & Wilber, 1994; Polivka et al., 1981; Sowa, 2008). Kahn and Kamerman (1992) define service integration in the context of human service integration: “A systematic effort to solve problems of service fragmentation” with the goal of creating a “coherent and responsive human services system” (p. 5). Human service integration consists of the basic components of common service area, collocation, joint core services, case planning, case management, joint management services, and common eligibility (Hagebak, 1979: 575). The service integration concept addresses the need for greater efficiency, effectiveness, and responsiveness (Hagebak, 1979: Hassett & Austin, 1997; Waldfogel, 1997). O’Looney (1993) introduced various manifestations of service integration in the human service field: for example, “one blanket coverage service system,” “new, more effective, integrated networks of full-service delivery,” and “one-stop, comprehensive outlet or service department stores staffed with cross-trained, flexible personnel, any one of whom
would be able to adapt to the personal needs of individual clients while tapping into a larger resource network in order to find and deliver the set of services that best fits specific clients” (p. 504).

Service integration involves interagency efforts and activities for collaboration (Hassett & Austin, 1997; Sowa, 2008). According to Sowa (2008), service integration is one instance of interagency collaboration. From the perspective of organizational collaboration, service integration is identified as further progress on the continuum of interorganizational relationships, which ranges from cooperation (personal relationships between management and staff in different organizations) to coordination (multiple organizations work together to coordinate their services) to collaboration (multiple organizations share resources, staff, and rewards) to service integration (multiple organizations work together to provide a new package of services to their mutual clients) (Kagan, 1991: 2–3). Hassett and Austin (1997) also view service integration as interagency collaboration:

The process of service integration can take place between agencies or within a single agency providing multiple services. In large umbrella agencies encompassing multiple programs, turf issues and competition between separate divisions may be as strong as those between separate agencies. … Interagency efforts to integrate services generally fall under the label of collaboration. (p. 16)

On the other hand, earlier attempts to integrate fragmented human services occurred through organizational and structural changes and reform (Calista, 1986; Imershein et al., 1986; Polivka et al., 1981; Redburn, 1977; Teasley III & Ready, 1981). Redburn (1977: 265) suggests two types of interagency service integration: centralization of authority and decentralization of authority. The former involves centralization of a joint planning-programming-budgeting-evaluation system for related organizations, and
creation of super agencies with responsibility for coordinating the delivery of services by subordinated agencies. For the latter, the reorganization or restructuring mostly deals with decentralization of administrative authority from headquarters to the service district level with consolidation of authority over all programs under a single, district-wide management structure. The decentralization of authority to districts under a unified structure would greatly facilitate integration of service delivery activities (Polivka et al., 1981: 360).

1.1.2. E-government perspective

The e-government context of service integration involves e-government maturity models. Existing models that explain the evolutionary nature of e-government development commonly view integration as a mature stage (Andersen & Henriksen, 2006; Janssen & van Veenstra, 2005; Layne & Lee, 2001; Reddick, 2004). Layne and Lee (2001) model four stages of e-government maturity along two dimensions, which capture the increasing sophistication of e-government offerings as measured by the degree of technological and organizational complexity, and the degree of integration in terms of data and service delivery. The stages sequentially include catalogue, transaction, vertical integration, and horizontal integration. Sophistication of e-government offerings requires systems integrated across different functions and real one-stop service for customers such as citizens and businesses (Holden et al., 2003). The mature stage for integration enables integration in both information and service.

As described in Table 1, e-government integration occurs through three sequential stages.
<table>
<thead>
<tr>
<th>Integration stages</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Vertical integration</strong></td>
<td>Virtual and/or physical integration of governmental organizations that are responsible for a common function or serve similar clients across the different levels of government</td>
</tr>
<tr>
<td><strong>Horizontal integration</strong></td>
<td>Integration between different government services, agencies, and policy domains</td>
</tr>
<tr>
<td><strong>Total integration</strong></td>
<td>Situation in which a government provides all services through a single portal that works like an integrated window, a unique window, or a vestibule</td>
</tr>
</tbody>
</table>


Vertical integration across different levels of government is the first stage of integration. Once services are provided through vertical integration, citizens would have higher expectations and vertical integration would necessarily progress to the next transformation (Layne & Lee, 2001). To obtain all the potential of ICTs in government from a citizen perspective, it is necessary to develop a comprehensive vision of the government as a whole by horizontal integration (Assar et al., 2011; Grönlund, 2010; Klievink & Janssen, 2009). The horizontal integration stage requires a radical and complex transformation in the distribution of intra- and inter-organizational power (Rocheleau, 2003), and relies on the development of trust and creative collaboration models among government agencies (Chen, 2010; Gottschalk, 2009; Williams et al., 2010; Zheng et al., 2009). Total integration is the most advanced stage of integration. Using a single window or portal, citizens can access all information and services (Baqir & Iyer, 2010; dos Santos & Reinhard, 2012; Gant et al., 2002; Gouscos et al., 2007; Kim & Grant, 2010; Klievink & Janssen, 2009; Kunstelj & Vintar, 2004; Lee, 2010; Lenk, 2002; Sarikas & Weerakkody, 2007). Governments offer all services (life events) online and the services are grouped according to the different needs of citizens without concern for internal functions, jurisdictions, or other governmental structural or procedural
divisions. Hence, this stage involves the more advanced level of integrating databases, processes, and government structures.

1.1.3. Citizen-centered service perspective

Integrated, citizen-centered service delivery denotes “the process of bringing together and fitting together government services so that citizens can access these services in a seamless fashion based on their wants and needs” (Kernaghan, 2005: 120). Citizen-centered service integration is a comprehensive, concerted, and committed effort to integrated services, not only across departments, governments and sectors, but also across service channels.

According to Roy and Langford (2008: 12), the drive toward more integrated service delivery stems from two inter-related streams of thought and reform that have converged during the recent two decades: first, a philosophy of citizen-centric governance and service that emphasizes better outcomes and performance over process, and secondly, the emergence of the Internet and new digital technologies that underpin e-government and widen opportunities for electronic service delivery (Alshawi & Alalwany, 2009; Bertot et al., 2008; Fafard et al., 2009; Ho, 2002; Schedler & Summermatter, 2007; Tseng & Hu, 2011). Government agencies are now adopting a citizen-centric philosophy in the delivery of their services (especially through the use of e-government), and thus, service integration efforts are increasingly citizen-centered.

The philosophy of citizen-centered service integration is that seamless services to citizens would not stop at any jurisdictional boundary politically defined by geographic territory (Roy & Langford, 2008: 13). Public services are traditionally delivered through
a plethora of government agencies via programs that are not connected. Network or

governance models for integrated service delivery recognize the failure of traditional,
hierarchical government organizations and the inability of individual agencies to
interconnect and reach out to the greater population of community-based stakeholders.

Those models seek to avoid the inefficiencies inherent in earlier efforts to reorganize
government agencies into single large units. In this sense, the integration of citizen-
centered service delivery is the way of rethinking traditional and conventional
government machinery (Charih & Robert, 2004). Citizen-centered service integration
represents the fundamental change in the ethos of service delivery. In addition, it is also
the way of rethinking citizenship and federalism, as in the introduction of the notion of
citizen-centered federalism by Fafard et al. (2008). Overall, the citizen-government
relationship and the government-to-government relationship may change with citizen-
centered service integration.

Practices in Canada suggest notable examples of citizen-centered service
integration such as Government On-Line, Service Canada, Service Nova Scotia, Service
British Columbia, and Service New Brunswick (Charih & Robert, 2004; Fafard et al.,
2009; Flumian et al., 2007; Kernaghan, 2005, 2009; Roy & Langford, 2008). Service
Canada suggests a distinction between citizen-centered service integration and e-
government integration. The service delivery mechanism is a multi-channel (both offline
and online service offerings), technology-driven one-stop and multijurisdictional
initiative (Flumian et al., 2007; Roy & Langford, 2008). According to Reddick and
Turner (2012), citizen-centric service delivery should ensure that people can choose any
means or channel by which they want to interact with government, whether in person, by mail, telephone, or via the Internet.

1.1.4. Shared service perspective

Since the early 2000s, shared service as a new management idea has gained ground in the public sector (Janssen & Joha, 2006; Ulbrich, 2010). As shared service strategies become more popular as a service management and delivery option in the public sector, governments are increasingly turning toward shared service organizations to consolidate and deliver services to their customers (Grant et al., 2007). The emergence of public sector shared services is considered a core element of government reform (Becker et al., 2009: 115; Niehaves & Krause, 2010: 266).

The earlier definitions of shared service are grounded in the private sector. According to Bergeron (2003), the term “shared service” refers to “a collaborative strategy in which a subset of existing business functions are concentrated into a new, semi-autonomous business unit that has a management structure designed to promote efficiency, value generation, cost savings, and improved service for the internal customers of the parent corporation” (p. 3). Shared service arrangements can broadly denote a bundling of supporting processes and non-strategic activities into a single organization or entity (a dedicated shared service provider), which in turn treats these processes and activities as its core businesses (Schulman et al., 1999; Wang & Wang, 2007).

In the government context, shared service is defined as “a generic service that is jointly developed by public agencies and can be used many times in different business
processes of various government agencies” (Janssen & Wagenaar, 2004: 32). Services can be shared by multiple agencies to avoid the development of similar functionality over and over again (Borman, 2010). Shared services constitute a form of government collaboration which is defined as a voluntary agreement between two or more distinct public sector agencies to deliver government services (Becker et al., 2009). Shared services can meet a strong need to coordinate joint efforts on all levels of public administration, avoid duplication of efforts, and establish one shared back-office (Janssen & Wagenaar, 2004: 31). Thus, shared services promise three main benefits: reduced costs, improved quality of service, and fewer distractions (Bergeron, 2003: 6; Dollery & Akimov, 2008; Walsh et al., 2008). By relying on shared service strategies, administrations are relieved from routine jobs so that they can use more resources for individually serving their clients at the front line (Becker et al., 2009).

The term “shared service center” or “shared service organization” is used to refer to a unit that provides shared services. By implementing a shared service center as an internal arrangement, back office services and functions are aggregated within a single area for provision across an entire organization (Borman, 2010; Quinn et al., 2000; Ulbrich, 2006). According to Janssen and Joha (2006), a shared service center refers to “a separate and accountable semi-autonomous unit within an (inter)organizational entity, used to bundle activities and provide specific pre-defined services to the operational units within that (inter)organizational entity, on the basis of agreed conditions” (p. 102–103). Joha and Janssen (2011) extend the definition to a more customer-oriented concept: “a separate and accountable semi-autonomous unit within an (inter)organizational entity that provides pre-defined services to internal and/or external customers, on the basis of agreed
conditions and a balanced governance structure in order to create value in terms of financial or non-financial benefits” (p. 34). Schulz and Brenner (2010) derive common definitional elements underlying shared service centers from existing studies. In their view, a shared service center is an organization that delivers support processes, functions in a way that aims to cut costs, has a clear focus on internal customers, is a separate organizational unit aligned with external competitors, is operated like a business, and consolidates processes within the group in order to reduce redundancies.

1.2. Factors influencing service integration

Five categories of factors influencing service integration—technological, organizational (internal management-related), cross-organizational (governance-related), institutional, and contextual factors—are drawn from reviewing the literature pertinent to service integration. Some research addresses enablers of service integration, but most studies discuss barriers and challenges to service integration.

1.2.1. Factors derived from human service literature

Table 2 summarizes key factors of service integration identified from the human service literature. There are many organizational challenges in meeting the comprehensive needs of individuals and families through community-based integrated service delivery networks. In the initiative where multiple service units are jointly involved, it is important to clarify who has the authority to make supervisory and managerial decisions, and who will have supervisory roles and responsibilities (Imershein et al., 1986; Polivka et al., 1981; Redburn, 1979; Teasley III & Ready, 1981).
Appropriate allocation of funds and resources is pivotal to the success of service integration efforts (Hagebak, 1979; Polivka et al., 1981; Redburn, 1979; Teasley III & Ready, 1981). Previous findings suggest that bureaucratic inertia impedes the move toward service integration (Hagebak, 1979; Redburn, 1979).

Table 2. Factors derived from human service literature

<table>
<thead>
<tr>
<th>Categories</th>
<th>Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Organizational factors</strong></td>
<td>• Authority and responsibilities</td>
</tr>
<tr>
<td></td>
<td>• Allocation of funds</td>
</tr>
<tr>
<td></td>
<td>• Allocation of resources</td>
</tr>
<tr>
<td></td>
<td>• Alignment of standards and procedures</td>
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<tr>
<td></td>
<td>• Bureaucratic inertia</td>
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<tr>
<td></td>
<td>• Staffing</td>
</tr>
<tr>
<td></td>
<td>• Training</td>
</tr>
<tr>
<td><strong>Cross-organizational factors</strong></td>
<td>• Collaboration of service units</td>
</tr>
<tr>
<td></td>
<td>• Intergovernmental (vertical and horizontal) relationships</td>
</tr>
<tr>
<td></td>
<td>• Intergovernmental exchange of information and feedback</td>
</tr>
<tr>
<td></td>
<td>• Network structure</td>
</tr>
<tr>
<td></td>
<td>• Turf tension</td>
</tr>
<tr>
<td><strong>Institutional factors</strong></td>
<td>• Alignment of policies</td>
</tr>
<tr>
<td></td>
<td>• Regulation and law</td>
</tr>
<tr>
<td><strong>Contextual factors</strong></td>
<td>• Geographic service areas</td>
</tr>
</tbody>
</table>

If organizational standards and procedures are outdated, incomplete, and inconsistent, they are not aligned with an integrated service delivery system (Polivka et al., 1981). Insufficient training in cross-program and cross-unit management also becomes a barrier to service delivery integration (Polivka et al., 1981). In addition, cross-program staffing may mitigate the barrier (Imershein et al., 1986).

Polivka et al. (1981) suggest several factors which can be grouped into the cross-organizational category. The relationships between agencies and various government levels affect service integration. For human services, inter-program and inter-district exchange and feedback of management and client information is important. Collaboration among service units and their network structure enable more effective governance. In
addition, turf guarding oftentimes can be a culture-related barrier to human service integration which blocks cross-boundary collaboration and information sharing (Hagebak, 1979).

In a broader sense, the policy context influences service integration. Laws and regulations limit or facilitate service integration initiatives (Hagebak, 1979: 576). High-level policies are often misaligned to the reality of implementing service integration (Polivka et al., 1981). Integrated service delivery to varied geographic areas may raise concerns of inefficiency and ineffectiveness (Hagebak, 1979: 576).

### 1.2.2. Factors derived from e-government literature

Many studies have identified critical success factors and major challenges of e-government. Some studies provide their comprehensive perspective on multiple dimensions of e-government integration. For example, Lam’s (2005) empirical study conducted by interviews with e-government practitioners found a variety of barriers to moving from cataloguing to integrated e-government services. Gil-Garcia and Pardo (2005) suggest success factors of e-government initiatives through their review of a rich body of conceptual and empirical studies on IT initiatives or projects in the public sector. The factors included in their study address diverse issues and concerns in integrating information and consolidating services across organizations. Gil-Garcia et al. (2009) discuss barriers and potential strategies of information integration in the context of e-government, conceptualizing government information integration as a sociotechnical phenomenon. The conceptual paper by Yang and Maxwell (2011) finds interpersonal, intra-organizational and inter-organizational success factors of information sharing and
integration for e-government. There are more studies on interoperability, information integration, process integration, and one-stop service delivery. Table 3 re-categorizes key factors of e-government integration found in existing studies.

<table>
<thead>
<tr>
<th>Categories</th>
<th>Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Technological factors</strong></td>
<td>• Architecture interoperability</td>
</tr>
<tr>
<td></td>
<td>• Compatibility of data standards and technical standards</td>
</tr>
<tr>
<td></td>
<td>• Compatibility of security models</td>
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<tr>
<td></td>
<td>• Data ownership</td>
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<tr>
<td></td>
<td>• Flexibility of legacy systems</td>
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<td></td>
<td>• Privacy issues</td>
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<td></td>
<td>• Security issues</td>
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<tr>
<td></td>
<td>• Technology complexity</td>
</tr>
<tr>
<td></td>
<td>• Technology skills and experiences</td>
</tr>
<tr>
<td><strong>Organizational factors</strong></td>
<td>• Bureaucratic inertia (resistance to change)</td>
</tr>
<tr>
<td></td>
<td>• Champions</td>
</tr>
<tr>
<td></td>
<td>• Funding</td>
</tr>
<tr>
<td></td>
<td>• Goal-project alignment</td>
</tr>
<tr>
<td></td>
<td>• Leadership</td>
</tr>
<tr>
<td></td>
<td>• Multiple and conflicting goals</td>
</tr>
<tr>
<td></td>
<td>• Operational resources</td>
</tr>
<tr>
<td><strong>Cross-organizational factors</strong></td>
<td>• Intergovernmental relationships</td>
</tr>
<tr>
<td></td>
<td>• Shared e-government goals and objectives</td>
</tr>
<tr>
<td></td>
<td>• Turf tension</td>
</tr>
<tr>
<td><strong>Institutional factors</strong></td>
<td>• Institutional complexity</td>
</tr>
<tr>
<td></td>
<td>• Legislation</td>
</tr>
<tr>
<td></td>
<td>• Policy</td>
</tr>
<tr>
<td><strong>Contextual factors</strong></td>
<td>• Social, economic, and demographic conditions</td>
</tr>
</tbody>
</table>

The first category is technological and technology-related. Incompatibility and inconsistency in standards, models, and systems are technological barriers to service integration through e-government (Gil-Garcia et al., 2009; Gottschalk, 2009; Gottschalk & Solli-Sæther, 2008; Klischewski, 2004; Lam, 2005; Scholl & Klischewski, 2007; Scholl et al., 2012; Yang & Maxwell, 2011). Architecture for e-government should be technologically interoperable (Ebrahim & Irani, 2005; Guijarro, 2007; Lam, 2005; Weekakkody et al., 2007; Wu, 2007). In a broader sense, technological concerns include
privacy, security, and data ownership issues. The lack of skills and experiences is a barrier to e-government integration (Gil-Garcia & Pardo, 2005; Yang & Maxwell, 2011).

The next category consists of a variety of organizational and managerial factors. An obvious managerial barrier arises from the gap between integration goals and current organizational readiness (Gil-Garcia & Pardo, 2005). The existence of multiple conflicting organizational goals often inhibits integration. According to Davison et al. (2005), one significant characteristic of good e-government is the alignment of strategies and goals. The absence of champions hinders e-government service integration at a fundamental level (Lam, 2005). Legacy is an issue of concern for technological systems as well as for organizational processes. It is also related to cultural and behavioral resistance to change. In this way, bureaucratic inertia often becomes a strong obstacle to service integration. As the lack of sufficient funds and operational resources is identified as one of the integration barriers, unexpected budget constraints may pose serious challenges to long-term interoperation and integration projects over time (Scholl & Klischewski, 2007: 894). Gil-Garcia et al. (2009) suggest sharing resources across organizations as a strategy to work within the constraints of scarce resources.

The lack of cross-organizational governance impedes a shift to further integration of e-government services. Organizations are distinct in terms of their disposition and readiness for integration, interoperation, and collaboration with others (Scholl & Klischewski, 2007: 894). For cross-organizational governance, goals and objectives underlying e-government service integration initiatives should be shared and agreed-upon within an initiative or leading agency, and across all organizations involved (Lam, 2005). Government bureaucrats tend to abide by organizational and functional boundaries (Gil-

Some studies shed light on institutional dimensions including legislation, policies, and institutional complexity (Gil-Garcia & Pardo, 2005; Gil-Garcia et al., 2009; Scholl & Klischewski, 2007; Yang & Maxwell, 2011). In making any kind of decision related to e-government projects, public managers take into account a large number of restrictive laws and regulations (Gil-Garcia & Pardo, 2005). In addition, Gil-Garcia and Pardo (2005) consider social, economic, and demographic conditions of a government’s jurisdiction as an environmental context. For example, the degree of a digital divide and economic situations may influence the delivery and use of services provided by e-government.

1.2.3. Factors derived from citizen-centered service literature

As described in Table 4, various factors are identified as enablers or inhibitors of citizen-centered service integration. Creating a common technology infrastructure is a basic requirement for service integration. Service architecture should be collaboratively built for use by all levels of government. The architecture emphasizes open standards and interoperable information systems (Flumian et al., 2007; Kernaghan, 2005; Roy & Langford, 2008). Technological concerns include privacy of government databases and security of electronic transactions (Flumian et al., 2007).
Organizational factors include culture, funding, leadership, and training. Focusing on Government On-Line as a Canadian service integration initiative, Charih and Robert (2004) highlight the importance of administrative and political leadership in enabling and facilitating service integration. Political leadership is a prerequisite to building effective collaboration across levels of government (Roy & Langford, 2008). The political relationship between government agencies is difficult for professional administrators and public managers to manage, so political leadership is necessary for facilitating collaboration.

<table>
<thead>
<tr>
<th>Categories</th>
<th>Factors</th>
</tr>
</thead>
</table>
| **Technological dimension** | • Common technology infrastructure  
                              • Common service architecture  
                              • Interoperability or technological incompatibility  
                              • Security of electronic transactions  
                              • Privacy of government databases |
| **Organizational dimension** | • Dedicated funding  
                              • Leadership  
                              • Organizational culture  
                              • Training |
| **Cross-organizational dimension (governance)** | • Collaborative network  
                                                          • Engaging citizens and communities in design and delivery  
                                                          • Establishing the governance framework  
                                                          • Interjurisdictional conflict  
                                                          • Turf tension |

Charih and Robert (2004) argue that a new organizational culture needs to be developed and fostered within the realm of public service. An organizational challenge arises from an inevitable blending of organizational cultures across departmental and jurisdictional boundaries (Flumian et al., 2007). A government-wide culture of integrated service can be built by developing shared values. With the new culture, the government can function as part of a larger service integration network and benefit through the
network across many other agencies and stakeholders. Relevant skills training and dedicated funding are central to an organizational strategy for citizen-centered service initiatives (Charih & Robert, 2004; Flumian et al., 2007; Kernaghan, 2005).

The citizen-centered service literature emphasizes certain governance-related factors. Creating a collaborative network-based governance framework would forge a more robust set of conditions and learning opportunities to accelerate the development of network-based governance mechanisms (Roy & Langford, 2008). Citizen-centered service requires engaging citizens, communities, and a wider set of stakeholders in design and delivery (Roy & Langford, 2008). Establishing a governance framework promotes citizen-centered service delivery (Kernaghan, 2005). Inter-jurisdictional—horizontal and vertical—conflicts are structural barriers to service integration initiatives involved in multiple jurisdictions (Flumian et al., 2007). Similarly, turf tensions, in terms of organizational functions, are main cross-organizational cultural barriers to citizen-centered service integration (Kernaghan, 2005).

1.2.4. Factors derived from shared service literature

Shared service, as a relatively new strategy in public administration, addresses organizational as well as technical issues (Becker et al., 2009: 115). For example, Borman’s (2010) case study suggests characteristics of a successful shared service center in the Australian public sector: task, strategy, structure, management processes, individual skills, and IT. There are more diverse understandings of shared services and shared service centers with respect to technological, organizational, and cross-
organizational aspects. Table 5 lists a variety of factors drawn from shared service literature.

Table 5. Factors derived from shared service literature

<table>
<thead>
<tr>
<th>Categories</th>
<th>Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technological dimension</td>
<td>• Enterprise Resource Planning (ERP)</td>
</tr>
<tr>
<td></td>
<td>• Information security</td>
</tr>
<tr>
<td></td>
<td>• Legacy systems</td>
</tr>
<tr>
<td></td>
<td>• Standardization of platforms and applications</td>
</tr>
<tr>
<td></td>
<td>• Technical expertise and skills</td>
</tr>
<tr>
<td></td>
<td>• Technical reliability</td>
</tr>
<tr>
<td>Organizational dimension</td>
<td>• Changing the nature of work and task</td>
</tr>
<tr>
<td></td>
<td>• Culture</td>
</tr>
<tr>
<td></td>
<td>• Individual skills</td>
</tr>
<tr>
<td></td>
<td>• Leadership (top management support)</td>
</tr>
<tr>
<td></td>
<td>• Organization structure</td>
</tr>
<tr>
<td></td>
<td>• Staffing</td>
</tr>
<tr>
<td></td>
<td>• Standardization of routine works</td>
</tr>
<tr>
<td>Cross-organizational dimension</td>
<td>• Cross-functional network</td>
</tr>
<tr>
<td>(governance)</td>
<td>• Governance structure</td>
</tr>
<tr>
<td></td>
<td>• Preceding interorganizational collaboration</td>
</tr>
</tbody>
</table>

Shared service centers have certain technological and technology-related concerns. The technical side includes standardization of platforms and applications, technical expertise, information security, technical reliability, and elimination of old legacy systems (Joha & Janssen, 2010). In addition, Borman (2010) considers Enterprise Resource Planning (ERP) as underpinning shared services.

There are various organizational components of shared service centers. According to Becker et al. (2009), the organizational structure of an entire entity is a key factor that influences shared service configurations. In examining the impact of key actors on the configurations of shared service organizations, Becker et al. (2009) discovered that leadership and commitment of mayors and political representatives is pivotal to promoting shared service implementation. Management support and leadership,
especially from executives, are of central importance to shared service initiatives (Walsh et al., 2008). According to Borman (2010), leadership is different from the administration or regulation of a shared service center, and is related to setting the direction, having a strong passion to deliver, and energizing the workforce to buy into the vision.

There is a need to establish a new culture when implementing a shared service model (Aguirre et al., 1998; Forst, 2001; Schulman et al., 1999). Shared services are supported by experts and professionals, so staffing is a critical issue for the success of shared service projects. Thus, one of core characteristics of a successful shared services center is the skill base of the organization. Borman (2010) emphasizes flexibility as well as specialization of employees. Rothwell et al. (2011) views a shared service center as an emerging organization form with the potential to drive fundamental change in the nature of professional work.

Shared services need to be understood in a cross-organizational context. Grant et al. (2007) propose that properly defining and setting up the governance structure is a critical success factor of a shared service organization. Their “governance structure” is explained as a hierarchy of committees, boards, bodies, or forums that execute the management of, and oversee the delivery of, the products and/or services of the shared service organization (Grant et al., 2007: 523). On the enterprise and managerial level, there are two recommended structures: a governing board (comprised of a chief executive officer of the shared service organization and the heads or representatives of the shared service partners or clusters of agencies), or a shared service implementation office that plays a lead role in developing the whole-of-government approach (Grant et al., 2007: 525). On the operational or tactical level, there are three recommended structures: a
shared service implementation board (dealing with day-to-day operations), a shared
service organization governing board (comprised of the heads of a shared service
organization and partner organizations), or partnering forums (base level of issue
resolution) (Grant et al., 2007: 526).

The existence of preceding cooperation and collaboration is a necessary
precondition for arranging shared services, and the structure of prior existing cooperation
determines the subsequent shared service structures (Becker et al., 2009).
Interorganizational relationships have a great impact on forming and configuring shared
service structures. Collaborative decision making is important for initiating shared
service arrangements (Janssen et al., 2007). A cross-functional network is considered one
of the effective governance arrangements. Shared services are often established by cross-
functional groups consisting of implementation teams and relevant stakeholders (Cecil,
2000).

1.3. Summary

1.3.1. Two aspects of service integration

This review identified four streams of research pertinent to service integration
from a wide array of literature. The phrase “service integration” is originally rooted in the
area of human and social service. Now the term is extensively used in the context of both
front office and back office operations of government, especially indicating the
consolidation of government services that is enabled by technological advances—
information and communication technologies (ICTs) and computing technologies among
others—and also seamlessly supported by any possible channel—no matter what channel
for service delivery and communication is, for example, both online and offline—in service users’ preference and convenience. In the four perspectives, service integration is considered a strategy or approach in either front end or back end or both.

Table 6. Front end and back end of service integration

<table>
<thead>
<tr>
<th>Perspective</th>
<th>Front end of service integration</th>
<th>Back end of service integration</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Human service</strong></td>
<td>• One blanket coverage system to respond to multi-problem clients to reduce fragmentation, duplication, discontinuity, inaccessibility, and unavailability of human services</td>
<td>• Interorganizational (interagency) cooperation, coordination, and collaboration</td>
</tr>
<tr>
<td><strong>E-government</strong></td>
<td>• A single window or portal through which citizens can access all information and services</td>
<td>• Integration of government organizations across the different levels of government and between different government services, agencies, and policy domains</td>
</tr>
<tr>
<td><strong>Citizen-centric service</strong></td>
<td>• Seamless services to citizens that would not stop at any jurisdictional boundary or at any channel, based on their wants and needs</td>
<td></td>
</tr>
<tr>
<td><strong>Shared service</strong></td>
<td></td>
<td>• Coordinating joint efforts on all levels of public administration, avoiding duplication of efforts, and establishing one shared back-office</td>
</tr>
</tbody>
</table>

Table 6 summarizes how service integration is addressed in front end and back end aspects with respect to each stream of literature. Service integration from human service perspective and e-government perspective involves both front end and back end. The front end of human services integration means one blanket coverage system or a one-stop comprehensive outlet for multiple-problem clients in order to reduce fragmentation, duplication, discontinuity, inaccessibility, and unavailability of human services (O’Looney, 1993). The back end of human service integration means interorganizational cooperation, coordination, and collaboration (Kagan, 1991).
E-government is a front line of citizen services. E-government integrates services accessible to citizens through the provision of a single window or portal (Baqir & Iyer, 2010; dos Santos & Reinhard, 2012; Gant et al., 2002; Gouscos et al., 2007; Kim & Grant, 2010; Klievink & Janssen, 2009; Kunstelj & Vintar, 2004; Lee, 2010; Lenk, 2002; Sarikas & Weerakkody, 2007). E-government is also built on the integration of government organizations across various levels of government, and between different government services, agencies, and policy domains. Citizen-centric service sheds light on the front end of service integration. “Citizen-centric” means the seamless delivery of services to citizens that would not stop at any jurisdictional boundary or be hindered by any channel for service delivery and communication, based on citizens’ wants and needs (Kernaghan, 2005; Roy & Langford, 2008). On the other hand, service integration from the perspective of shared service involves establishing one shared back office. Back office services and functions are aggregated by joint (interorganizational) efforts within a single area for provision across an entire organization (Borman, 2010; Quinn et al., 2000; Ulbrich, 2006).

1.3.2. Preliminary understanding of service integration

The literature review up to this point suggests a preliminary understanding of service integration. A variety of factors that influence service integration are derived from the existing literature. These factors are categorized into five dimensions: technological, organizational (internal management-related), cross-organizational (governance-related), institutional, and contextual dimensions. Table 7 summarizes the findings from the literature review.
Table 7. Preliminary multidimensional understanding of service integration

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Factors</th>
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</thead>
<tbody>
<tr>
<td><strong>Technological dimension</strong></td>
<td>• Architecture (common/interoperable architecture)</td>
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<tr>
<td></td>
<td>• Compatibility of data standards and technical standards</td>
</tr>
<tr>
<td></td>
<td>• Data ownership</td>
</tr>
<tr>
<td></td>
<td>• Enterprise resource planning (ERP)</td>
</tr>
<tr>
<td></td>
<td>• Flexibility of legacy systems</td>
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<tr>
<td></td>
<td>• Interoperability</td>
</tr>
<tr>
<td></td>
<td>• Privacy and security issues</td>
</tr>
<tr>
<td></td>
<td>• Standardization of platforms and applications</td>
</tr>
<tr>
<td></td>
<td>• Technology complexity</td>
</tr>
<tr>
<td></td>
<td>• Technological skills, experiences, and expertise</td>
</tr>
<tr>
<td><strong>Organizational dimension</strong></td>
<td>• Authority and responsibilities</td>
</tr>
<tr>
<td>(internal management-related)</td>
<td>• Bureaucratic inertia (resistance to change, legacy process)</td>
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<td></td>
<td>• Champions</td>
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<td>• Funding</td>
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<td>• Goal-project alignment</td>
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<td>• Leadership</td>
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<td>• Multiple and conflicting goals</td>
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<td></td>
<td>• Organizational structure</td>
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<td></td>
<td>• Organizational culture</td>
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<td></td>
<td>• Resource allocation</td>
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<td></td>
<td>• Staffing</td>
</tr>
<tr>
<td></td>
<td>• Standardization of routine works</td>
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<td></td>
<td>• Training</td>
</tr>
<tr>
<td><strong>Cross-organizational dimension</strong></td>
<td>• Collaborative network</td>
</tr>
<tr>
<td>(governance-related)</td>
<td>• Cross-functional work</td>
</tr>
<tr>
<td></td>
<td>• Governance body, structure, and framework</td>
</tr>
<tr>
<td></td>
<td>• Interjurisdictional (horizontal and vertical) conflict</td>
</tr>
<tr>
<td></td>
<td>• Interorganizational (vertical and horizontal) relationship</td>
</tr>
<tr>
<td></td>
<td>• Interorganizational exchange of information</td>
</tr>
<tr>
<td></td>
<td>• Shared goals and objectives</td>
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<tr>
<td></td>
<td>• Shared decision making structure</td>
</tr>
<tr>
<td></td>
<td>• Stakeholder and citizen engagement</td>
</tr>
<tr>
<td></td>
<td>• Turf guarding and tension</td>
</tr>
<tr>
<td><strong>Institutional dimension</strong></td>
<td>• Institutional complexity</td>
</tr>
<tr>
<td></td>
<td>• Law and regulation</td>
</tr>
<tr>
<td></td>
<td>• Policy</td>
</tr>
<tr>
<td><strong>Contextual dimension</strong></td>
<td>• Geographic service coverage</td>
</tr>
<tr>
<td></td>
<td>• Social, economic, and demographic condition</td>
</tr>
</tbody>
</table>

Main technological challenges for service integration include the lack of architectural interoperability and standardization, technical incompatibility, security and privacy concerns, technological complexity, and legacy systems. The organizational
dimension of service integration is comprised of diverse components, including authority and responsibilities, bureaucratic inertia, leadership, champions, training, staffing, funding, resource allocation, organizational structure, organizational culture, goal-project alignment, and standardization of routine works. The cross-organizational dimension is related to governance and interorganizational workings. Cross-organizational factors include shared decision-making structures, collaborative network, stakeholder and citizen engagement, interorganizational relationships, cross-functional work, and turf guarding and tension. Institutional arrangements are also identified as critical factors in some studies. Laws, legislations, regulations, and policies shape the institutional environment of service integration in government. Institutional complexity is considered to be an obstacle to service integration. The contextual dimension represents social, economic, and demographic conditions, and geographic coverage of government services.

1.3.3. Gaps in the literature

Three gaps are found in the current literature of service integration. Table 8 summarizes these gaps in the service integration literature and this study’s contribution to filling the gaps.

<table>
<thead>
<tr>
<th>The gap in the existing literature</th>
<th>How this study tackles the gap</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not identifying the relationships among factors</td>
<td>Mapping the relationships among factors</td>
</tr>
<tr>
<td>Separate focus on either front or back office</td>
<td>Connecting between front office and back office</td>
</tr>
<tr>
<td>Purely conceptual models of service integration</td>
<td>Drawing a model from empirical evidence</td>
</tr>
</tbody>
</table>

First, existing literature has not explored the relationships between the various factors listed in Table 7. The preliminary multidimensional understanding of service
integration identifies enabling and inhibiting factors that influence service integration. These factors are categorized into multiple dimensions. The fundamental question of how the factors influencing service integration are related to each other has not been addressed in prior research. This study refines and elaborates the preliminary multidimensional understanding of service integration by identifying the relationships between critical factors identified in the inductive research with the support of rich empirical evidence.

Second, though service integration has been discussed in diverse contexts, the studies of organizations that integrate services have not suggested a comprehensive understanding of both front end and back end capabilities of service integration. While some service integration initiatives focus on the consolidation of frontline services, the main focus of others is on back office functions. However, the front end and back end functions generated by service integration initiatives should not be understood as mutually independent capabilities. The description of service integration in Table 6 with respect to both front and back end is based on theoretical findings; however, in practice, a division between front end and back end functions may not be typical. There may be missing connections between front end and back end service integration. For example, citizen-centered service literature does not address how frontline services are built by the support of back office operation (Flumian et al., 2007; Kernaghan, 2005; Roy & Langford, 2008). Joha and Janssen (2010) suggest the improvement in frontline services as one of the potential benefits of adopting shared services (Joha & Janssen, 2010), but thus far, no research has taken a close look at how a consolidated back office for shared services improves frontline services. This study fills the gap by highlighting connections between the front end and back end of service integration, exploring what serves as a
middle ground between frontline service delivery and back office functions, and how this middle ground operates in the context of 311 non-emergency contact centers.

Lastly, the existing perspectives on the maturity levels of service integration tend to be conceptual rather than grounded on rich empirical evidence. As Moon (2002) claims, there may be a gap between rhetoric and the reality of e-government development. The gap may not mean the failure of e-government practices, but rather, it may imply that the model of e-government development does not reflect reality. Similarly, the maturity of service integration as theme broader than e-government needs to be seen on the basis of empirical evidence. Recognizing the deficiency in empirical studies that focus on the phases of service integration maturity over time, this study contributes to the development of a service integration model grounded in the practices and experiences of city-level service integration.

2. Reviewing the literature of 311 non-emergency contact centers

“311” is the toll-free number that the US Federal Communications Commission reserved for non-emergency contact services. The 311 program now encompasses call center services and multiple channels for non-emergency service and information requests. It has emerged as a popular and essential government capability. Rather than a mere call center, it is the centerpiece of advanced systems of people, technology, and business processes (Tumin & Wasserman, 2008: 1). It is also a powerful tool for Citizen Relationship Management for a jurisdiction and government. This section first presents background information of the 311 program and Citizen Relationship Management. Next, requirements and impacts of the 311 program are discussed, based on previous case
studies. These studies include Schellong’s (2008) cross-case study of New York, Chicago, Baltimore and Miami-Dade County, and International City/County Management Association’s case study series of 311 non-emergency contact centers in the following cities: San Antonio, Texas (Fleming & Barnhouse, 2006), Los Alamos County, New Mexico (Fleming, 2007), Lynwood, California (Barnhouse, 2008), Hampton, Virginia (McGalliard, 2008), Minneapolis, Minnesota (Fleming, 2008b), Durham, North Carolina (Fleming et al., 2008), Kansas City, Missouri (Eichenthal et al., 2009), Savannah, Georgia (Fleming & Phelan, 2010), Saco, Maine (Fleming et al., 2009), and Cupertino, California (Phelan, 2010).

2.1. Background

2.1.1. 311 non-emergency system and CRM

The 311 non-emergency contact service program is basically a local telephone exchange communications system that allows telephone customers to access non-emergency local government information and services by dialing an abbreviated telephone number. While various terms such as 311, 311 service, 311 system, 311 call center, and 311 contact center are being used interchangeably, this study uses 311 as a more general term to encompass non-emergency services, technical systems, and communication channels for those services.

“311 systems” is also interchangeably used with “311/CRM” (Fleming, 2008a; Schellong, 2008). While CRM stands for Customer Relationship Management, there is a distinction between the private and public sectors in terms of the nature of customers. In the public sector, CRM can help public administrations to develop and maintain strong
relationships with citizens. Government CRM is a division of the private sector CRM, but it focuses specifically on how government relates to its constituents (Kannabiran et al., 2004). It is a cluster of management practices, communication channels, and technological solutions to handle citizens’ issues, problems, concerns, and demands. CRM in government is based on a different philosophy from that of the private sector (Schellong, 2008: 134). Government is about delivering public services and values (Virili & Sorrentino, 2009), but does not sell goods or services. Government is more complex than the private sector in terms of its customer base and the broadness and depth of the products and services it provides. Moreover, the government monopoly in providing many public services is a constraint to the realization of customer service-oriented strategies. Thus, in the context of 311, CRM represents Citizen (rather than just Customer) Relationship Management for government (Schellong, 2008).

CRM and 311 are not synonymous (Kavanagh, 2007). While CRM refers to a discipline of constituent-focused government management, 311 is simply one possible CRM tool, albeit an important one. Further, the presence of a 311 number does not necessarily mean that a government has implemented CRM. A 311 number is just the technology. Unless it is built on constituent-focused processes and staff behaviors, it is not CRM. In another view, CRM is a centralized database tool for tracking the requested information, regardless of the method of receipt, while 311 is a method of receiving requests for service (Fleming, 2008a: 54). 311 call centers are powered by supporting CRM systems.

In a narrower sense, CRM is considered a software application that is used to track interactions with residents in a local government on an ongoing basis and allows
governments to manage amounts of data and information effectively (Fleming, 2008a: 1; Reddick, 2011: 346). CRM for local governments incorporates, as part of the call center function, the ability to manage non-emergency calls into one centralized system. CRM can serve as a centralized database, regardless of the method of receipt, while 311 is one method for receiving requests for service (Fleming, 2008a: 54). CRM is not a replacement, however, for a full-fledged 311 call center system (Moulder, 2007: 3). CRM encompasses a suite of technologies—phone, computer, Internet, and databases—that are configured into a customized system to fit the needs of a particular application (Hsieh, 2009; Moulder, 2007: 3).

In a broader sense, CRM in the public sector has been defined as a strategy that enables technology to focus on citizens and their needs, and encourages citizen participation in their government (Chen & Popovich, 2003; Richter et al., 2004; Schellong, 2008; Stefanou et al., 2003). It provides a face for customers and constituents by providing information about services, programs, or area events and activities, a forum through which constituents can request a city service or make a complaint, and a venue through which the city and constituents can track the progress of the resolution of an issue or problem. It fosters information exchange and promotes participation (Schellong, 2008). It is a vital discipline for enhancing the multi-faceted relations that citizens have with their government and building the trust and confidence of constituents (Kavanagh, 2007). Hence, it is not primarily a technological initiative, but rather, it is a part of advanced information systems that bring together technology, people, and business processes (Chen & Popovich, 2003), as well as a means for transforming the business of government that delegates staff to constituent service (Kavanagh, 2007).
High-end CRM systems and 311 operations consolidate the government phone number into one 24-hour, 7-day-a-week call center staffed by specialists trained to answer all questions and follow through on work orders and permit requests (Peisner, 2006). The extension toward multiple channel service delivery center usually incorporates phone, web, and email services. While the term “311/CRM” is distinguished from 311 as a toll-free non-emergency phone number, the growing usage of the term “311” includes a CRM application embedded in 311 operations. The tasks of 311 contact centers equipped with CRM are differentiated into service and non-service activities, as described in Table 9 (Schellong, 2008: 126).

Table 9. The main operations of 311 contact centers

<table>
<thead>
<tr>
<th>Inbound communications (Citizen-initiated)</th>
<th>Outbound communications (Government-initiated)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service activities</td>
<td>• Service request</td>
</tr>
<tr>
<td>Non-service activities</td>
<td>• Information provision</td>
</tr>
<tr>
<td></td>
<td>• Service request follow-up</td>
</tr>
<tr>
<td></td>
<td>• Citizen survey</td>
</tr>
<tr>
<td></td>
<td>• Information provision</td>
</tr>
<tr>
<td></td>
<td>• Service status</td>
</tr>
<tr>
<td></td>
<td>• Complaint and comment handling</td>
</tr>
<tr>
<td></td>
<td>• Referral</td>
</tr>
<tr>
<td></td>
<td>• Information provision</td>
</tr>
</tbody>
</table>


2.1.2. History of 311 non-emergency contact centers

By 1996, non-emergency calls to 911 had reached a level that required national attention because an estimated 50 to 90 percent of 911 calls were deemed non-emergency calls (US Department of Justice, 2006). Non-emergency calls to 911 delay the delivery of emergency services, causing backlogs and inefficiencies for law enforcement, fire departments, and emergency medical technicians (Schwester et al., 2009). President Clinton challenged the Department of Justice to relieve the 911 systems of congestion resulting from unnecessary calls.
Table 10. N11 codes

<table>
<thead>
<tr>
<th>N11 code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>211</td>
<td>Community information and referral services</td>
</tr>
<tr>
<td>311</td>
<td>Non-emergency police and other governmental services</td>
</tr>
<tr>
<td>411</td>
<td>Local directory assistance</td>
</tr>
<tr>
<td>511</td>
<td>Traffic and transportation information</td>
</tr>
<tr>
<td>611</td>
<td>Telephone repair service</td>
</tr>
<tr>
<td>711</td>
<td>Telecommunications relay service</td>
</tr>
<tr>
<td>811</td>
<td>Access to one call services to protect pipeline and utilities from excavation damage</td>
</tr>
<tr>
<td>911</td>
<td>Emergency</td>
</tr>
</tbody>
</table>

Source: Fleming, 2008a, p. 25.

The White House and the Office of Community Oriented Policing Services (COPS) of the Department of Justice sought corrective action. The COPS Office requested that the Federal Communications Commission (FCC) set aside 311 for use as a national help number for non-emergencies (Solomon & Uchida, 2005). In 1997, the FCC reserved the number “311” nationwide for non-emergency access to local government services in all US jurisdictions, as one of federally reserved N11-type abbreviated dialing arrangements (see Table 10). 311 service is optional—whereas 911 is mandatory—and thus may be purchased by a local municipality, a council of governments, a communication district, a state or local governmental unit, or an authorized agent of one of the above to whom authority has been lawfully delegated. 311 non-emergency service is subject to the availability of facilities in the jurisdiction.

311 contact centers have rapidly spread across the country since the successful launch and operation at four metropolitan jurisdictions—i.e., Baltimore, Chicago, New York, and Miami-Dade County—in the early 2000s (Schellong, 2008). As of 2012, about 280 localities in the U.S. (cities, counties, and regions of neighboring municipalities) are operating 311 centers. Local governments have been openly sharing their knowledge on
the solutions and challenges of 311/CRM with each other (Schellong, 2008: 125).

Schellong (2008: 128) identified the study of best practices and open knowledge sharing as critical success factors for launch and initial implementation of a 311 program. For example, Chicago was offering advice to Miami-Dade County, Baltimore and New York, and Miami-Dade was sharing its knowhow with other counties in Florida. The City of Baltimore was the first location to offer a 311 number for non-emergency services in 1996, but it was not until March 2001 that the CRM strategy was implemented by the Mayor’s Office of Information Technology (Schellong, 2008: 74). In January 1999, the City of Chicago implemented a technology-enabled 311 one-stop service center for the first time, and Chicago’s implementation plan strongly influenced Baltimore’s initiative for establishing an integrated call center. Later, in March of 2003, the City of New York’s 311 contact center began operation after a one-year implementation process by the Department of Information Technology and Telecommunications. Today, New York’s 311 system is the largest in the country. Many municipalities that prepare to launch and improve 311 have learned from the practices of these metropolitan 311 systems or other cases of similar size.

2.2. Requirements of 311 non-emergency contact centers

Previous research has presented requirements of the CRM-embedded 311 program, which is a combination of technology, people, and organizational processes to deliver superior service to the constituent (Kavanagh, 2007; Tumin & Wasserman, 2008: 1).
2.2.1. Technological components

311 is increasingly considered a centralized, digital intake of citizen complaints, comments, and service requests (Fleming, 2008a). However, the technological aspects of 311 represent not only the use of ICTs, but other various components as well. Technology is one of critical success factors for CRM activities and is identified as a facilitator for better customer service and organizational transformation (Schellong, 2008: 128). Kavanagh (2007) suggested a set of technological requirements of 311/CRM. Table 11 shows the requirements.

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledgebase</td>
<td>Cataloging responses to various types of inquiries</td>
</tr>
<tr>
<td>Script</td>
<td>Protocol for the call-taker’s responses to calls</td>
</tr>
<tr>
<td>Interactive voice response</td>
<td>Expediting the call to the appropriate person or provide information through</td>
</tr>
<tr>
<td></td>
<td>an automated system</td>
</tr>
<tr>
<td>Telephony integration</td>
<td>Touch-tone dialing menus or voice recognition</td>
</tr>
<tr>
<td>Workflow technology</td>
<td>Tracking all calls including ones escalated beyond the initial call-taker</td>
</tr>
<tr>
<td>Work-order management system</td>
<td>Assigning projects to agents</td>
</tr>
<tr>
<td>GIS integration</td>
<td>Visual representation of service areas and mapping information provided by</td>
</tr>
<tr>
<td></td>
<td>the caller</td>
</tr>
<tr>
<td>Multi-channel capability</td>
<td>Offering multiple options for contact and communication</td>
</tr>
</tbody>
</table>

Note. Adapted from Kavanagh (2007).

One of the basic, common technological components is an intelligent searchable database where customer service representatives can get information for citizens through an extensive database (Reddick, 2010). A knowledgebase catalogs responses (correct answers) to various types of inquiries, which the call-taker can access to increase both the quality and the consistency of service. A more streamlined version of the knowledgebase that captures comprehensive information and forms for a wide range of local government
programs and services may also be made directly available to constituents via a Web portal to enable self-service (Fleming, 2008a: 4).

The script is a directory that uses key numbers and words so that the call-taker can look up additional information on a topic and access a set of questions to ask the caller (Fleming & Barnhouse, 2006). These questions permit the call-taker to more efficiently target the caller’s specific need and to relay this information to the appropriate department for work-order processing. The script acts as a flow chart, where the constituent’s answer to a question determines the next question or course of action. Information of business processes and procedures used by the various local government departments to complete work orders is collected and documented in order to develop scripts for the customer service agents to follow when talking to citizens, in addition to enabling the creation of accurate forms for service requests (Fleming, 2008a: 21).

311/CRM strategy must seek to reduce the average cost-per-call to maintain its viability as a cost containment tool (Fleming, 2008a: 37). A popular means for limiting the cost-per-call is interactive voice response (IVR) menus that precede contact with a live operator. This system can expedite the call to the appropriate person or provide information through an automated system (Reddick, 2010).

311 contact centers can be combined with telephony technologies such as touch-tone dialing menus or voice recognition to gather more customer information before they interact with a call-taker. This technology can also be used to route callers to the call-taker most skilled in handling a particular type of inquiry (Kavanagh, 2007).

When inquiries must be escalated beyond the initial call-taker, workflow technology tracks the call and helps ensure a seamless experience for the constituent
through the hand-off. Workflow can be particularly useful with e-mail contacts as it can be used to sort and direct e-mails to the most appropriate person (Kavanagh, 2007).

Work-order management orchestrates the work needed to deliver service after a request has been made through a contact center (Kavanagh, 2007). Work-order management systems help manage and organize projects and assignments (Fleming, 2008a: 4). Managers use such systems to assign projects to staff members, who then use the systems to make notes, report on progress, track hours worked and resources used, and finally close out a project when it is finished. When a link is created between a local government’s central 311/CRM system and the work-order management systems that exist in local government departments, the “handshake” between the two systems enables information to be easily shared. When a service request comes in from a citizen, the 311/CRM loads the request into the work-order management system, where a department manager can determine its priority in relation to other tasks in the system. Likewise, information from the work-order management system feeds back to the 311/CRM system, allowing 311 call center agents to respond to citizens when they ask about the status of a service request.

Most government organizations define their jurisdiction by a certain spatial boundary. This means that 311 systems must be location-centric and tightly integrated with Geographic Information System (GIS) data and functionality. GIS mapping is very common with 311 systems where local governments can look spatially for locations of problems to identify solutions (Reddick, 2010). This allows visual representation (e.g., maps) of service areas and contacts, which is essential for tasks such as giving directions and identifying government facilities proximate to the constituent. GIS can also
incorporate various layers that overlay buildings and infrastructure (e.g., sewers, drains, utility lines, etc.) that may be helpful in identifying the type of response needed. GIS integration is an important component of CRM business intelligence; the ability to consolidate call data and relate it to spatial information allows recognition of patterns and issues that otherwise might not be readily apparent (Kavanagh, 2007).

While telephone is the most favored means of communicating with government, other channels remain important as well. The use of Web and e-mail continued to increase. Walk-in service may remain especially important in some communities. A 311 contact center should ideally accommodate multiple methods of access and maintain consistency of information across each channel.

2.2.2. Customer service representatives

A person who answers the call is a live person—not a recording—who has been trained intensively in customer service and can assign a government employee to respond to the problem (Peisner, 2006). With consideration of his or her role for customer services, previous studies use the term “customer service representative” (CSR) or “customer service agent” (CSA) instead of simply a call-taker (Fleming, 2008b; Schellong, 2008). 311 CSRs are government employees who open the door to local governments (Fleming, 2008a: 9). They give citizens an immediate impression of their local government and the values it holds. They help citizens identify their needs, articulate their problems, and better understand administrative processes. They are also ambassadors for many city agencies, taking calls from citizens who may actually never contact the operating department for service (Tumin & Wasserman, 2008: 5). Where
CSRs or service delivery falters, the reputation of the 311 contact center, as well as city government as a whole, may suffer. Good call center staffs must be courteous, concerned, pleasant, knowledgeable, and helpful, and demonstrate a willingness to address citizens’ issues. CSRs for 311 contact centers should be well trained in customer service behavior and act as advocates for the citizen (Schellong, 2008: 130).

A universal CSR is central to successful inquiry response (Kavanagh, 2007). The CSR is capable, with the support of the right processes and technology, of resolving inquiries across a broad range of subject areas. While the 311 CSRs are trained to serve as comprehensive information resources for the city, it would be unrealistic to expect them to be intimately familiar with the workings of all departments (Fleming & Barnhouse, 2006). Therefore, one of the key features built into the system is access to a well-described script provided by the departments that deliver the services.

Fleming (2008a: 47) emphasizes the importance of hiring the right staff for the right job in 311 contact centers. However, the reality is that there are challenges to staffing and training. Fleming’s (2008a) report based on multiple case studies reveals that internal hiring would also remove some top-notch customer service employees.

In practice, not all conversations between citizens and CSRs are benign (Fleming, 2008a: 51). Some conversations with unhappy citizens can be intense and draining for CSRs, and job burnout often happens in the work environment (Fleming, 2008a: 9). Citizens who feel passionately about a project, topic, or some other issue or concern can become quite outspoken and upset. Any call center that has walk-in traffic should have some way to address this situation. CSRs should have some training in how to deal with
difficult customers and how to respond to situations that could escalate to emergency level, especially at kiosk/walk-in centers (Fleming, 2008a: 51).

2.2.3. Interorganizational collaboration processes

Coordinating the information needed to support CSRs requires a process for communication and collaboration with line departments in order to make available the most up-to-date information. The process involves establishing a service level agreement (SLA), which refers to “an agreement between the provider of a service and its customers which quantifies the minimum quality of service which meets the business need” (Hiles, 1994: 14). It is also considered simply a formal contract between a service provider and its customers (Goo et al., 2009). According to these definitions, “customers” refers to other departments and agencies that share internal services within the same jurisdictional government; thus, this study distinguishes between usage of the term “customers” of frontline services (usually citizens and businesses) and actual partners/collaborators (city departments and agencies). To avoid confusion in using the term “customer,” this study refers to frontline service users as customers of a 311 contact center, while other departments and agencies (internal customers) are considered collaborators.

SLAs require a city department to respond to a service request within a specified timeframe as defined by allotted time for completion of tasks (Fleming, 2008a: 21). Having SLAs enables CSRs to inform citizens when they can expect work to be completed or service requests fulfilled.

A 311 non-emergency contact center (a customer service organization that receives requests for frontline services) is integrated with service delivery agencies
(agencies that actually deliver the requested frontline services to customers) through written SLAs that codify each function with the timeframe for service completion. SLAs provide service standards that are measurable and can be used to support accountability (e.g., response times). For instance, in one city, a residential property that is not being maintained must be investigated by a particular department within forty-five days. A dead animal on the street must be removed in three days and an abandoned vehicle within thirty days. In general, if a specific department has agreed in its SLAs to deal with a citizen’s service task in X number of days, the customer should be informed of that service standard. The department is held accountable to complete the service in that amount of time or provide information back to 311 as to why the service could not be completed in the agreed-upon amount of time.

In addition to the process of creating and modifying SLAs, collaborative processes on the intra- and inter-organizational level form the foundation of CRM. Open knowledge management and performance measurement processes result in collaborative and informed resource allocation geared toward coordinated cross-functional citizen interactions (Schellong, 2008: 139).

2.3. Capabilities built by 311 non-emergency contact centers

Tumin and Wasserman (2008) present key capabilities delivered by 311. The capabilities include customer service, platform dedicated to citizen mobilization and engagement, analytics that guide organizational management (performance reviews and budget decisions), consolidations (shared services, multi-jurisdictional integration, and the merge with 211- and 911-related functions), and support of the authorizing
environment. A collection of case studies discusses the overall influence of those capabilities on city governments, government-citizen relationships, and service delivery.

2.3.1. Customer service tool

In response to an increased demand for quality customer service, municipal and county governments are implementing 311 contact centers (Holzer et al., 2006). Centralized customer service systems offer the opportunity for residents to make their needs known at any time and to receive information back about the status of their requests.

Before implementation of the 311 system, citizens had to guess which department they should call with a service request, navigating through a long directory of city government phone numbers (Fleming & Barnhouse, 2006; Holzer et al., 2006). They found themselves in a maze trying to get the right person to resolve a problem. When citizens tried looking in the phone book to find the right department, they were faced with dozens of entries and phone numbers that might not be staffed during business hours. Callers could be bounced from phone call to voice mail to another phone call redirecting them to another department’s voice mail. That situation was an “infinite loop” (Fleming, 2008a: 46).

Some citizens called their favorite city councilor instead of navigating the phone book. Councilors found themselves burdened with dozens of requests, which led them to make a phone call to or visit service agency staff on behalf of the citizen, placing councilors in the middle of a conversation or situation that logistically should have been handled between staff and the citizen. Such a three-way conversation was required for
every problem to be resolved, which was inefficient and frustrating. This generated a false sense of obligation on the councilor’s part to follow the solution through to the end (Fleming, 2008a: 46).

By contrast, the 311 system serves as a central point at which to contact the city with a request and to be assured that the request will be addressed promptly. With 311, residents and businesses no longer have to play “blue-page roulette,” where they are forced to guess the correct municipal phone number to address their question or problem (Eichenthal, 2010; Tumin & Wasserman, 2008). The feedback about the status of a request is a significant customer service advantage because it makes a difference; the customer is connected, not left wondering whether or when the problem will be fixed. The systems enable local governments to identify recurring problems, leading to efficiency in repairs and problem solving. Superior service enabled by 311 means shorter wait times to contact government representatives, less frustration in finding the required services, outcomes that are delivered when promised, and ultimately greater constituent satisfaction (Kavanagh, 2007; Reddick, 2010; Tumin & Wasserman, 2008).

2.3.2. Citizen engagement platform

Phelan’s (2010) case study of Cupertino views 311 as the first step in citizen engagement. While providing excellent customer service is one of primary reasons for implementing 311 systems (Reddick, 2010), the systems can also be instrumental in engaging citizens and increasing their involvement in community. 311 systems make it easy for citizens to become involved in their community by simply picking up the phone to report a problem. Citizens provide their local knowledge, which can improve an
administration’s management (Schellong, 2008: 137). Once a person sees how reporting a problem can impact the neighborhood—for example, removing graffiti from a local park or cleaning up a vacant property—he or she might be inspired to become involved in improving neighborhoods (Phelan, 2010). With 311, citizens can see how they make a difference in the quality of life in their community. Citizens who frequently comment and participate allow elected officials to better understand the needs of their constituency and thus help them increase the likelihood of their getting reelected (Schellong, 2008: 137).

Tumin and Wasserman (2008: 11) claimed that every citizen is a sensor for 311. Historically, the reporting of community problems has been dependent on citizens using landline telephones to report potholes, abandoned cars, and the like. Carrying cell phones—especially smart phones—which are geospatially enabled, every citizen can now instantly report broken hydrants, fountains, or benches to the 311 non-emergency contact system, while strolling in parks, for example, or along roadways (Tumin & Wasserman, 2008). Records may be made of the precise location in need of service.

Citizens have the opportunity to offer advice and consultation to public authorities through 311. Administrators commit themselves to receiving an aggregated as well as individual form of input (Schellong, 2008: 140). 311 allows anyone, even those who do not have citizenship (e.g., tourists, illegal immigrants), to participate in providing civic input. In the profile of 311 users, lower socioeconomic groups tend to be overrepresented because they encounter more quality-of-life issues in their area of residence (Schellong, 2008: 140).
2.3.3. Performance management system

The implementation of a 311 program enables local governments to collect a wealth of data on what services citizens request most, which neighborhoods want what services, how long it takes to complete tasks, and more (Fleming, 2008a: 7). 311 also functions as a proactive management tool to help analyze the patterns of service requests (Holzer et al., 2006). When integrated with a comprehensive performance measurement program, these data provide important benchmarks to help local government officials assess how well their organization is doing in providing services to citizens in a timely manner. Periodic review of a department’s success rate at meeting its SLAs offers managers the opportunity to examine trends in service provision, assess whether existing processes are working, and determine if additional resources are needed, among other considerations.

In many cities with 311 systems, departmental performance is reviewed in PerformanceStat—a.k.a CitiStat or the name of a city plus “-Stat” (Behn, 2005, 2006, 2008)—where city government can track the performance of requested service delivery against SLAs. PerformanceStat is a regular forum to help departments assess service delivery, monitor progress in completing objectives, and determine opportunities for service improvement. The standards described in SLAs hold government accountable to the performance data and statistics provided by a 311 system. This review process can also help with establishing reasonable SLAs, which are a commitment by responding agencies and departments to the length of time they will take to respond to and resolve service requests (Fleming, 2008a: 4). The documentation and review is time-consuming, but can help identify duplication of effort, never-ending loops, and potential bottlenecks.
to achieving SLAs. In many cities, an SLA that is not being met 90 percent of the time under normal operating conditions triggers further review by city management to determine what is preventing the delivery of services and why (Fleming, 2008a: 7).

Tracking location information is vital to the effectiveness of a 311 system. The majority of requests for service involve an address (Fleming, 2008a: 56). If a citizen has a question, requests a document, or wants to express an opinion on an issue, CSRs may record his/her home address as part of processing the request. Tracking and analyzing location data is particularly desirable for elected officials who want to know what is happening in their specific district. Location data are enhanced by advanced GIS capabilities, whether built into or integrated with a 311/CRM system, which provides a visual analysis of the data. In addition to helping validate addresses for service requests within a jurisdiction, a GIS can present the data mapped out in a manner that allows for analysis at a glance. A map with points for specific request types, by completion status or other descriptors, allows highly complicated data to be simply displayed and easily understood. With address databases built into CRM systems, performance data can be reported based on zones, village boundaries, or council districts within a local government’s jurisdiction.

2.3.4. Consolidator

The consolidation of 311/CRM involves four components: shared services, multi-jurisdictional integration, incorporation of social services (211) into 311 services, and back-up for emergency services and public safety-related services (911). Table 12 summarizes the consolidation of 311 with customer services for other departments and
jurisdictions, 211 services, and some 911-related services. 311 non-emergency contact
centers may not involve all four types of consolidation, but the creation of shared service
capabilities represents a common consolidation across all 311 centers.

Table 12. Consolidations through 311

<table>
<thead>
<tr>
<th>Consolidation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shared services</td>
<td>Integrating individual department or agency call center operations and</td>
</tr>
<tr>
<td></td>
<td>building a centralized information system</td>
</tr>
<tr>
<td>Regionalization</td>
<td>Integrating 311 systems across multiple adjacent jurisdictions into a</td>
</tr>
<tr>
<td></td>
<td>single system</td>
</tr>
<tr>
<td>211 social services</td>
<td>Integrating 211 social services provided by nonprofits into 311 services</td>
</tr>
<tr>
<td>911 emergency and public safety services</td>
<td>Integrating functions of emergency management and law enforcement into 311</td>
</tr>
<tr>
<td></td>
<td>services</td>
</tr>
</tbody>
</table>

Tumin and Wasserman (2008: 2) view 311 as a budget-trimming, shared-service consolidator. 311 can be a cost-saver for jurisdictions by means of integrating individual department or agency call center operations and overlapping service delivery. CRM technology has the ability to integrate the customer service function into a centralized information system (Reddick, 2011: 347). This technology may reduce or eliminate the need to have separate customer service functions in individual departments. According to Tumin and Wasserman (2008: 7), the capabilities for shared services made possible by 311 contribute to city government in three main ways: efficiency, standardizing services, and structuring as an enterprise. Additionally, 311 can facilitate cross-agency collaboration (Kiviat, 2005; Schellong, 2008: 143). Because citizens expect 311 to provide all kinds of government information, involved departments and agencies have to work together on a unified knowledgebase (Schellong, 2008: 133). However, as a shared service organization, 311 contact centers face certain challenges. With some agencies
“on” the 311 shared service platform (a call center, web) and others “off,” governments miss out on opportunities for cost savings and performance accountability (Tumin & Wasserman, 2008: 12). Also, consistency and a uniform customer experience may be compromised when 311 shared service platforms vary between “on” and “off.” When the jurisdiction acquires new partners or moves agencies onto the 311 platform, common concerns include complexity, conflict, and confusion (Tumin & Wasserman, 2008: 12).

Consolidation also involves integrating 311 systems across multiple jurisdictions. Non-emergency service calls break traditional boundaries between government units, departments, and agencies to provide seamless government to all citizens (Hsieh, 2009). 311 is not limited to a single municipality. It has broadened its reach by regionalizing.

With the success of 311 system deployments at the municipal level, broader jurisdictional applications are being considered possibly extensible to the state level (Holzer et al., 2006). The existing large city models may provide the needed insight to accomplish uniform customer service to broader jurisdictions. Perlman (2008) offers some examples—currently seven county-city joint service areas. The City of Sacramento and Sacramento County are moving toward regionalization informally and incrementally. The City of Charlotte administers the 311 system for both the city and Mecklenburg County. CharMeck311 has been operating since 2005. The City of Minneapolis operates its 311 center but would like neighboring cities to come on board. Miami-Dade County’s 311 provides its services to 35 municipal governments. Important for a joint 311 service is a formal service agreement among the participating governments. Regional 311 is the sensible and economical way to go. However, despite Miami-Dade County’s success, regionalization of 311 proves daunting for most city-county partnerships. Neighboring
jurisdictions often wrestle with major technological and turf issues, such as integrating and sharing data (Perlman, 2008). Governments may remain territorial and resistant to other jurisdictions’ ideas (Peisner, 2006).

For further consolidation of 311, information and services provided by 311 systems are increasingly including social services. A representative case is consolidation with 211, which is an information/referral line that provides callers with information about human services and community information (Eichenthal, 2010: 3). New York City is an example. In November 2006, Mayor Bloomberg publicly proposed a consolidated 311 and 211 system. Information and referral services provided by NYC311 include senior services, food assistance, domestic violence counseling, summer meals for youth, family health care, and youth employment. Eichenthal (2010: 5) suggests some reasons for the consolidation of 211 into 311. The first and primary rationale is convenience for citizens. Members of the public do not care who provides the service or answers their question; they just want their need met or a service delivered. Consolidation would eliminate the need for the public to remember when to call 311 as opposed to 211. Residents from low- and moderate-income communities are among the most frequent callers of 311. These residents are also the most likely to seek social services. Many individuals calling 311 are the same individuals calling 211. Second, greater consolidation and collaboration through the sharing of data would also allow for a clearer and more comprehensive understanding of a locality’s needs. Third, the same economies of scale available through the integration of multiple call centers into a centralized 311 or unified call center would seem to apply to consolidation or coordination of separate 311 and 211 systems (Eichenthal, 2010: 5). Fourth, collaboration would allow for joint
marketing efforts to make clear to the public the differences between the two systems, just as many cities have sought to do in advertising campaigns that distinguish when to call 311 and when to call 911. Last, coordination between social and municipal services would prove essential when communities are forced to respond to disaster.

Finally, the 311 program supports the emergency management functions of 911. 311 was originally implemented as a way to alleviate 911 of the burden of non-emergency calls and free up officer time to engage in problem-oriented policing activities (Mazerolle et al., 2003; Schellong, 2008: 124). 311 is gaining attention for its role as a safety and disaster resource (Reddick, 2010; Tumin & Wasserman, 2008: 2). Based on the scalability of 311, government agencies are able to manage a continuous rise in information demand before, during, and after a disaster (Schellong, 2008: 133; Schellong & Langenberg, 2007). 311 allows jurisdictions to direct information during crises to the exigencies of the moment. The data from citizens and government employees provide emergency managers with crucial information that allows them to monitor events and make decisions on effective emergency response measures. Importantly, 311 tackles the issues 911 does not handle. Ongoing problems with non-emergency crime issues, such as drugs and prostitution, can erode a community’s perception of public safety (Fleming, 2008a: 2). In these situations, citizens have become the eyes and ears on the street to alert law enforcement about community issues. Tracking and investigating criminal activity based on calls and reports from citizens allows local law enforcement to identify patterns in criminal behavior and catch criminals in the act. In this way, 311 is considered one way to facilitate community policing (Mazerolle et al., 2003; Schellong, 2008: 124).
2.3.5. The authorizing environment

Interestingly, many elected officials (commissioners, alderman, and council members) in most cities were skeptical or even opposed to the 311 projects in the beginning (Schellong, 2008). Given that 311 implementations were capital budget projects, elected officials were concerned about the costs and about prioritizing them against spending in areas such as education. They may have feared losing contact with their constituency as a result of CRM activities. Indeed, citizens’ calls to their offices decreased (Schellong, 2008).

However, 311 enables a new role for city councilors (Tumin & Wasserman, 2008: 8). 311 offers elected officials the opportunity to conduct “visible politics” which allows them to justify their role in policy making. With 311 systems, elected officials can keep track of their policy initiatives and use hard facts when communicating with the media or citizens (Schellong, 2008: 133). In addition, councilors have a role in bringing 311 data to light in arguing for improved services to neighborhoods. Providing reports to councilors helps them in this role.

2.4. Summary

2.4.1. Public values delivered by 311 non-emergency contact centers

A 311 program or 311 non-emergency contact center may mean different things to different cities, depending on their needs (Peisner, 2006), but there is a common set of public values delivered by 311. According to Reddick (2010), a 311 non-emergency contact center is thought to change the organization in various ways by creating a more transparent, more accountable, more efficient, and more effective government.
In many cities, a 311 program results in greater transparency about citizen demand, which was formerly either not tracked because there was no process or technology in place, or because it was hidden in departmental silos (Schellong, 2008: 132). The program can seamlessly integrate all behind-the-scenes functions and processes to address constituents’ needs in a timely and responsive manner. According to Tumin and Wasserman (2008), a 311 contact center serves as “a transparency machine for managing government” (p. 2). Citizens are aware of agency operations in delivering services requested. A 311 system helps leaders understand the true cost of services delivered by departments.

The 311 program is a tool of government accountability and responsiveness (Schwester et al., 2009). Complaints and comments from citizens help everyone in holding public administration accountable. The performance measurement and management activities that utilize citizen and departmental data have a role in improving internal (to the top management, executives, department heads, and elected officials) and external (to citizens and other stakeholders) accountability.

Shared service capabilities created by 311 non-emergency contact centers streamline overlapping functions of government departments and agencies. The more services that can be brought on, as appropriate, the greater the potential efficiencies (Tumin & Wasserman, 2008: 7). 311 contact centers help standardize services across departments and agencies, and structure the shared service enterprise, thereby reducing duplicated efforts, decreasing operation costs, and gaining more efficiency (Peisner, 2006).
311 systems allow government departments and agencies to more effectively address their core functions. Practices indicate that 311 systems are ideal in terms of gathering performance data relevant to government service delivery (Holzer et al., 2006). Data collected via 311 is fed into CRM systems, thereby allowing city officials to utilize that data to make better-informed strategic decisions on how city resources should be deployed and how services could be more effectively managed. According to Schellong (2008: 132), 311 systems lead to the change from guesstimating what is happening in the department and its area of responsibility to accurately estimating performance based on data. Issues and service requests are also made visible on maps and cross-referenced with other information.

Another benefit of 311 systems is the capture and strategic use of data as a tool to allow government officials to measure average response time. Categorizing the types of calls and requests, along with response times, allows government to set performance standards within a department or agency and provide citizens with realistic expectations as to when a complaint will be addressed, when a problem will be solved, or when a service will be rendered.

2.4.2. Viewing 311 non-emergency system as service integration

311 non-emergency systems can be seen as service integration capabilities from the four theoretical perspectives of service integration. Table 13 puts the findings of previous 311 research into theoretical categories (Table 6) derived from the review of service integration literature. 311 non-emergency contact centers can create capabilities
of human service integration, capabilities of e-government integration, capabilities of citizen-centric service delivery, and capabilities of shared services.

Table 13. Service integration capabilities made by 311

<table>
<thead>
<tr>
<th>Perspective</th>
<th>Back end</th>
<th>Front end</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human service perspective</td>
<td>Consolidation and collaboration with 211</td>
<td>Social services provided by 311</td>
</tr>
<tr>
<td>E-government perspective</td>
<td>Interorganizational integration of information and services for the 311 Web services</td>
<td>311 Web services through one stop shop</td>
</tr>
<tr>
<td>Citizen-centric service perspective</td>
<td>Seemless multi-channel, multi-jurisdictional (or regional) delivery of services</td>
<td></td>
</tr>
<tr>
<td>Shared service perspective</td>
<td>Customer services shared by multiple departments on SLAs</td>
<td></td>
</tr>
</tbody>
</table>

From the human service perspective, some 311 non-emergency service centers consolidate and collaborate with 211 social service organizations. Interorganizational collaboration between 311 and 211 allows a 311 service center to provide information about social services and receive requests for those services. From the perspective of e-government, the 311 online portal functions as a one-stop service center for citizens. The back office operation entails complicated efforts for integrating information and services across departments and agencies involved in SLAs. Interorganizational integration may involve two different contexts such as interdepartmental (cross-functional within the same jurisdiction) and multi-jurisdictional (across different neighboring jurisdictions) consolidation. From the citizen-centric service perspective, 311 is considered a more efficient and effective tool for seamless multi-channel and multi-jurisdictional delivery of citizen services. From the shared service perspective, call center operations are integrated into a shared service organization (311 non-emergency contact center) to save costs and
reduce duplicated efforts by creating shared back-office capabilities (customer service representatives and platforms).

2.4.3. Gaps in the literature

Three gaps in the existing literature of the 311 program are identified. First, while most research comes from practical reports, there are few academic studies on the program (Reddick, 2008, 2010; Schellong, 2008; Schellong & Langenberg, 2007). Despite its importance as a timely topic for scholarly research, 311 as a government program for municipal service consolidation has been understudied in the discipline of public administration and management. This study aims to make a theoretical and research contribution to the disciplinary field of public administration and management.

Second, the literature of the 311 program chiefly underscores technology (311/CRM)-driven transformation of city government and changes in citizen-government relationships. Since CRM is integrated into 311 systems, the impact of 311/CRM on government merits attention. CRM is emerging as a relatively new sub-field of scholarly research and comprises considerable potential for both theoretic and empirical research (Schellong & Langenberg, 2007). However, there is a gap in the examination of various aspects of 311 non-emergency services. Although some studies explore the managerial, organizational, and cross-organizational impacts of 311 functions, main arguments lie in the pivotal role of CRM technology in creating those impacts. Social impacts of the technological system have been studied to a limited extent, but the 311 non-emergency contact center as an agency of municipal government has not received much attention from researchers. It is significant to note that 311 denotes not only a CRM system or non-emergency service toll-free number, but also an organization and public agency.
Therefore, this study takes a more balanced sociotechnical view of 311 non-emergency contact centers.

Finally, while most studies have focused on the impacts of 311 non-emergency contact centers on city government and customer services, the questions of how the 311 program builds service integration capabilities and what influences the creation of the capabilities, have not been addressed. Thus, despite the presence of some function-oriented findings in research of the 311 program, a closer look is yet to be taken at service integration processes of 311 contact centers. Recognizing the research gap, this study explores the processes and then suggests process-oriented implications as a result of inductive research.

To fill these gaps in the literature, this study raises the research question, using 311 contact centers in New York and Philadelphia as cases: *How are municipal service integration initiatives understood and implemented in different cities?* More specifically, the study addresses the following two inquiries: 1) *How do city governments integrate critical city services?*; and 2) *What influences city-level service integration and what is the nature of that influence?*
CHAPTER 3. RESEARCH DESIGN AND METHODS

This chapter presents the research design and methods of data collection and analysis. The chapter is structured into four sections. First, the overall process of research is outlined. Second, the details of the case study method are described. The third section discusses how the quality of this research can be evaluated, how the methodology employed in this research addresses research questions, and the contribution of triangulation in enhancing the quality of research. Finally, ethical concerns are discussed.

1. Overall research design

A comparative case-study approach is employed for the study of 311 non-emergency contact centers in New York City and Philadelphia. Focusing on the two cases of service integration instantiated as 311 contact centers, this empirical study explores similarities and differences between the selected cases. The methodological nature of the study is inductive in that it does not intend to examine findings and arguments from the previous literature (deductive), but rather, it aims to suggest a theoretical (grounded in qualitative rich data) framework and theoretical perspectives for better understanding of service integration capabilities facilitated by 311 contact centers. The framework is constructed as a result of the analysis. It is ultimately useful as a theoretical foundation for further empirical research of service integration.

The process of both case selection and data collection was conducted as part of the multinational research project titled “Smart Cities Service Integration,” which is a
comparative case study of service integration initiatives at seven cities around the world—New York, Philadelphia, and Seattle in the United States, Quebec City in Canada, Mexico City in Mexico, and Macao and Shanghai in China. The dissertation is distinguished from the multinational project in two aspects. First, the logic of reasoning is different. The project aims to draw a framework of smart city research from the generalization across various cases: for example, the social services integration project (AngelNet) in Mexico City, the open data initiative in Quebec, and integrated and interoperable geo-data systems in Seattle. In contrast, the dissertation seeks to provide deeper insights into and context-dependent knowledge about the consolidation of both front office and back office services. Second, the project takes a close look at the impacts of smart city initiatives on the city and the city government, while this study focuses on how the city government creates service integration capabilities. The project also explores how the term “smart city” is perceived and what a smart city means to the city and the city government by aligning the impacts of smart city initiatives with various public values such as efficiency, effectiveness, openness, transparency, accountability, sustainability, and so on. This study, in contrast, is process-focused rather than impact-focused.

In this study, rich in-depth data were collected through semi-structured interviews with individuals who are in charge of or involved in 311 center management and operation in New York and Philadelphia. The qualitative data gathered from semi-structured interviews are analyzed with an inductive approach using a grounded theory technique to develop theoretical patterns and frameworks.
Figure 1 illustrates the overall process of this empirical research. Multiple cases are selected with certain rationales. Then interviewees with sufficient knowledge of 311 centers are selected as key informants. Questions to be asked in semi-structured interviews are derived from the preliminary understanding of the literature review section (see Table 7). The two cases are separately analyzed and then compared. This inductive research process ultimately creates a framework to understand the creation of service integration capabilities at 311 non-emergency contact centers.

2. Case study methodology

2.1. Rationale for case study methodology

Case study methodology is an appropriate approach to exploration, classification, and hypothesis development (Akbulut et al., 2009; Benbasat et al., 1987). Case study methodology is also favorable when contemporary events over which the investigator has little control are investigated. According to Yin (2009), the methodology is appropriate when the research goal is to understand the “whys” and “hows” of the occurrence of a set
of events. Since this study highlights how 311 non-emergency contact centers create service integration capabilities and why certain factors influence the process by which 311 non-emergency contact centers create service integration capabilities, the case study method fits the research goals of the study.

According to Flyvbjerg (2006: 224), one misunderstanding about case study research is the simplistic belief that theoretical (context-independent) knowledge is more valuable than concrete, practical (context-dependent) knowledge. Where predictive theory or universals do not exist, context-dependent knowledge is more valuable than the vain search for predictive theory or universals (Flyvbjerg, 2006). In Yin’s (2009) view, case study research helps develop preliminary concepts and build a new theory. Given the still emerging nature of 311 systems, case study methodology is an appropriate approach to conducting this exploratory, inductive research. The inductive approach is usually associated with qualitative research (Bryman, 2008).

This study analyzes multiple cases and thus is characterized as a collective case study, which refers to a collection of multiple case studies to investigate a general phenomenon (Stake, 1995, 2006). Such a multi-case study has an advantage in generalization (Yin, 2009). This study can be characterized as empirical research that investigates a general phenomenon across different contexts with empirical evidence. For the study, the two cities are considered as different contexts where 311 service centers are operated.

This study investigates comparable and contrasting situations across different 311 contact centers. A comparative design is considered an extension of a case study design (Bryman, 2008). According to Bryman (2008), the research design is to analyze multiple
(two or more) contrasting cases using identical methods in order to better understand the social process. A multi-case study can improve theory building by comparing two or more cases to establish the circumstances in which a theory will or will not hold (Yin, 2009). Each case is developed in its own context and thus cases should be analyzed by systematic comparison (Ragin, 1990).

With regard to comparative studies in the field of public administration, the goal of comparative research design is to identify and compare the problems encountered by different governments in attempting to implement a particular solution or service while paying attention to the specific cultural context (Heady, 2001; Riggs, 1991). Comparisons are usually associated with descriptive accounts of similarities or differences in organizational arrangements (Eglene & Dawes, 2006; Geva-May, 2002).

Figure 2. The types of case study research

This research is characterized as a *multiple-case holistic study*—as shown in the upper right corner of Figure 2. For the research, each individual case study consists of a “whole” study, in which facts are gathered from various sources and conclusions drawn on those facts (Yin, 2009). Each case has a different context where a phenomenon is explained (multi-case study), and the multiple cases are analyzed with a single unit of analysis (holistic study)—a 311 non-emergency contact center for this study.

### 2.2. Case selection

According to Bryman (2008), a case for research needs to be chosen when it is critical, unique, revelatory, or exemplifying. The selected case needs to provide a suitable context for the research questions to be answered and allow a researcher to examine key social processes. In that sense, selecting appropriate cases is critical to a case study. Flyvbjerg (2006) suggests strategies for the selection of samples and cases. In his view, qualitative case studies should employ an *information-oriented* selection approach rather than a random selection approach. Among the four types of information-oriented selection suggested by Flyvbjerg (2006) (i.e., extreme/deviant case selection, maximum variation case selection, critical case selection, and paradigmatic case selection), this study is characterized as a critical case selection, wherein the logic is “if this is (not) valid for the case, then it applies to all (no) cases” (p. 230). The critical case selection approach is to achieve information that permits logical deductions.

For this research, the 311 non-emergency contact centers of New York City (NYC311) and Philadelphia (Philly311) are selected as cases for logical deduction. Among many 311 contact centers across the country, these two organizations are worthy
of comparative research because of their meaningful differences. For a comparative case study, selected cases for research should be similar in some aspects, but significantly different in other aspects. The two cases and contexts have substantial differences from each other. For example, NYC311 is the largest system among current 311 contact centers in the United States. It serves a huge number of residents, businesses, and visitors in the largest city of the country. Philadelphia is the fifth biggest city in the country, but its 311 contact center was launched relatively late compared to other metropolises. The two 311 contact centers started with different motives (cost reduction for NYC311, and anti-corruption strategy and customer service improvement for Philly311), and both centers have evolved in different ways since the launch, while main functions and missions remain similar in both centers. Chapter 6 will explore in detail the differences between the two cases.

How 311 non-emergency services are used for city government and management may also vary with the larger context of a city. As Table 14 shows, the two cities have different conditions for 311 operation. These conditions are expected to influence the operation of 311 contact centers to some extent. For example, call volumes and workloads are proportional to the size of the population and the city area. The nature of requested services and information may vary with economic and demographic conditions of the cities. Since 311 often receives crime-related calls, crime rate is also one of the key conditions in determining the quantity of call volumes and the category of services requested. There is also a difference in the form of government. Both cities are characterized as the mayor-council type, but the elected mayor of Philadelphia appoints a professional city manager (called the managing director) so that the city’s system is
considered a hybrid between mayor-council and council-manager. This study does not examine the possibly systematic association between these facts and 311 center operation, but instead, the differences in the conditions that may influence city-level service integration are considered contextual variances across research cases.

<table>
<thead>
<tr>
<th></th>
<th>New York</th>
<th>Philadelphia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year that 311 was launched</td>
<td>March, 2003</td>
<td>December, 2008</td>
</tr>
<tr>
<td>Population of the city only</td>
<td>8,175,133 (1st in US, 19th in the world)</td>
<td>1,526,006 (5th in US)</td>
</tr>
<tr>
<td>Population of the metropo-</td>
<td>19,750,000 (1st in US)</td>
<td>5,965,343 (5th in US)</td>
</tr>
<tr>
<td>politan statistical area</td>
<td>(a)</td>
<td>(a)</td>
</tr>
<tr>
<td>Population density</td>
<td>27,016</td>
<td>11,379</td>
</tr>
<tr>
<td>(people per square mile)</td>
<td>(a)</td>
<td></td>
</tr>
<tr>
<td>Area (a)</td>
<td>302.6 square miles</td>
<td>134.1 square miles</td>
</tr>
<tr>
<td>City-level gross domestic</td>
<td>$1,406 (2nd in the world, as of 2008)</td>
<td>$388 (9th in the world, as of 2008)</td>
</tr>
<tr>
<td>product (GDP) per capita</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median household income</td>
<td>$50,000</td>
<td>$37,045</td>
</tr>
<tr>
<td>Estimated per capita income</td>
<td>$30,885</td>
<td>$21,661</td>
</tr>
<tr>
<td>ACCRA Cost of Living Index</td>
<td>161.8</td>
<td>104.7</td>
</tr>
<tr>
<td>(compared to US average 100)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crime rate</td>
<td>2,242 (as of 2009)</td>
<td>4,850 (as of 2009)</td>
</tr>
<tr>
<td>(crimes / 100,000 people / year) (b)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Racial composition</td>
<td>Asian (11.9%); Black (23.0%);</td>
<td>Asian (5.6%); Black (41.4%);</td>
</tr>
<tr>
<td>(a)</td>
<td>Hispanic (27.6%); White (35.3%)</td>
<td>Hispanic (11.7%); White (39.5%)</td>
</tr>
<tr>
<td>Level of education for age</td>
<td>High school or higher (72.3%);</td>
<td>High school or higher (71.2%);</td>
</tr>
<tr>
<td>25 or older (b)</td>
<td>Bachelor or higher (27.4%)</td>
<td>Bachelor or higher (17.9%)</td>
</tr>
<tr>
<td>Form of government</td>
<td>Traditional mayor-council type</td>
<td>Mayor-council plus professional city manager (hybrid)</td>
</tr>
</tbody>
</table>

Source: (a) 2010 US Census; (b) 2011 data from www.city-data.com; (c) http://en.wikipedia.org/wiki/List_of_cities_by_GDP; (d) http://www.coli.org/.
2.3. Sampling of interviewees

The unit of analysis in this study is an individual 311 non-emergency contact center, but the unit of observation is an individual person in the city government agency. In order to identify relevant interviewee candidates, purposive sampling is employed. Because of the relative newness of the research theme, purposive sampling is required to identify and target individuals who could provide important information for understanding the social phenomenon (Floersch et al., 2010). This sampling method is employed in selecting information-rich cases to conduct an in-depth study (Wengraf, 2001) and grounded theory-based research (Morse, 2007).

As initial informants, directors of 311 contact centers were asked to recommend other individuals who have sufficient information and knowledge of various 311 operational aspects such as technology, management and organization, cross-organizational governance, institutional arrangements, and contextual environment, which were found in the literature review of service integration. The selected individuals included those from various functional teams, at different levels, and with different professional backgrounds, in order to gain a variety of perspectives on the case.

<table>
<thead>
<tr>
<th></th>
<th>New York</th>
<th>Philadelphia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Executive level</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>311 contact center staff</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>Individuals from other agencies</td>
<td>4</td>
<td>10</td>
</tr>
</tbody>
</table>

Interviewees who were identified through this purposive sampling process include executive-level officials, 311 staff (managers in different functions), and representatives of other departments related to 311 operation. The sampling resulted in 17 people in
Philadelphia and 12 people in New York. Table 15 describes the composition of interview participants.

2.4. Data collection procedures

Primary data was collected through in-depth interviews—interviews with three individuals were conducted by phone, and the remaining 24 were interviewed face-to-face—in December, 2011, for Philadelphia and in April, 2012, for New York City, and more information was gathered through follow-up communication with the interviewees. All interviews were conducted in a semi-structured way with two interviewers (the author and another researcher) to minimize individual bias. Each interview lasted 60 to 90 minutes. Interviewees were first briefed on the background of the research and provided with information outlining the semi-structured interview. The semi-structured method has the flexibility to follow up on new information presented in the context of an interview and to explore new findings in depth. Questions that were asked in the interviews followed the general format of the interview protocol, but the sequence of questions could vary during interviewing. Interviewees were asked to elaborate in their responses, and thus the initial question was asked in different ways to probe for additional information. Each session was recorded and then transcribed. A summary of the interviews was sent to each participant by email for verification that their views were understood as they had intended. Furthermore, additional questions for clarification and further information were also asked by email. Often there was some helpful clarification and further insights were added.
Table 16 lists main interview questions and probes, showing how key dimensions derived from the service integration literature are addressed in the design of data collection. The interview protocol was originally created by the “Smart Cities Service Integration” project team (see Appendix 1). The protocol was followed to introduce a degree of commonality while minimizing the potential for overlooking any unique aspects. For this research interviewers used a modified and shortened (adjusted to the context of 311 contact centers) version of questions, as described in Table 16, in the protocol.

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Sample interview questions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Technological dimension</strong></td>
<td>• What technologies are used to deal with service and information requests and how?</td>
</tr>
<tr>
<td></td>
<td>• What technologies are used for back office management and how?</td>
</tr>
<tr>
<td></td>
<td>• What is the impact of the technology used?</td>
</tr>
<tr>
<td></td>
<td>• Who uses and deals with the technology?</td>
</tr>
<tr>
<td></td>
<td>• What are technology-related or technical challenges in front office and back office (e.g., interoperability, security, complexity, technical skills, etc)?</td>
</tr>
<tr>
<td><strong>Organizational and managerial dimension</strong></td>
<td>• Who does what?</td>
</tr>
<tr>
<td></td>
<td>• What are the roles and responsibilities of call-takers?</td>
</tr>
<tr>
<td></td>
<td>• What are the roles and responsibilities of their supervisors and managers?</td>
</tr>
<tr>
<td></td>
<td>• What are the roles and responsibilities of support staff?</td>
</tr>
<tr>
<td></td>
<td>• What are the roles and responsibilities of the director?</td>
</tr>
<tr>
<td></td>
<td>• What is the impact of the city’s executives on the operation of the 311 center?</td>
</tr>
<tr>
<td></td>
<td>• What are the functions of the 311 center as a front office?</td>
</tr>
<tr>
<td></td>
<td>• What are the functions of the 311 center as a back office?</td>
</tr>
<tr>
<td></td>
<td>• Describe the whole process from service request to service delivery.</td>
</tr>
<tr>
<td></td>
<td>• How does the organizational structure of the whole city government influence the operation of the 311 center?</td>
</tr>
<tr>
<td></td>
<td>• How does the organizational structure of the 311 center influence its operation?</td>
</tr>
<tr>
<td></td>
<td>• How does the budget and funding mechanism influence the operation of the 311 center?</td>
</tr>
<tr>
<td></td>
<td>• How are the 311 center professionals staffed?</td>
</tr>
</tbody>
</table>
Interviews need to be supplemented by a review of documentation to enhance the ability to triangulate data and corroborate the perspectives provided (Yin, 2009). While the primary data is sourced from semi-structured interviews, this study relies on secondary data that the two 311 centers provide, including regular (weekly, monthly, quarterly, and/or annual) performance reports, the full description of SLAs, internal reports and presentations, and a knowledgebase available online. In addition, the study
also uses 311-related information provided by other departments or agencies. The sources of secondary information for Philly311 include the city’s comprehensive planning report (Philadelphia City Planning Commission, 2011), the PhillyStat (the city’s performance management meeting) report (see www.phila.gov/performance/), a police report (Philadelphia Police Department, 2011), the city’s stimulus action report (The City of Philadelphia, 2011), and PhillyRising Collaborative (the city’s initiative for revitalizing distressed neighborhoods through community engagement and partnerships with multiple agencies and nonprofit organizations) documents for Philadelphia. Information on NYC311 includes Citywide Performance Reporting (see www.nyc.gov/html/ops/html/data/cpr.shtml), the Mayor’s Management Report (see www.nyc.gov/html/ops/downloads/pdf/mmr/311.pdf), and various internal reports.

2.5. Case analysis

Due to the emergent nature of this research, a grounded theory approach is employed. A grounded theory refers to a theory that is developed inductively from empirical data, and the grounded theory approach is a method of using empirical data without preconceived theories to generate or discover a theory (Glaser & Strauss, 1967). A grounded theory is thus derived from data systematically gathered and analyzed through research (Glaser & Strauss, 1967; Strauss & Corbin, 1998). It is the most prominent approach to analyzing qualitative data (Bryant & Charmaz, 2007; Urquhart, 2007).

This study does not purport to test constructs derived from an existing theory because there was not an academically grounded theoretical base central to this area of
study—exploring 311 contact centers as an emerging organizational form for city-level service integration. Related theoretical concepts (dimensions and factors of service integration) might draw from the literature review, but the focused concern of the inquiry (why the factors influence city-level service integration enabled by 311 contact centers and how) turns out to be un-researched. This study aims to generate new theoretical between a variety of service integration factors identified from the empirical analysis on the qualitative data.

<table>
<thead>
<tr>
<th>Coding stages</th>
<th>Research stages</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open coding</td>
<td>Building “codes”</td>
<td>Identifying anchors that allow the key points of the data to be gathered</td>
</tr>
<tr>
<td>↓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Axial coding</td>
<td>Creating “concepts”</td>
<td>Collections of codes with similar content that allows the data to be grouped</td>
</tr>
<tr>
<td>↓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Selective coding</td>
<td>Creating “categories”</td>
<td>Broad groups of similar concepts that are used to generate a theory</td>
</tr>
<tr>
<td>↓</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Building “theory”</td>
<td>A collection of explanations of the relationships among concepts and categories</td>
</tr>
</tbody>
</table>

Source: Glaser and Strauss (1967); Strauss and Corbin (1998).

Glaser and Strauss (1967) suggest the four stages of a grounded theory analysis, as described in Table 17. Following the process of grounded theory building, the data from the semi-structured interviews were transcribed and coded to identify common patterns with an inductive approach. Interview transcripts were coded by the two interviewers to minimize recall bias, and joint coding by the two researchers continues until a final agreement on codes was made to ensure inter-rater reliability. Theoretical perspectives and frameworks based on coding and analysis were then developed and sophisticated.
Coding is a process of labeling, separating, compiling, categorizing, and organizing data (Charmaz, 1983; Holton, 2007). The quality of coding and relevance of interpretation in the coding process are fundamental to research using a grounded theory approach (Denzin, 2007; Holton, 2007). Interview transcripts were coded in sentence or multi-sentence chunks, which are called descriptive codes. Such an approach is in accordance with the recommendation of Miles and Huberman (1994) that the level of coding detail should be aligned with the objectives of the research. Using sentence- or multi-sentence-based coding, this study employs sequentially three grounded theory techniques to analyze and interpret qualitative data (Strauss & Corbin, 1998): open coding, axial coding, and selective coding.

Open coding is the process of breaking down, comparing, conceptualizing, and categorizing the acquired data in terms of similarities and differences. The outcome of open coding is a series of different initial codes and concepts representing the thoughts, meanings, and ideas of the data. Axial coding follows open coding. The purpose of axial coding is to further classify and categorize the initial codes produced in open coding. Codes that are conceptually similar are grouped together. The main categories and sub-categories of concepts can be the representation of a set of axes that reveal the patterns and relationships of analyzed data (Kelle, 2007). This study also uses selective coding to explain the relationship between the identified concepts to be coherent with the observed phenomenon of the study. This coding allows the researcher to explore the relationships of codes with the dimensions identified. Selective coding is considered complete when theoretical saturation is achieved (Boudreau & Robey, 2005). Theoretical saturation is gained when there is no more data informing a new category, the category development
is densely populated, and the relationship between existing categories is supported by plenty of data.

3. The quality of research design

3.1. Criteria for evaluating research quality

The quality of research design is critical for the research outcome to logically explain the real world phenomenon (Bryman, 2008). Trustworthiness of research findings is obtained to the extent that the researcher’s viewpoints, thoughts, intentions, and experiences are accurately understood and reported by the research, and in turn, the quality of accurately understanding and reporting the phenomenon depends on the quality of research design. Considering a set of criteria for judging the quality of research design is important to the maximization of conditions related to design quality (Yin, 2009). Bryman’s (2008) four criteria are employed to judge the quality of research design in qualitative research: i.e., credibility (paralleling internal validity in quantitative research), transferability (paralleling external validity in quantitative research), dependability (paralleling reliability in quantitative research), and confirmability (paralleling objectivity in quantitative research). This section discusses how each criterion is important to this research and how this research meets the criterion.

First, the credibility criterion involves establishing that the results of qualitative research are credible or believable from the perspective of a researcher. Credibility is essential to the causality and inference in both explanatory (or confirmatory) and exploratory case study research. Exploratory research has more difficulty in making
inference than confirmatory research. This study is exploratory in nature, and thus the quality of research heavily relies on correct inferences that are generated from data analysis. Grounded theory techniques such as open coding, axial coding, and selective coding and also following the whole research process (from coding to conceptualizing to categorizing to theorizing) help enhance credibility of the research (Mehmetoglu & Altinay, 2006). To enhance credibility, this study employs the series of coding techniques and the sequential process of logical deductions for grounded theory research.

Second, transferability denotes the degree to which the finding of a study can be generalized across social settings (Bryman, 2008). A case study produces context-dependent knowledge (Flyvbjerg, 2006), which can be difficult to generalize. Qualitative findings in the study tend to be oriented to the contextual uniqueness and significance of the aspect of the social world being studied (Bryman, 2008). An empirical issue related to transferability is whether those findings hold in some other contexts or even in the same context at some other time. The comparative research design of this study has an advantage in transferability of the overall findings. There is another view that defends generalizability of case study research. Flyvbjerg (2006) claims that even a single case study can contribute to generalization because any case study leads to generalization of theory based on treatment of conditions (or contexts), not on random sampling of the population. Hence a case study is generalizable to theoretical propositions, not to the population. Case selection in qualitative research is information-oriented and quite purposive rather than random (Flyvbjerg, 2006: 230). Generalizability of case studies can increase through the strategic selection of cases. When the research objective is, as in this dissertation, to achieve the greatest possible amount of information on a given
phenomenon, a representative case or a random sample may not be the most appropriate strategy (Flyvbjerg, 2006: 229). Therefore, with information-oriented selection of cases, the case study approach that this study adopts can contribute to theoretical generalization by providing counter-evidence that requires modification of existing theoretical propositions. In this study of 311 non-emergency contact centers, the context-dependent evidence enriches existing theoretical propositions of service integration by providing the relationships between success factors and main challenges based on grounded theory.

Third, dependability refers to the degree to which the operations of a study can be repeated with the same result. Thus, the objective of dependability is to ensure that if another researcher follows the same procedures to conduct the same case study, the findings and conclusions should be the same. Dependability as rigor of qualitative research is distinguished from reliability, replicability or repeatability, which is simply about whether research would obtain the same results if researchers could observe the same thing two or more times. The idea of dependability emphasizes the need for a researcher’s accountability for the ever-changing context within which research occurs. Qualitative research is responsible for describing the changes that occur in the setting and how these changes affect the way the research approaches the study (Bryman, 2008). Considering dependability, this study discusses and addresses contexts where the research result is made. The study thus suggests context-dependent knowledge of service integration, which is distinguished from the existing understanding of service integration.

Lastly, confirmability is concerned with ensuring that, while recognizing that complete objectivity is impossible in social research, research can be shown to have acted in good faith (Bryman, 2008). A researcher is not overtly allowed his or her personal
values or theoretical inclinations to sway the conduct of the research and findings from it. This can be a problematic issue in case study methodology. Empirical studies employing methodology often fail to develop a set of sufficiently objective operational measures, and subjective judgments of researchers may influence data collection and analysis. According to Yin (2009), the way to increase objectivity is the use of multiple sources of evidence and to allow key informants to review the draft case study report. For that, the informants’ and the “Smart Cities Service Integration” project team members’ feedback on the analysis of interview data was gained.

3.2. Triangulation for enhancing research quality

To enhance the quality of research design by minimizing methodological concerns in terms of the four criteria, this study employs a triangulation approach, which refers to the use of more than one approach during the research process to enhance confidence in research findings (Brewer & Hunter, 2006). Triangulation can contribute to higher quality research. Denzin (1970) suggests four types of triangulation: data triangulation (data through several sampling strategies, for example, at different times and locations, from different groups of people), investigator triangulation (more than one researcher to gather and interpret data), methodological triangulation (more than one method to gather data), and theoretical triangulation (more than one theoretical perspective to interpret data). This research employs these four approaches to triangulation.

To achieve multiple sources of evidence, primary data was collected through in-depth interviews with key people from multiple departments and agencies—not merely
311 contact center staff, but also executive-level officials, external partners, and representatives of other city departments. The organizations are situated in different social settings so that interviewees have different perspectives on an identical case. The perspective on the research questions addressed in Chapter 1 may vary with organizations and interviewees. For example, different organizations and different interviewees may have different views on the “how” and “why” of the 311 contact center in terms of success factors, challenges, and the relationships between success factors and challenges. The interview data gathered from various perspectives helps increase transferability. Investigator triangulation is achieved by joint efforts of multiple interviewers and coders. Minimizing a personal bias by investigator triangulation contributes to confirmability.

The methodological triangulation or multimethod research approach (Brewer & Hunter, 2006) involves two methods of data collection for this research: collecting primary data from semi-structured interviews, and collecting secondary data from organizational documents and webpages of 311 contact centers and other related government agencies. Using two different sources of data can increase credibility of the qualitative research. Lastly, this study benefits from multidisciplinary perspectives, which enable theoretical triangulation. The interview questions and concepts to be explored are based on a rich body of service integration literature on human service, e-government, citizen-centric service delivery, shared service, and 311/CRM. The literature spans to include multiple disciplines such as public administration, information science, and business management. This study refines and elaborates the preliminary understanding of service integration drawing from the literature of multiple theories, by means of inductive research on
practices in the context of 311 contact centers as city-level non-emergency service integration capabilities.

4. Ethical consideration

Anonymity may not be guaranteed as an absolute in reporting the results of interviews because anyone can possibly get some information about who key informants in the 311 contact centers are—311 contact center staff people (directors, managers, team leaders, and experts) who worked in the period when interviews were conducted. Instead, confidentiality must be ensured for all participants in the interviews. Only the researcher has access to identifiable data and identifiers have been deleted once the research was completely done.

The research complies with federal and state regulations, as well as University at Albany policies governing the conducting of research involving human subjects. Since the research for this dissertation has been implemented as part of the “Smart Cities Service Integration” project, the Institutional Review Board (IRB) has approved the full application of the multinational research project, including the purpose of the study, the interview protocol, the interview process, potential interviewees, benefit of participation, and the consent form. The notice of IRB approval including the consent form and the introduction of this research to potential informants are attached in appendices.
This chapter presents findings from the case study of NYC311. The chapter is structured into four sections. Section 1 describes the case, NYC311, in terms of its history and current status. Section 2 addresses how NYC311 has created capabilities for service integration. Section 3 presents critical success factors of NYC311. Finally, section 4 presents challenges NYC311 is facing.

1. Case description

1.1. Background information

On January 31, 2002, New York City’s Mayor Michael Bloomberg proposed a customer service initiative to provide non-emergency services and information through one all-purpose phone number. The administration of the former Mayor Rudolph W. Giuliani first discussed 311 as a way to reduce the volume of 911 non-emergency calls (Schellong, 2008: 93). After reviewing 311 in Chicago and doing some internal analysis, the project exploring the launch of 311 was put on hold because of conflicts with the New York Police Department (NYPD), which had jurisdiction over police non-emergency calls, and due to the anticipated insignificant effect on 911 calls (reducing call volumes of only less than five percent). The idea reappeared when Bloomberg became mayor on January 1, 2002. The former senior director recalled the mayor’s experience that triggered the launch of NYC311:

[An] early story from the mayor was that he was out on a campaign trail with some of his advisors and he was on the streets of Brooklyn and he got
to a place where there was a fire hydrant surrounded by bags of garbage. The fire hydrant was leaking and there was a rat running through the garbage. He looked at his aides and he said “Who should we call?” He got a bunch of different answers. Fire hydrant leaking, you should call the Fire Department. A rat around garbage, you should call the Sanitation Department and both of those were wrong. The fire hydrant is actually handled by the Department of Environmental Protections and a rat is actually handled by the Health Department. So complete misunderstanding. His aides who are probably going to be his deputies in city hall didn’t know how to handle the most basic level of city problems. That was when the idea gelled in his head that we need some easy way to get in touch with government. He then went and looked in the phonebook to try to figure out who should we call, and what he found was literally phone numbers, 14 pages of phone calls, literally service by service by service, thousands of numbers. His view was “If I am the mayor and I don’t know who to call, how is someone who walks out of their house and sees this mess going to figure it out?” and that is where the idea came from.

The mayor soon talked to the city’s newly appointed Chief Information Officer—and also then Commissioner of the Department of Information Technology and Telecommunication (hereafter, DoITT)—and announced the 311 initiative in his State of the City Address:

By introducing the 311 phone system, the City will end the frustrating bureaucracy New Yorkers encounter when they need help. This Citizen Service initiative will allow City residents to obtain important non-emergency services through one central, all-purpose phone number quickly and effectively, and it reflects this Administration’s commitment to bringing government to the people. I am confident that the new 311 system will vastly improve the way that New York City government functions. (See press release on January 31, 2002, PR-024-02 on www.nyc.gov)

As shown in Table 18, DoITT was given only one year (January 2002 to February 2003) for the implementation process by the mayor. The 311 contact center began operation in March 2003 and has received considerable worldwide media coverage since its inception. Additional services and departments are still in the process of continued
integration. The pre-launch timeline for preparation was unusual for city government, because the procurement process alone for projects of that scale usually take more than one year (Schellong, 2008: 94).

Table 18. Milestone events of NYC311

<table>
<thead>
<tr>
<th>Time</th>
<th>Events</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan 2002</td>
<td>• Mayor Bloomberg announces the launch of NYC311</td>
</tr>
<tr>
<td>Mar 2002</td>
<td>• Consulting companies, Alpha and Gamma, are hired</td>
</tr>
<tr>
<td></td>
<td>• Tools are selected for CRM, content management, and data warehousing</td>
</tr>
<tr>
<td>Sep 2002</td>
<td>• Merging of existing call centers and agents begins</td>
</tr>
<tr>
<td>Feb 2003</td>
<td>• Customer Service Management Systems (CSMS) application is launched</td>
</tr>
<tr>
<td>Mar 2003</td>
<td>• <strong>Public launch (24/7, 365 days)</strong></td>
</tr>
<tr>
<td>Sep 2003</td>
<td>• Northeast blackout</td>
</tr>
<tr>
<td>Dec 2005</td>
<td>• Metropolitan Transportation Authority (MTA) strike</td>
</tr>
<tr>
<td>Feb 2006</td>
<td>• Major snowstorms</td>
</tr>
<tr>
<td>Nov 2006</td>
<td>• Integration of “2-1-1” services</td>
</tr>
<tr>
<td>Jun 2007</td>
<td>• Cumulatively 50 million inbound calls</td>
</tr>
<tr>
<td>Dec 2009</td>
<td>• 18 million inbound calls per year</td>
</tr>
<tr>
<td></td>
<td>• Annual employee satisfaction survey begins</td>
</tr>
<tr>
<td>May 2010</td>
<td>• Cumulatively 100 million inbound calls</td>
</tr>
<tr>
<td>Sep 2010</td>
<td>• Digital Government Achievement Award</td>
</tr>
<tr>
<td>Jan 2011</td>
<td>• The busiest day in NYC311 history due to severe snowstorms</td>
</tr>
<tr>
<td>Oct 2011</td>
<td>• Top ranked in the American Customer Satisfaction Index (ACSI)</td>
</tr>
<tr>
<td>Dec 2011</td>
<td>• 21 million inbound calls per year</td>
</tr>
<tr>
<td>May 2012</td>
<td>• Cumulatively 140 million inbound calls</td>
</tr>
</tbody>
</table>

In order to meet the requested timeline, DoITT expedited procurement processes. DoITT sent out a request for proposals (RFP) for a system integrator. The Mayor’s Office of Operations (MOO), Office of Management and Budget (OMB), NYPD Communications (911 Division), Department of Transportation (DOT), and DoITT reviewed the vendors’ proposal and selected Alpha (a pseudonym of the international consulting company) as a system integrator for 311 (Schellong, 2008: 94). The RFP
stated that the proposal was for a 311 Customer Service Management Systems (CSMS) project which may include system integration of all aspects of the work or project components, such as: CRM, procurement, organizational readiness, facilities, human resources and training, telephony and voice network systems, and local area network (LAN) systems and platform environment (Schellong, 2008).

For system integration, Alpha had to make sure that the hardware and software were compatible with the legacy systems scattered around the city. Following the decision of the system integrator, the city hired Gamma (a pseudonym of another consulting company partner), a technology research and consultancy firm, to do a CRM software analysis. After reviewing a variety of existing solutions, Gamma recommended Siebel as the most suitable CRM software. DoITT decided to use the Siebel CRM software, content management from Interwoven, and Oracle database on Sun servers and a Nortel phone system.

DoITT began the transition to 311 on September 30, 2002. The 10 largest call centers in the city and over 250 employees were gradually added to NYC311. The soft launch period allowed for testing the system and made the transition for operators and citizens easier. The plan included the gradual disconnection of old agency service numbers over time. The 311 system had created new service titles, job requirements, and payment schemes that had to be supported by all of the 14 unions that represented sections of the staff. Therefore, all unions were invited to participate in most of the stages of the planning process (Schellong, 2008: 96–97).

On February 24, 2003, the CSMS application was launched, and later, on March 9, 2003, NYC311 Customer Service Center started operation and the 311 telephone number
was activated to the public in the City of New York. Mayor Bloomberg officially launched 311 operations on March 23, 2003. The project team of 150 members from DoITT, various city departments, Alpha and other consultancy partners had managed to deliver the project at $21 million dollars, which was below its total budget of $25 million. As a small portion of the budget, a broad marketing campaign was supposed to create awareness of 311, change citizens’ expectations about government interactions, and relieve 911 of non-emergency call volume.

Call volume has continually increased and the quality of customer service has been improving for over a decade. As a result, in October 2011, the Customer Feedback Insights (CFI) Group announced the scores of the American Customer Satisfaction Index (ACSI) in which NYC311 far surpasses the government sector and is on par with top scoring private sector industries. As shown in Table 19, NYC311 is now considered a benchmarking case for other customer service organizations.

<table>
<thead>
<tr>
<th>Category</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>NYC311</td>
<td>82</td>
</tr>
<tr>
<td>Insurance – property and casualty</td>
<td>82</td>
</tr>
<tr>
<td>Bank and credit union</td>
<td>79</td>
</tr>
<tr>
<td>Retail service</td>
<td>77</td>
</tr>
<tr>
<td>Cell phone service</td>
<td>76</td>
</tr>
<tr>
<td>Private sector average</td>
<td>76</td>
</tr>
<tr>
<td>Subscription TV</td>
<td>74</td>
</tr>
<tr>
<td>Insurance – health</td>
<td>73</td>
</tr>
<tr>
<td>Government call center average</td>
<td>69</td>
</tr>
</tbody>
</table>

Source. [www.cfigroup.com](http://www.cfigroup.com).

Table 20 describes some facts of NYC311. Currently about 4,000 services are provided. The number of call center agents as fulltime city employees has reached 400. NYC311 is the biggest 311 contact center in the U.S. in terms of various indicators such
as number of employees, budget, and scope of services (SLAs) and information (knowledgebase) provided. The scope of SLAs has substantially broadened in the transition from phase 1 to the phase 2. Calls in languages other than English are forwarded to private-sector translation services, and immediate access to language translation services is available in over 180 languages.

**Table 20. Facts of NYC311**

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date when the system is launched</td>
<td>March 23, 2003</td>
</tr>
<tr>
<td>Number of services provided</td>
<td>About 4,000</td>
</tr>
<tr>
<td>Number of contact center agents</td>
<td>About 400 (fulltime city employees)</td>
</tr>
</tbody>
</table>
| Departments on SLAs                     | **Phase 1**: Department of Buildings (DOB), Department of Transportation (DOT), Department of Consumer Affairs (DCA), Housing Preservation & Development (HPD), Department of Environment Protection (DEP), Mayor’s Action Center (MAC), Department of Records and Information Services (DORIS), New York Police Department (NYPD), Department of Sanitation (DSNY), Human Resource Administration (HRA), Department of Information Technology and Telecommunications (DoITT)  
**Phase 2**: Department of Education (DOED), Taxi and Limousine Commission (TLC), Center for Animal Case and Control (CACC), Department of Health (DOHMH), Department of Parks and Recreation (DPR), Department of Finance (DOF) – Parking Violations Hotline |
| Annual budget                           | About $50 million                                                                                                                         |
| Operation hours for call center         | 24/7                                                                                                                                       |
| CRM                                     | Siebel                                                                                                                                     |
| Request type distribution on average    | General information (75%); Departmental referral (15%); Service request (10%)                                                             |
| Knowledgebase                           | More than 6,000 articles (Information about more than 300 city, state, and federal agencies)                                                |
1.2. Organizational structure

Building the capabilities for integrating city services in the country’s largest city entailed the establishment of a large agency that consolidates a variety of customer services. Organizational capabilities have been developed with the division of functional teams consisting of employees with different skills and expertise. The NYC311 contact center has two basic groups: frontline agents (employees related to call center day-to-day operation) and supporting staff (functional teams such as training, performance management, and quality assurance). One director of a functional team said, “We are considered subject matter experts for agencies.” The NYC311 director provided a view of the agency in its entirety as a city government contact center:

My organization is mostly divided into, what you’d call, staff and line. The line being the frontline folks, that’s our call center operations, the largest number of people in this organization who have a very specific, very hierarchical structure, and very specific duties. The staff side is doing the necessary functions that provide the support. From a call center perspective, we’d like to say there are two jobs in the call center, the person that takes the call and everybody else who helps the person who takes the call, and to an extent, we’re organized in that way, which has changed over the past few years. It’s not just the person taking the call, but it’s the website that provides the same information, or the Tweet that gives the information. But essentially those are all frontline elements as well. So the real staff work is how you make what goes into those frontline folks or frontline tools accurate, correct, timely, etc. And that’s where we spent a lot of time and that’s typically more of the staff work.

As the director stated, the NYC311 contact center is structured into six groups of functions: as a whole, call center agents (frontline operators of the integrated channel) and staff members enabling the integration. The 311 contact center is comprised of the functional groups described in Table 21.
Table 21. The groups of NYC311 contact center

<table>
<thead>
<tr>
<th>Group</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Call center (CSRs and supervisors)</td>
<td>• Day-to-day call center operation by a hierarchical group consisting of managers, supervisors, and customer service representatives referred to as call center representatives, reps, or call takers.</td>
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</tbody>
</table>
| Training | • Prepare new call center employees to serve the City of New York with quality customer service;  
• Help more seasoned employees further hone necessary skills;  
• Use multi-disciplinary instruction methodologies and the design of instructional material to teach computer systems, customer service standards, as well as call center policies and procedures. |
| Operations | • Support and teach employees how to effectively and efficiently assist its customers, using different monitoring and measurement tools to obtain data and to provide routine feedback;  
• Manage priority and emergency calls with agencies. |
| Quality Assurance | • Increase efficiencies and customer satisfaction through effective tools and resources;  
• Ensure correct, clear and professional interactions between customers and call center representatives;  
• Review procedures and calls to ensure NYC311’s customer service standards are being met. |
| Performance management | • Increase efficiency of customer service in the City of New York by facilitating data-driven performance management;  
• Provide insights into performance via standard reports  
• Use a comprehensive business intelligence tool that delivers a full range of analytics and reporting capabilities. |
| Content and Agency Relations (CAR) | • Manage the day-to-day relations with agency partners;  
• Develop and update content in the knowledge management system used by both the call center and 311 Online;  
• Create content in NYC311’s system and ensure it is updated and accurate;  
• Respond to emergencies by implementing alerts and event-specific content as needed. |


The day-to-day operations of the call center account for a large part of 311 contact center organization. The call center director supervises certain functional teams such as Training and Quality, Vendor Management, and Workforce Management. The director explained his/her role and the relations with other functional teams:
We’re the day-to-day call center. The call center reps report to a supervisor, a supervisor reports to a call center manager. Call center managers are reporting to me right now. … One manager oversees four supervisors. Those four supervisors might have 80 representatives between them. … In my title, the people that report to me are the director-level staff. So that’s the Director of Training and Quality, we have a Workforce Manager, we have Vendor Manager, and then I have a team in Operations which is the largest group here, there is a big hierarchy there and then one person reports to me from there. … Groups are Training, Quality Assurance, Workforce, Vendor, Operations. What is left is Performance Management, and they handle all of the reporting aspects. Content and Agency Relations are one large group, and Administrative Group.

The content team plays an important role in putting updated contents in the Siebel database system that call takers use, and also the 311 online system which is available to the public. The content analysis group’s functions and their frequent interactions with agency liaisons are critical to improving the quality of contents by revising and updating integrated information. A content analyst explicitly stated, “Our role is developing relationships with agencies.” One senior interviewee explained the roles of the Content and Agency Relations team at NYC311 contact center:

We have a small group of six analysts whose job is to everyday interface with every other city agency to make sure we have the most current information. If a customer calls and has a question and we don’t have an answer to it, which is rare these days, but we should find the answer. That’s the job of this agency analyst group. The analysts need to go back to the agency and say “Hey, a customer asked about this. Do we not have it? Is there a policy? Is this new?” Whatever it may be, that’s the starting point. But then it’s one thing to say, “Oh yeah, you know, this is a new program, here’s the details.” Now you have to convert that into plain language standards that a customer can understand and a representative can understand and that works on the online tool as well, because those are three different sources. Then we have to load that into a system so it can be linked by keywords and it has to be loaded so it can be tracked by what we call services, so when we do reports on a daily, monthly, whatever basis, all that gets sort of coordinated.
It is common for support staff professionals to view themselves as analysts. One director emphasized the importance of different types of analyses from different angles:

Actually every vertical has a set of analysts that are not necessarily called analysts. But each vertical has different analysts which have a project going on right now. Every vertical has different projects going on analyzing that data and looking at it in different angles. We actually support those particular power users. That’s what we call them. To make sure that they are doing things correctly or if they are stuck on a certain analysis they maybe don’t know how to look at things. We will kind of come with a fresh set of eyes.

One interviewee of the Performance Management group also viewed her department as a supporting mechanism for internal units of NYC311 and other agencies as consumers of NYC311 data:

Our department is basically charged with functioning as a liaison within the 311 organization and different verticals to make sure a lot of the reporting needs are being met. … Because the department itself has evolved from a reporting department to more of a business intelligence support environment, because we have so many people that want to consume our data. … We are part of the administration actually. So our department has pretty much evolved since the beginning of 311 into being more of a support mechanism rather than just a reporting department. There are about a thousand of users on the business intelligence floor now. They are different agencies.

Importantly, the day-to-day operation inside NYC311 support staff groups is not seen as stovepipe. The contact center organization is function-oriented rather than specific to a particular group. Also, all departments (or verticals) within NYC311 meet together to know, understand, and share the upcoming issues of NYC311, the organization as a whole. An interviewee from other functional groups said:

One of the great things about working here is that we are not siloed into one particular thing. We are not stuck doing the same thing over and over again. It is hard to say any one group is appropriately named. We are Performance Management. We help a lot with Administration and we do a lot of legal work with DoITT. We cover a lot of different areas and we
work a lot and very closely with the other verticals here too. So there may be some aspects of Content and Agency Relations work that we do, when we are dealing with Community Boards. At the same time the Training QA department may span and do some more floor level operations stuff or performance management stuff and recording and analysis stuff. … All the verticals get together and we have an operational meeting once a week to say what’s coming down the pipeline? What are events? There are seasonal content reviews that the Agency Relation team may look at the data and say, “What popped up that wasn’t there before?” I know when we think something is coming, like if there is a snowstorm predicted for the weekend. We will get together all the heads of the different department and [the Executive Director] will even go down a whole checklist and it is pretty routine for us now.

2. Building capabilities of service integration

NYC311 is not a CRM application, nor is it a call center only. According to Schellong (2008), it is indeed “a total integration of an organization’s culture—the way an organization is structured, its technological tools, people, and everything” (p. 104). Similarly, “[integration] is not just about the legacy system, but it is about everything,” said one senior director. “It is about our relationships with other agencies.” Along with these statements, consolidating city services entails integration in various aspects such as technological systems, organizations, and also people. Based on what is heard in interviews with NYC311 staff members, this section describes the process of building multidimensional capabilities for service integration in terms of two-phase evolution of NYC311 over time. Table 22 summarizes NYC311 evolution in each phase. This section focuses on the processes of phase 1 and 2, while phase 3 is being planned for the near future and not yet concretely elaborated.
Table 22. The phases of NYC311 evolution

<table>
<thead>
<tr>
<th>Phase</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td><strong>Phase 1</strong>&lt;br&gt;(One-to-one controlled environment)</td>
<td>• One answer to one question at a time&lt;br&gt;• CSR as a sole source for customer access to content and services&lt;br&gt;• Transactional and incident-based interaction&lt;br&gt;• No Web options to initiate or check status&lt;br&gt;• Thin-layered IVR and broadcasting information via IVR&lt;br&gt;• Website with mostly schedule-type content (e.g., traffic, street closures)&lt;br&gt;• Datasets not available to public&lt;br&gt;• 90 percent of service level objective&lt;br&gt;• Operation-driven call center</td>
</tr>
<tr>
<td><strong>Phase 2</strong>&lt;br&gt;(One-to-many open platforms)</td>
<td>• Multi-layered, multi-language IVR&lt;br&gt;• 311 online&lt;br&gt;• Lean language&lt;br&gt;• GIS-enabled service request map and service request data online&lt;br&gt;• Open data (content API)&lt;br&gt;• Multichannel management (311692 text/SMS, Twitter, iPhone app)&lt;br&gt;• Crowd-sourcing&lt;br&gt;• 80 percent of service level objective and peak hours priority&lt;br&gt;• Workforce-driven call center (focusing on quality and training)</td>
</tr>
<tr>
<td><strong>Phase 3</strong>&lt;br&gt;(More interactive platforms)</td>
<td>• Speech IVR with natural language technology&lt;br&gt;• Interactive content FAQs&lt;br&gt;• Re-designed NYC.gov site&lt;br&gt;• Online chat navigation&lt;br&gt;• User-driven call center</td>
</tr>
</tbody>
</table>

Source. NYC311 internal presentation materials.

2.1. Phase 1: Building SLAs and knowledgebase

As of January 2002, the city operated more than 40 call centers and hotlines along with hundreds of agencies, programs, and offices that interact with the public. NYC311 consolidated existing call centers. Some of them are still operating but service requests are being referred from 311. Others were merged into NYC311 at that time. Such interagency integration faced opposition from employees of some of the old call centers. One senior manager recalled what happened in the pre-launch period and the first year.

[We were] getting 40 people from HPD because they had to get rid of their little call centers or customer service centers. So I am taking your 40
people, I am taking your 22 people. … They were called functional transfers, and that was what happened in the beginning. That was grueling because a lot of the civil servants did not want to come here. Some people were promised more money.

The integrated operation in NYC311 did not work seamlessly from day one. The director of NYC311 explained the strategy of phase 1—learning by doing to build out further.

We can use the pre-2006 concept. It was “let’s learn”, what should we be, what could we be better at, what could we learn more about. Post-2006, what I think made us smarter is listening to our customer base. I think the first couple of years was convincing the agencies to get on board, convincing the agencies to let us kind of put the tone and style in place as opposed to their more bureaucratic language. That was the focus really. The agency was just building out further.

The learning in early months led to the division of inbound calls into the three categories. That was an important categorization of integrated services provided by the 311 contact center. A former senior director remembered early days of NYC311:

At the beginning, there was a very important decision we made almost in the first month, which was: “How we are going to handle the calls we get?”; “What are we going to do with those things?” We started thinking about the types of integration. We just began the process to go catalog what’s out there with the agencies and talk to them about their phone numbers, what calls they get, and what call centers they have. We started a little bit about how we can solve it. … If we only had a year to deliver, we had to be smart. We split up the calls into three groups of buckets of calls. One was what we called “information services”, one was “service requests,” and one was “referrals.” That was the most important revelation that we had. Information requests were sort of like home run. If someone can call us and we can give them what they need without having to do anything else, then everyone was satisfied. They got what they need, we don’t have to open a case and we move on. Our goal was to figure out what information we need to get into the system and that was going to be a massive cataloging effort. The second was service requests, so we know lots of people need to get lots of services. Let’s build the system, turned out to be Siebel, to enter service request and then have them transferred out to the agencies. More work but that was where came in the mayor’s idea of metrics and tracking. Now we were able to track time to open and
close these events. So that was a good one. That was the most challenging one because you are building an application and infrastructure of 311 on the top of an old legacy city government. Then the third one was referrals and that was kind of our way of building quickly, was that you can’t take everything in day one, so we will transfer callers to other agencies. Honestly people don’t know the difference between city government and federal government. So when someone calls for a job at the post office, let’s at least transfer them there and get that done. So that was the fundamental structure that saved us because then we can really look at content and bucket it and figure it out.

In the stage from pre-launch to phase 1, huge efforts were made for creating a knowledgebase and SLAs. The work required interdepartmental coordination and collaboration. Many interviewees remembered that in early days, service and information integration efforts were not easy to come by. According to a senior content analyst, building the knowledgebase started with 23 city agencies. Regarding early days, a representative of Alpha (the strategic partner since the pre-launch preparation era) said:

There was already a lot of work, building the call center, training the staff, building the computer system, but actually one of the biggest efforts was building the knowledgebase of the 4,000 plus services that people call about and how we handle each of them because previously each of the agencies handled their own calls so they had their own lists of processes. Sometimes they were written down, sometimes they were documented, and sometimes they weren’t. Sometimes there were these CCRs who were sitting in the basement and taking calls for 20 years and it was all in their heads. There were teams we basically had to send to each agency and we were meeting with them, they were documenting what people talked about and how each was handled and then merging them together to say, “OK, let’s now look at this comprehensive list.”

NYC311 actually did not begin with SLAs. A former senior director considered not having SLAs from the pre-launch and early months as positive, because breaking down service levels and making agreements of completion for each service might cause conflicts between 311 and other agencies.
That was the first time that we pushed agencies to give us answers to how long it would take to do that type of service. I don’t think we actually had service level agreements with the agencies in the beginning. … We had an agreement on how things should be and if you didn’t meet our agreement we would escalate it and try to deal with it. We didn’t really have a formal service level. That might be the best practice but we didn’t think it was worth wasting our time on when we had a year timeline. Let’s not spend months fighting over service level agreements. Let’s just build the system. So there was a little bit of that push.

Some months after the public launch, NYC311 created SLAs with other agencies and increasingly expanded the scope of service requests. A senior agency relations staff member who has worked for NYC311 since the day of public launch explained how SLAs were created in the very beginning:

At some point we decided that we were going to do this intake and we needed service level agreements so we had meetings with the analysts, the agency liaison and the Mayor’s Office of Operation to negotiate for every service what a reasonable timeframe would be. … We looked at all the agencies to see what makes sense to come and what makes sense to stay. Then there were angry tenants. We knew from day one that we needed the Police Department to be a partner with us because without the types of calls they get, for example noise complaints. If you didn’t have them as a partner, then there was no reason people are calling 311. Then we did some departments because they were easy, and then we did some because they were just good call volume and we left out some of the really complicated ones, all the human services. We just said, “No way. Are we trying to dive into human service?” So that was definitely the strategy—get it going and then build from there.

Many agencies in the beginning opposed the idea of service levels because they did not want the information (e.g., time to close a service request) about their operation to be public (Schellong, 2008). Agencies that have been selected had to agree on certain service levels; that is, they had to decide on an average time needed to resolve an issue. A senior staff person said:

At first [other agencies] were reluctant to let things go, and then they saw it was okay, and then the quality of what we would send to that agency
looks okay because we just do the intake, the actual work itself goes into a
trouble ticket, and the agency still has to do that. So early on they had to
make sure the work tickets they were getting from the 311 system were as
good as what they would get from their reps. And maybe in the past, their
reps sent in the same ticket but put it in jargon or put in codes. We didn’t
have that luxury, we were putting it in more standardization, so I think that
was a little bit of a learning curve as well. But the agency found if you
need more detail, tell us and we’ll collect more detail. We would also push
back to say, “Hey the customer doesn’t need to report all of this detail, do
they? And can we shorten that up?” So there was a little push and pull in
that respect. That was the learning stage for the agencies.

Interviewees viewed phase 1 as a learning stage for building relationships
between 311 and agencies. According to a current call center professional, the Agency
Relations team had played an important role in creating SLAs with many city agencies.
The group consists of liaisons to every single city agency for NYC311. They reach out to
agencies asking if there is anything new going on that NYC311 should know about, and
whether their information is still correct.

2.2. Phase 2: From system-driven to customer-centric approach

The current executive director of NYC311 led the contact center to the second
phase of 311 maturity. The move entailed a fundamental change from an agency-driven
and system-driven approach to a customer-centric approach. He recalled how phase 2
started:

When I came on board in 2006, so I’ve been here for almost six years, and
I was hired in by the administration at the time, by the Commissioner at
the time, to shift 311 from being a great source of information, it was still
pretty much agency- and systems-driven, and to really make it customer-
centric. That was the goal. That was the reason they brought me in. Up
until that point, [NYC311] was considered a success but as the former
Commissioner said, “The honeymoon with 311 would end if you just
stayed stagnant.” His vision was that [NYC311] really had to grow, and he
saw the next thing that really had to happen was really making it
customer-centric. Because it was pretty much an agency, you can tell the customer this and your systems are limiting you to be able to do the following. So that work was sort of evolving but I was charged to come in and make it more customer-centric. So that’s the big evolution piece and that’s what we’ve taken I think since then, and then really just grown it. … This was the right thing to do and we need to make it happen and there’s a mandate to make it happen, and some old stay, trust me it’s going to be a good thing.

He compared the phase 1 model (one-to-one) and the phase 2 model (one-to-many). That transition is a move toward a more customer-centric strategy.

One of the first things I looked at when I came here was how we shift from a one-to-one model to a one-to-many model. Now a reason for that, one-to-one means that one customer calls, speaks to one rep, about one question, and it was satisfied. And it’s a great experience for those two people involved, but there’s no further education, unless the customer goes and tells their neighbor, “Hey this is what you can do about bulk item disposal,” which isn’t often the case and there was no dissemination of that information beyond that customer. So very early on I wanted to get to this one-to-many model. The content is the key, that’s what people want, that’s what we don’t have. You don’t wake up in the morning knowing what the city policy is, but you may need to know that. So we want to see how we can make that content available in as many ways as possible, the customer will choose the path, you know, the medium that they’ll use to get there, we have to figure out how to enable that, and we have to figure out what’s important to the customer.

In addition to the transition in the strategy, the executive director who led phase 2 said, “What happened around the time that I came was that agencies were discovering how they could use 311 for their broader purposes.” For that, phase 2 has various technological extensions including 311 online, GIS integration, an open data platform, a smart phone app, and Twitter. Of significant importance, phase 2 initiated active use of GIS. According to a performance management expert of NYC311, there is a very close working relationship between the analytics group, the CPR (Citywide Performance
Report) group, and the DoITT GIS group in using the integration of 311 data with the GIS group.

Phase 2 emerges as the next stage beyond grounding work related to creating SLAs. Changing SLAs can be ongoing but that’s not typical work after setting up SLAs between 311 and service delivery departments. A 311 liaison from an SLA department talked about SLAs in phase 2:

We haven’t had a conversation about changing our service level agreements. We pretty much try to stick to those. … Now we typically don’t change our SLAs. We prefer to stick to those under any circumstances. … They’re going to tell the customer that the agency has this many days to answer your requests, so that way, we can do our work. We need some time in order to be able to handle the request. And that’s the purpose of the SLAs and we love it, and try to stick to it as best we can and so we don’t look to edit them. We think the timeframes that are set are pretty good.

3. Critical success factors

This section presents critical success factors of NYC311 drawing from interviews. The success factors are categorized as technological, organizational, and cross-organizational.

3.1. Technological factors

3.1.1. Frontline service channel diversification

The transition of the 311 contact center from phase 1 to phase 2 led to the further diversification of contact channels and the adoption of new technologies that citizens increasingly use for efficiency and effectiveness of service delivery and information provision. A call center manager said:
We are now becoming a contact center. It is not just the call center, which is the most expensive channel. We have to focus on other channels. So now customers can get to us by texting us. They can go to 311 online and we also have more of a robust IVR. There are a lot of times people call and want an answer quickly. They don’t need a person to talk to them about it. That is how we have restructured our IVR. It has changed dramatically in the last couple of years. Our number one call driver is always alternate side parking. Do I have to move my car today? Do I not have to move today? We put that on the IVR and that has reduced so many calls that we are getting to reps (representatives). So the reps now are getting very different calls than they used to because a lot of things can be handled via text, online. Simple things can be handled online. Where getting complicated things, people that really need help don’t know what to do about it or they have multiple issues. That has a huge impact on the call center. The calls are longer, more complicated and we don’t necessarily like longer calls because it means everyone has to wait longer for a rep now. So now we’re working on strategies for that, but more people are able to manage their issue quickly and efficiently on their own or via text. So that is really where the push has been. Also, there is an iPhone app and hopefully there will be an android app soon. These channels are the way we explain it to them here. It is not going to take away their job at all but it would make your job easier. It would be less of a burden on you because a lot of these simple requests can be handled by the customer in different ways. Even though we know there is a wait to get to you, we feel good knowing that there are other things customers can do. They can go text, listen to IVR, and we message a lot of that within IVR.

According to one senior 311 professional, text messaging and smart phone apps are being used to get more people to use more types of intake. The next generation may change the nature of the contact center with the active use of digital and mobile tools. A senior analyst weighted future opportunities and current limitations of the new tools:

The iPhone is, I think, what we definitely want to expand 311. Someone [at the NYC311 center] had done a sort of review of what is most transportable. You know if it’s something that you have to use lots of information, a smart phone may not be the best way to get it. So what applications do we have? … I mean right now the volume is not that big, not that many people are using the iPhone for 311 items, but I mean in the beginning not that many people were calling us and then not that many people were going online. But now we have about 6,000 people a day online. You know so definitely the smart phone technology is another channel we will want to go to. … Twitter can be a proactive tool. I think
we send out daily Tweets about alternate side of the street parking. If there are events coming up, we send Tweets.

A performance management expert viewed open API (application programming interface) as a new tool for open data.

The open API is sort of a standard tool for all the different systems to talk to each other. So the end goal is to join on with open 311 platforms and have developers be able to develop applications where they can submit service requests. They don’t have to use call center phone channels to do the same kind of work we’ve been doing. … We would love to engage the community a little bit more with the data. I think there is a big push now with open APIs to get more and more developers brought into the fold. To have them look into the data and come up with new solutions for us. There is a big push on that.

3.1.2. Back-office support technology: Business intelligence

Back-office support technology is considered central to the success of NYC311. One of the essential back-office technologies is business intelligence (BI) software. BI software refers to “a collection of decision support technologies for the enterprise aimed at enabling knowledge workers such as executives, managers, and analysts to make better and faster decisions” (Chaudhuri et al., 2011: 88). The Performance Management Group of NYC311 uses a BI tool. A senior staff member said:

We use Oracle business intelligence enterprise edition. We are on the 10G version soon to be upgraded to 11G. I think it is a great tool. I worked with other BI tools, but I definitely think they did a really good job rolling this out, in terms of security, in terms of who sees what. … The BI is a service offering DoITT has now, so if other agencies want to incorporate data for specific reasons they can. They can leverage that technology and that infrastructure, so they don’t have to go out and build a whole other reporting platform. It was genius in terms of DoITT and the Mayor’s Office of Operation should really do something like this because it’s highly efficient.
In addition, the interviewee claimed that service request standardization is really important with respect to the BI tool. Service request standardization is a crucial part of the BI project.

SR standardization, which is service request standardization. So other departments recognize that SR standardization was a big enough initiative to have as its own projects with its own goals. … I think it happened in concert with the BI project and program. It was something they knew and they recognized as something that needed to be tracked separately and had its own project based on stakeholders. … I think that there are a couple of initiatives happening in lots of different places. So the service request standardization process, the data normalization process, that haven’t necessarily been 311 projects but have been really critical in terms of creating this shared space where the data can be connected, can be used by people.

3.2. Organizational factors

3.2.1. Leadership

All interviewees agreed that what got NYC311 started is clearly the mayor’s vision of “open government” which seeks for a more accessible, more accountable, and more transparent New York City government. The anecdotal story described in section 1.1 of this chapter was a decisive impetus to his vision for accessibility, accountability, and transparency, which aims to reverse “blue page roulette” as one former commissioner called it. A representative of Alpha partner said:

The mayor had a very clear vision of what was important. We understood and were able to validate, as the project continued, the priorities of the different goals. So not only did you need, if you needed a political champion, but you need one with a very clear vision to prioritize and in our case, if we come to decisions that we have to make providing better access or better back-office operation what should be the first priority be. You can’t do everything and the mayor made it very clear that the first part was customer. … Conversation was driven by the Mayor’s Office of Operations, so they were the hammer. “Here’s the 311 project and it’s coming from the mayor and these are the targets that we want to publish.”
It was the mayoral initiative. Much the same way 311 was. We were the lead but with the prime, but it was clear that this was where the mayor was going and you needed to get on board.

In addition, the transformation process benefited from the executive support of the mayor and his senior staff. Weekly steering committee meetings in City Hall served as a project accountability and escalation tool to quickly resolve obstacles that came up in the implementation process (Schellong, 2008).

3.2.2. Human resource management

Three factors related to human resource management are identified as critical success factors for NYC311. First, the call center offers opportunities for career advancement to CSRs. CSRs can be promoted in a hierarchical line within call center operation, or some of them can move to supporting departments such as performance management, quality assurance, and content management. A call center senior director said:

We have layers. The call centers are very hierarchical. Reps can become starter zone call center rep, and then they become a team leader, then they become a supervisor, then they can become a manager. That’s a difference, from rep to manager, can go from $29,000 a year job to $65,000 a year job. So that’s a progression path, that’s achievable for someone, because there is rotation, there is turnover, even though we have a good rate of it, so it’s not that someone has three people ahead of them that are going to be there for 30 years. There is a path to get there, and there’s an economic value to get there. Now to get there you have to get, you know, you have to do the right things. You have to do a good job, you have to make sure you’re qualified, you have to make sure people know you want to be there, you know. But it’s a good carrot for people to get one bump, two bumps, three bumps, and one of the best people we have currently is a call center manager. … So that’s the path we have. The departments that I’ve mentioned a few times, we also hire from within for the most part. We try to keep that carrot out there and have organic growth. So our Content team is a team of 18 people and probably 15 out of the 18 came from the call center from some point or another. Our Quality Assurance department
may have 15 people in that and all but one of them would come from the call center because that’s something you can train internally. Our Training department may be a little different, maybe a little 50/50, outside hires and inside hires because you want to bring in the industry expertise, things of that nature. But that’s what our path is. And it’s not only for us, but when they are allowed to hire, other city agencies love hiring our people. They don’t even interview them. They just call them up and ask when you can start. Because they know they’ve gone through a discipline process, they know the city and they have a good track record, so we lose most of our staff, our frontline staff to city agencies, which I think is a great thing, because it’s cross-pollinating the customer service.

The second factor of human resource management is training. A training professional of NYC311 said, “Training is still a low level priority in a lot of places, but here is on the critical path.” Training involves two groups of CSRs: tier 1 and tier 2 CSRs. Inbound calls are first answered by tier 1 CSRs who determine the type of call and its solution based on information in the knowledgebase, which covers a continuously growing number of topics. Tier 2 CSRs are trained to handle more complex cases and how to use a frontline service delivery agency’s legacy system. Due to the outdated IT infrastructure of many departments, it was not possible to fully integrate them into the 311/CRM (Siebel) system. Only some agencies were able or willing to be integrated into the Siebel system (Schellong, 2008), so the role of tier 2 CSRs as a human middle ground between 311/CRM and departmental legacy systems is critical to connecting across technical systems.

Training sessions open very frequently, not only for new hire training, but also for refreshing training, training for veteran CSRs, and also training for supervisors. A training expert gave an example of new hire training.

Our new hire training runs from 2–3 weeks for everything: soft skills, system skills, and down to actual live call taking in a controlled environment with your trainer. So you can get comfortable until we push you out of the bird’s nest. A group usually varies from about 14–20. They
will see you through doing demos, role plays, practice exercises, learning Siebel in and out, the call flow in and out. We have a nesting period through the end of the training where they would take calls in a controlled environment in the training classroom. Then they will come down to the floor and then really have a real life “day in the life” of what it feels like but still with your trainer. We have a graduation ceremony, it is great.

According to the training expert, two types of skills are required of both levels of CSRs: soft skills (face-to-face and voice-to-voice) and system skills. In addition to the two skills, she emphasized the importance of attitude since CSRs represent customer service for the entire city, and not simply one single call taker of the contact center.

It does amaze me that you can get that pothole call and then right after get that emotional elderly person who does not have access to the Internet and can’t walk out of their house. If you can do the job you will, but if you can’t then you will not be able to. … We train them to think that whatever the reason is for the customer calling, even if it is to get a brochure, whatever, on restaurant inspection. That is the most important thing for that person right there in that moment. Regardless of what it is, that’s how you have to treat it. If it is 20 potholes that you have to enter it is important for that person because they care about their city, they care about that road, they live on that road, because someone can fall or cause an accident. The issue is that you have to pretend it is your mom calling about those 15 potholes. It is important for her and it has to be important for you too.

The skill set required for CSRs also includes social learning through technology use. An interviewee of NYC311 training team said:

Specifically for my team I would say social learning and technology is what we are trying to combine here because generations learn differently now. It is all about social learning and the networking. So how can we share best practices in different ways and using our technology, our share point and our portals? We are trying to create a kind of Wikipedia thing, where everyone just goes to one place and shares the information. … It’s a combination of blended approach of online and not just online training. It is online and some kind of face-to-face or human interaction with it. So I do see it. It is definitely the new way of training for a long time, this blended approach. It is just a matter of if we have the resources or not.
The third human resource factor is CSRs’ commitment to their call center, which is indicated by low absentee rates. A senior manager said:

Any challenges in hiring and training staff? We don’t have that problem here, and I’m very proud of that. This is pre and post economic collapse, which is really the defining moment. The Mayor’s Office of Operations compared absentee rates of city agencies using the same standardized form, etc. There was more than a dozen, almost a dozen in this study, and 311 was the second or third best. The best means having the lowest absentee rates. When we look back at the blizzard in 2011, or when we had Hurricane Irene, our absentee rate on that day was [low]. Our people come to work during crisis. … [Our CSRs] know they serve a valid role. But more important than that is our regular attrition rate. Our retention rate has been very good, it’s run about, on average before the economic collapse it was no more than 35 percent annual, which in a call center is very good. During the first couple of years during the economic collapse, it went down even lower; because no one was hiring, there was nobody leaving. And now it’s probably rolling back up to 30 percent or so. But we don’t have that problem for a couple of reasons. One, we’re in a phenomenal location; if you were a private sector, you would not build a call center in New York City—the cost is too high.

3.2.3. Contingency capacity

The contingency capacity for NYC311 is prepared for overflow management and emergency planning. NYC311 employs a vendor for overflow calls. The vendor management team estimates the demand and supply for a two months window in terms of call volumes. A vendor manager of NYC311 explained the process of contingency management by employing an overflow vendor.

They work overtime and they take calls. We have limited staff, we have a lot of calls coming. So what we do is look at the staffing match required for a forecasted amount of calls at certain times and we say we need this many staff. We fill in our staff, we have this here, we need this much more from somebody else to meet the service level or to get as close as we can to the service level. So the contract is based on logged hours—we purchase logged hours from them. … We see what will happen in two months window. Right now we just did it for June. So the Workforce Manager looks at what we need for June based on historical events and weather events or whatever they think will happen in June. We think we
need this many people. Again we take into consideration anybody who put in leave or days or forecast how many people are going to take those days off. … So we tell them what we need, they look at it, they plug in all the people they have that could cover what they need, the best they could. … Then we monitor them. Everyday I pull reports that say this is what they actually did for each interval. This is how much they can get paid because there are provisions that say they can go this much over and this much under, without a penalty. So I monitor that daily and at the end of the month all those reports come into what I expect the invoice to be.

Another process involves an emergency operation plan, which is part of Continuity of Operations (COOP). During past weather-related events, many volunteers served as temporary CSRs in the call center. The emergency plan includes how NYC311 trains and uses city employee volunteers in emergency situations. One interviewee explained NYC311’s emergency plan.

We had an emergency operations plan and then a couple years ago the federal government mandated that every city have this COOP, Continuity of Operations. When we had an outage that was more than 12 hours, how were you going to continue to provide the essential service that you provide? There are things we have to do. … So let’s just say we had a hurricane last August, Hurricane Irene, you know we are trying to get volunteer people to come in, train them quickly, get them up to training, give them a two-hour quick training, telling them to only take tier 1 calls. … How do you continue to provide your services? It is a whole big plan that gets updated constantly. … Actually the people running it for the whole city are a DoITT emergency team. So what they are responsible for is all the agencies and all of their plans. … DoITT are responsible for maintaining their systems, so they have their arms in it that way. So their plans are directly linked to us. In an emergency they gear up the emergency operations center in OEM. So there is an emergency liaison from HPD, from DEP, from 311 from the Mayor’s Office and DoITT and the exchange of information there.
3.3. Cross-organizational factors

3.3.1. Supervising organization

Many interviewees agreed that the organization which supervises NYC311 is an important factor. The organization to which NYC311 has to report has changed from DoITT to MOO; a change considered by some administrators as a critical transition. “We started as a part of DoITT, but three years ago the technology aspect of this organization was over and done,” said a senior staff person who has worked with 311 since the very beginning. “Now NYC311 is more about accountability.” Since DoITT is a technology agency and NYC311 is a peer to the other agencies, it was extremely difficult for NYC311 to go to another city agency and tell them that they’re not doing their job correctly based on the data of agency performance against SLAs (Schellong, 2008: 100). Therefore, MOO is more appropriate for NYC311. One senior director, however, saw both DoITT and MOO as continuously strong allies of NYC311. Because MOO is an organization supervising NYC311, the executive director of NYC311 reports to the head of MOO. Since the mayor is legislatively bound to produce the Mayor’s Management Report (MMR), NYC311 is required to report organizational performance twice a year.

In the earlier days, there were discussions about which agency was a better option for 311 accountability. A former DoITT member stated that DoITT was the wrong place for 311 when it was considered to function mainly as a customer service organization. However, one senior director had a different view—considering both DoITT and MOO as beneficial to NYC311—saying, “Because of our positioning with the Mayor’ Office of Operations and DoITT, we leveraged a lot of great relationships with other agencies, so we can be more flexible. We could do things quicker.” For example, the technological
investment of DoITT in other departments enabled these departments to easily connect with the 311 system. The NYPD has been one of the most critical agencies to NYC311. DoITT made a large investment in NYPD’s IT infrastructure to get their buy-in. Police precincts around the city received network upgrades, computers and printers worth $5 million (Schellong, 2008: 95). Regarding the technical improvements of the pre-launch period, an SLA department liaison said:

One thing I would say is I wished that when 311 came about that all agencies that either chose or were forced to mesh with 311 were given the financial grants to do what’s needed to be done. We had to get new PCs and you have to hire staff and that sort of stuff. I do think it’s worth it.

There is an overall consensus among interviewees that the change in the supervising organization is aligned with the transition from phase 1 to phase 2. Phase 1 needed to meet technological requirements for the call center operation, and then the 311 contact center aimed to achieve other strategic goals for improving customer services throughout the entire city in the phase 2. A senior director viewed the transition as an important factor for the development of the contact center.

One of the smartest things, and it was a thing that was well done, was to run 311 with DoITT, because at the end of the day it was an IT lift. Physically, wires and cables, and phone lines … we needed a CRM tool, we needed a phone system, we needed a business intelligence system, aligning that with DoITT was absolutely the right thing to go do because it gave, because it was embedded as a technology initiative. It would not have happened if was someone else. … The system is still part of DoITT, run and maintained by DoITT, but organizationally 311 now reports to the Mayor’s Office of Operations. So that was another evolution that I think … occurred in 2010. The idea was build it within IT and then make sure it’s living, supporting, and breeding, and it has standards and practices. And then around 2009, the questions started: okay now it’s up and running, has been up for a few years, align it more closely with the Mayor’s Office of Operations which is setting city policy on customer service, not just for 311 but for customer service in general.
3.3.2. Interdepartmental collaboration

Most interdepartmental interactions occur through liaisons. Interdepartmental collaboration is involved in various processes such as revising SLAs, updating the knowledgebase, and correcting system errors. A senior content analyst gave an example of interpersonal (between the analyst and the departmental liaison) collaboration in updating content related to a particular department.

If we’re in maintenance mode, it might be just be the feedback we get back from the floor because the analysts are responsible for really populating the Siebel system that our call takers use. … That bubbles up to us and then we determine if we need to get the agency involved because even though we’re responsible for the writing and presentation of the content in our Siebel system, it needs to reflect truly what the agency does and is responsible for. So I mean if it’s a matter of rewording something I can just do that by myself, but if it’s something that might call into policy or does the program at [other departments] really cover this, I would need to go to my liaison and talk to [him or her] about whether we can make an addition or change to that service. Some agencies might tend to deal more, communicate more with email where others are quicker to pick up the phone and it’s just a personal style, which they use.

A perspective from the other side (from SLA departments) is also important to see how the collaboration is formed. A representative of an SLA department described the interdepartmental collaboration as follows:

It is a “we” process. Of course, 311 cannot absolutely make decisions on forms without our input. So it’s definitely a collaborative effort. But this is, what I had just mentioned, is new ground for us that hasn’t happened in the past. For the most part we were able to get forms built and things done in Siebel as we have asked them to do. But that step is still necessary, though. Even if you wanted to say, I need to add a field or change a field. You have to go through 311 to do that. It is a collaborative effort so “we” meaning [department A] and 311.

Another example for interdepartmental collaboration is voluntarism of city employees in emergency situations. An NYC311 director-level interviewee gives an example from past occurrences. While volunteerism basically arises from personal
motivation, the interviewee emphasized the strong, reciprocal relationship with other city agencies.

Volunteers each year are not always the same people. A couple hundred people. We have had a number of events. Hurricane Irene was when a lot of people came in. We have the resources here to take care of them. … It is nice that a lot of volunteers have come forward and risk being caught in a rain storm and the strike as well. The MTA (Metropolitan Transportation Authority) strike was a big deal. It definitely built relationships we have with other city agencies. If they needed the help we would go to them as well. They know why we are doing this…We aren’t doing it for sales, there is no quota. It is just for customer service. We are just trying to help our customers feel confident about our city government. I think every city agency is starting to think in those terms, that we are here for the customers.

4. Challenges

This section presents major challenges of NYC311 revealed in interviews. Technological, organizational, cross-organizational, and the city’s contextual challenges are discussed.

4.1. Technological challenges

4.1.1. System complexity

According to Schellong (2008), most municipalities and counties that employ 311 systems never thought of them as CRM projects. They simply began using CRM software in their 311 contact centers only because it was recommended by consultants. Thus, values and benefits of 311/CRM may be limited. One NYC311 director pointed out some possible reasons for that. Government CRM is in many ways different from the private sector CRM. Government is a larger organization than any private corporation. The
quantity and complexity of the services it provides far exceed those found in the private sector.

Given these reasons, work-order systems and integration between 311/CRM and departmental legacy systems have a high level of complexity. Specifically, system complexity is mostly related to dealing with service requests. Because the complexity of particular services varies with agencies, certain service requests get entered in Siebel, and others get sent to other agencies that use their own legacy systems. Sometimes the entry is made by either 311 agents or by agencies through both Siebel and their legacy system. While an entry in some agencies is made into the Siebel system and directly into their legacy system, other agencies cannot directly put information about service delivery status into the Siebel system or through their legacy system because Siebel is not integrated throughout the agency. Lack of a fully integrated system in many agencies does not allow 311 CSRs to get any real-time information about the actual resolution process within an agency (Schellong, 2008: 98). Regarding the degree of complexity that varies with departments, a liaison of an SLA department said:

In some other departments, the 311 customer call representative is entering data both into Siebel and into the agency legacy systems. That doesn’t happen with respect to [department B]. No, it doesn’t happen with 311, it happens with [department B]. [Department B] uses two systems, 311 does not, 311 doesn’t have access to our system. This is so complex.

On the other hand, DOT, DCA, MAC, DORIS, DoITT, Workforce 1, NYPD Quality of Life Hotline, TLC, and DoED are all using CSMS to process requests for information, service, literature, and complaints (Schellong, 2008). NYPD Quality of Life service requests are electronically transmitted to the appropriate precinct and command.
4.1.2. Lack of interoperability

The lack of technological interoperability across systems arises from two challenges. First, many departmental legacy systems are quite old (usually at least more than 10 years) and have some limitations in being interoperable with other systems. Second, there is thus an inevitable middle ground—that is filled by a human agent—between the 311 system and departmental legacy systems.

Many interviewees agreed on the lack of interoperability as a significant challenge. “That was the most challenging one because we are building a new application and infrastructure on top of an old legacy city government,” said a former senior staff person of DoITT. A representative of department A talks about the agency’s legacy system:

It’s a big challenge because it houses all of our licensing information. It’s the nucleus to the agency. We were a licensing agency. All of the information is housed there. As I mentioned, for consumer complaints and even lost property the system generates complaint numbers. It has all the summonses information. There’re mailing addresses, if there’re vehicles we have their appointment information, their inspections. It’s embedded in our agency. … We all agree that it’s horrible but the agency does not have the funding and has not been granted the funding to actually take the system out of our agency. What we have to do or I’m finding that people are doing now in the complaint unit, they are exporting data from Siebel and putting it into an access program and then that access information program can be uploaded to our attainment system. … Actually, that was the reason why we were part of phase 2 in the 311 integration. We were rejected in phase 1, because we have this legacy system and what we do with it. But then there was another executive order that every agency had to be a part one way or the other.

Interestingly, filling the gap between Siebel as a CRM system and departmental legacy systems is the role of CSRs or agents from other departments. Reliance on human agents as middleware is also a challenge because CSRs need to be familiar with different stand-alone legacy systems: for example, HPD Info for HPD, Hansen for DEP, and
Mosaics for DOT. CSRs have to get trained on the departmental legacy systems because all departments cannot give up their own systems they have employed for a long time. A senior director of NYC311 emphasized the importance of CSRs as middleware in mediating between different systems and making frontline services seamless to the customer:

The middle ground, it was interesting, there were some agencies whose systems couldn’t be integrated into the knowledge management system that we use, so there was a compromise that, okay their legacy systems will be the system of record for their complaints. The compromise was that 311 reps would get trained on their systems. So that was a good example of middle ground. These big agencies they couldn’t migrate, they couldn’t give up their systems, and we couldn’t force-fit old mainframe legacy system into a single entity. … It just wasn’t going to happen. And the timeline wasn’t going to work. Although at the time there was a belief that we’ll do it six months after we launch 311. Plus eight years it hasn’t happened yet. … If you had to put a trouble ticket into their systems, the rep would literally go from either to transfer that call to a rep that was trained in that system or happen to be a rep who has dual trained and could enter it directly. But it was a compromise of keeping your system up, we won’t try to integrate it. … From a pure customer experience it was better because you didn’t necessarily have to go from one agency to another. From an economy of scale position, it was much better. Leverage our reps here, let us do the training, we will do that. Ultimately we would like to get away from those systems, but that’s a technical example of a middle ground. … We’re looking to do some better integration now that technology is improved, we don’t have to, the agency doesn’t have to give up its system, we don’t have to give up ours and we have a middleware layer that does the translations. … It actually goes two ways, we capture it on the front end, because even if we’re going to use that agency’s system, we’re going to code in our CRM tool, this is what we’re doing. … Basically, middleware throughput, software middleware will do what humans are now doing to solve that integration problem.

The lack of cross-system interoperability incurs more burdens on agents of SLA departments: for example, new entry of information, complaint tracking, and editing existing information. A representative of department A said:

We did have a full tracking system in our legacy system before 311, before Siebel, which of course is still used because it does not speak to
Siebel. So we have actually created more work for us in that regard because the staff has to enter into both programs. Our folks are entering it both into 311 and to the legacy system. … There are some restraints in terms of what can be done because we utilize the Siebel system for 311 complaint system. While we can utilize it and their information that is specific to our agency or specific items we’ve asked to be put into Siebel, there’s a difficulty to getting that program edited. For instance right now we’re looking at creating a new licensing type under [department A] and due to budget constraints and 311’s processing schedule, it seems as though we can’t edit the Siebel system to add a whole new form for a particular license type. So that’s a great challenge because we’re looking at retrofitting this new license type into existing form and that’s difficult. That’s a difficult process so we have to depend on 311 to do whatever we want to do with the Siebel system. But we have a wonderful working relationship. We all see, obviously that there’s one goal and so it’s a partnership. But something like that is a challenge when you talk about something like programming and so forth.

4.2. Organizational challenges

4.2.1. Goal-demand misalignment

The specific goal of call center operation is for optimization rather than maximization. The goal has changed from 90/30 (90 percent of calls are processed within 30 seconds) to 80/30. The reason why 90/30 is not always a good goal is that more CSRs are necessary to reach the goal, which means 90/30 is obviously a more costly goal. A senior call center manager emphasized the importance of balancing CSRs’ workloads for efficiency.

We were so overstaffed I could have taken 50 people off the phone during peak hours, and it would have no impact on the service level. That is how good it was. For me as a call center person, that’s wasteful. In the city, that’s good. It is good that people have jobs, and they are not call center people. So my objective at the time was to get 90 percent of the calls within 30 seconds. What we were delivering was 100 percent. From just an economical perspective, but it is a great experience. So then our service changed to 90/30, which is very high. That is not a normal standard, 80/30 is kind of the norm. So we went down to 80/30 also because we knew the budget impacts were coming. We still strive to make that obviously, but
we are much more efficient. My entire staff now, I think that was actually challenging too, to get people to understand what it means to be efficient and that means, some people are not going to have the best experience and our goal is to make sure we provide the best customer service to the most possible people, not to everyone. … We could have taken 30 people off the phone and given them a training session. Use that time to do something more productive.

An outsourcing manager of NYC311 also strongly addressed the inefficiency of having to achieve a higher goal in government call centers:

A big challenge comes a lot of times when there is an emergency. Because we certainly have our day-to-day staffing challenges, we lost people, we lost head count. Our service level is hard to make it 80/30 because we were fat, dumb, and happy in the early days. … We were 98 percent service level? No problem. How inefficient was that! That’s fat. That’s not good.

In government, as opposed to the private sector, the increase in citizen demand drives up costs, especially in a call center which is, as a call center professional said “the most expensive channel.” Since agencies are limited by their budget, there is only so much of their resources they can and are willing to invest in projects that increase their workload. When agencies provide good service, people are attracted to use their services, which ironically, increases costs (Brown, 2012). The agencies are operating in a budget-constrained world. Contrary to in the private sector, an increase in citizen demand does not generate additional revenue in the government sector. Thus, government call centers are very cautious about hiring additional agents (Schellong, 2008: 102). With this in mind, setting an appropriate goal in terms of performance level becomes an organizational challenge to the 311 contact center.
4.2.2. Limited funding

Many interviewees strongly agreed that one of the greatest challenges is limited funding. The economic downturn in recent years especially impacted the 311 contact center operations. A senior director of NYC311 said:

The challenge is funding. It’s a matter of everything changed in October of 2008, around that timeframe, the economic crisis changed everything, not always for the bad. So funding became a huge issue, but I believe out of those budget reductions and tighter budgets. The challenges are definitely the budget reductions, but again they’ve contributed, they’ve pushed innovation, they pushed the envelope further, but that’s the biggest challenge.

As the senior director stated, the financial challenge offers the opportunity for innovation toward efficient workforce management and effective data use. A call center manager said:

It’s for us currently and the past couple years, it has been budget reductions. Every city agency has felt the impact of it. We have lost anywhere between 20–26 percent of our staff because of budget cuts at different levels. The biggest impact has been on the call center. So we have had to take a much stronger workforce management approach and use our data wisely.

According to an analyst of the supporting staff groups, major challenges come from customer demand. “Our call volume has just gone up and up,” said the analyst. “With budget cuts and having fewer people answering the phones, our wait times to speak to someone has obviously got longer.” Thus, limited funding directly affects day-to-day operation of the 311 contact center.
4.2.3. Bureaucracy-laden procedures

A senior director revealed limitations to being a public sector call center.

Compared to the private sector, the speed to market in government becomes a challenge in this age of agility.

I think the speed to market is always a challenge as well. We are better or worse compared to the private sector. How come, why does it take you so long to put a mobile app up, or why is that? We’re always going to have, but those are the balance of government work. You do need to have a strong procurement process and you do need to have a strong oversight process because it is the taxpayer’s money, so I understand that, but that makes the timeline a little longer. We’ve figured out how to do multiple things within that timeline while waiting for things to be done.

He also continued in regard to the public sector concern coming from slow procurement processes. There is a reason for such slow processes in government—compared to the private sector call center—where bureaucratic processes apparently become a challenge regarding speed to market and procurement.

Procurement is the challenge, which is the delay, in every step of that. The sales pitch, to get a group, to get the funding, to then turn that into a request, to then go through a procurement process. And it’s not the procurement function that takes long; it’s the rules and regulations that take long. No doubt about it. It adds time, what I call speed to market; it can literally take, in some cases it can take a month or a year to get something done. That in the private sector, if you have a dollar and a dream, you can sell that dollar and that dream and you can execute it tomorrow. It may take a while to on board somebody but you can go ahead and execute it there. So now there’s a balance to that, there’s a reason procurement takes so long, there’s so many oversights, because again it’s taxpayer’s money. But that’s by far the biggest challenge.

Another challenge for a government call center involves hiring procedures. The hiring process is based on civil service exams, which are open for anybody, whether applicants have previous experience in working for a call center or customer services.

There is a risk that the call center might recruit someone who is good only at an exam but
actually is not qualified for the job, but the size of the applicant pool in the city offers an opportunity to select the right people for the job among such a large pool. Nevertheless, a senior call center manager emphasized that the hiring process standardized across all city agencies does not fit the job requirements for a call center:

[One] thing that is very different here isn’t bad or good, just the reality: civil service exams. You sign up, there is an announcement that goes out that there will be a test for call center representatives. Anyone can sign up, no matter if you have experience in a call center, or want to work in a call center, whatever you do, there are no requirements. If you do well on this test you are on a huge list of people and now you can only hire from this list of people for the position. Then once they get here, they are permanent, you cannot fire them. If some can’t perform there are of course going to be repercussions but it can take years to get something done. Now I am getting used to that. There is a list for the CCRs, advisors, there is a list for managers, which is very different for me. Because taking a test doesn’t mean you will be a good manager, that’s experience, it’s going through it. Here is our reality. So when you think how to you train these people. The training approach is very different. You would expect that you’re hiring a manager that has previous experience supervising people. What we have to train for, the worst case scenario that these people are just good at taking a test and they might have never done it before. So how do we prepare for that? It is a very different experience than getting to look at a resume and pick the best candidate. … In a perfect world my qualifications for a good manager is someone who has proven a track record of managing people, being a coach and a developer. Here you would take a test for that position so you have to be able to answer the questions on a multiple choice test on an exam very well, in order to be a manager here. … But luckily we have such a large pool of people that take these exams, we’ve been very lucky to have people that come to us with managerial experience. … Unfortunately, I can just take resumes and say okay this is the person who I want. It really has to do with passing the test and being on the top of the list.

The call center manager also talked about the process of approval for a new position, which also does not allow the call center to reflect immediate needs for additional human resources:

To get the position approved, to have justification for it, to make sure the budget line was approved. To then interview and pick the candidate and then for their paperwork to get approved it has to go through OMB has to
get all the way up to the commissioner level, sign off. So that was about a year. … Sometimes we can expedite things if there is critical justification. We can get someone down here in a month or two. But in my six years here, the quickest I have ever seen anyone get here is a couple or three to four months.

4.3. Cross-organizational challenges

4.3.1. Turf protection

Organizational turf conflicts have been a serious challenge, especially in the beginning of NYC311. Now some degree of interorganizational tension in terms of protecting turf still remains, but the tension has been resolved by the mayor’s strong leadership for citywide customer service and the centralized organizational structure around MOO supporting NYC311. A former DoITT member recalled the early opposition to the merge of some existing call centers.

They didn’t want to give up their call centers because with their call centers there were jobs. So we transferred a lot of different union’s people into 311 and that was a huge challenge. They didn’t want to give up their numbers because they do it differently. That is the line we heard more than everyone else. They didn’t want to give up the call center or the phone numbers. … “We do things differently, you can’t possibly standardize that.” That was the common answer. They definitely didn’t want to give up the phone numbers. That was a battle. They all had cute little names that corresponded to the numbers and they thought that everybody knew their numbers. In some cases it was true; of course I can’t remember one of them now. The police had CRIME STOP. NYC PARKS. No one knew that number. So that was such a fight with them and we got to the point that if they wanted to keep their number their commissioner had to talk to the mayor because they just wouldn’t get rid of it.

A liaison from an SLA department also had a cynical view of the 311 launch because she has seen city agencies’ tendency to guard their turf as very strong:

My first reaction was a little cynical, like “Wow, how is that going to work?” but when I realized it was going to work with us it transformed my view of it. In the beginning I think a lot of people were scared of turf
problems, meaning they were protecting their turf or they didn’t want another entity to control it or a city agency to control it. … I am sure you hear things about city fire, city police, these were people that were really terrified for their turf. They were trying to protect their territory. So it was hard to break that culture of, protecting my system for the City of New York. … Everybody is protecting their turf. What it really came down to was a lot of people being really protective of their turf, so it was a lot of people being protective of their own turf. That was the biggest challenge.

The turf conflict also occurred with the city’s watchdog, the Office of Public Advocate, and five borough presidents because NYC311 takes one of their important jobs: receiving constituent complaints. A former DoITT staff person recalled:

The tension with a political office was with the Public Advocate office, because the Public Advocate actually received complaints. When you can’t get something solved in city government you call the Public Advocate. They are a separate elected official, so they are a watchdog of the mayor. That office does not have a lot of power, but they were not happy with 311. We were going to take their volume. The other people that weren’t happy were borough presidents because they also fix problems for their constituents. People come in and solve a problem. That’s a vote, so they didn’t love 311. … The Council was generally supportive because they loved the idea.

The NYC311 launch project was generally challenged by many elected officials and members of the city’s 59 Community Boards. They opposed the costs and were also afraid of losing contact with their constituency. In particular, the Community Boards felt they would be pushed aside by 311 operations in their own work of helping citizens who struggled with any kind of government issues (Schellong, 2008: 100).

The initial turf conflicts were resolved by the city’s government structure (strong mayor system) and the mayor’s powerful influence. One NYC311 director-level interviewee said:

There was agency turf. There was also a political turf struggle. New York has a different structure. The thing here is that the mayor is in charge here and the agencies do what the mayor wants. The Council can give us some
budget grief and the borough presidents can complain, but it isn’t going to stop us from doing it. Community Boards were not happy about it. So we tried to do what we could for them. We talked at one point about putting 311 terminals at the Community Boards.

### 4.3.2. Interpersonal-based coordination

While the role of agency liaisons is critical to coordination between NYC311 and the agency, interdepartmental coordination for day-to-day operation heavily relies upon the ability of the liaison. Thus, liaison-based coordination is influenced by interpersonal collaboration to a substantial extent. There are some challenges related to the responsibilities of liaisons. Liaisons may have their own responsibilities for their department other than informing 311 agents of updates. They may be on rotation, and it may take some time for them to become familiar with the role of liaison. The frequency of meetings with 311 analysts varies with departments. An interviewee of NYC311’s Agency Relations Group said:

Liaisoning has always been a challenge dealing with the agencies because they say that through the single point of contact and sometimes if that person is in the press office, it makes it easier but they’re not often there and very few agencies have a dedicated 311 liaison. It’s basically someone who more or less had a fulltime job and now they have the responsibility of being our liaison. … So each liaison may not know about a marketing campaign that’s going to be started next week or letters that were sent to 15,000 people. So it’s like a struggle trying to get them, there’s not the person that would be aware or touching base within their organization to find out about these things. … Agencies don’t always make the connection. We’re not mind readers. If you want us to be able to convey information about your new initiative, you need to tell us upfront. … Our workforce team would like to do three months’ notice before anything since we would have to plan for overtime. A lot of these agencies don’t know what they’re going to be doing in three months. But we’ve gotten into the habit of going to each agency each month, saying “Anything coming up in the next three months?” So unfortunately your liaison might not be the person that knows that and this is what we talked about before. And we hope the liaison will go out into the agency and make sure that those people know if they’re going to do something that could possibly impact 311. They have
to know and let their liaison know. … Because if you have a liaison who doesn’t care what happens to 311, they’ll let you find out because someone got this letter and it says “I’m calling you because it said call 311.” We’re caught completely unaware. So I think these agencies that have come to depend on us because we are taking over a lot of work they used to do and things that they shouldn’t necessarily have been doing. I mean one of our goals is to free up the agencies to do what they do their best at and the things we can answer. … It’s gotten better and you know the analyst have gotten stronger relationships with their liaisons that’s improved. But then again the liaisons could change up. I had one agency, every six months I had a new liaison and you had to break them into this is how we work, this is why we need the information this way, so it’s sort of the stability on their end. It can also be a factor in how that relationship is and also how senior that person is because you got you know some really junior person in the press office. … they’re not going to help us make decisions and be aware of when big things are happening that we need to plan for.

4.3.3. More burdens on other agencies

NYC311’s 24/7 operation is not aligned with the operation of ordinary 9-to-5 agencies. NYC311 receives service requests on behalf of other departments that do not operate after 5pm. There are various challenges stemming from the difference between the two operations’ hours. SLA departments that still have their own call centers may see NYC311’s 24/7 as more of a burden to them. A representative of an SLA department said:

What did happen was, because 311 is 24 hours vs. our 9 to 5 for the most part, complaints increased. Lost property reports. The complaints overall increased. So we had to add staff members, increase staffing levels. But that was it, it wasn’t a situation where they took over something fully. … We had a higher volume because 311 is 24/7. So we take in the reports and of course are responsible for processing them. That’s what happened for the most part. But they never fully took over our call center or anything of that nature. It was just an enhancement of the call center, I guess. … Prior to 311, people would just call during business hours to our call center and if we were closed there was a voice mail where people could leave messages but it was really rare. There weren’t a lot of calls left. So that’s an example where we would get more reports now because it’s available to people 24/7 as opposed to us being 9 to 5. Someone calls after
5, a person may decide to leave a message or not. … If they couldn’t get through to us or couldn’t contact us within the business hours, they might have given up and said “Oh well, maybe next time.” But now they can go home and then go file a complaint. Anything 311 touches quadruples.

### 4.4. Contextual challenges of the city

Many interviewees are seeing the emergence of a new segment of the city population among NYC311 users. Some interviewees consider the phenomenon to be the result of the digital generation, while others attribute it to NYC311’s proactive outreach strategy in phase 2. Interestingly, the call volume, despite the diversification of contact channels based on new technologies, never goes down. One director-level interviewee said:

> We have opened up all these channels to reach different customers but our calls haven’t decreased. They are the same or even more, so we reached out to different populations. That’s just what happened. We opened the door to other people who haven’t been contacting us. Right into new channels because it is just a different way of contacting us to make it easy for our customer.

Instead, the number of contacts continues to increase, while some types of calls (probably seeking information or for certain types of service requests) migrate to 311 online or other channels. One call center professional talked about the current trend:

> For certain types of calls we’ve seen and will see reduction in call types. There are still other types of calls that people all we have done is open up a different segment for them or all we have done through 311 online in some cases is we found new customers. We didn’t really replace our call center customers. So the call center customers might now be doing two or three different things instead of one. Or we found this new market that has never called us before but they found 311 online and now they are going to be 311 online customers. Certain call types will go down, but overall there will never be a day where the call center is not needed.
Creating new channels offers an opportunity for new markets, and at the same
time, a challenge in managing more diverse front doors of the city government. One
senior NYC311 director said, “We create new channels. We aren’t really getting rid of
callers. We are creating new markets.” However, there is a challenge concerning the new
market of NYC311. It is hard to know who migrates to new channels and enters the new
market, especially considering the city’s ever diverse population including residents,
visitors, and businesses. Currently, information about an individual citizen is considered
less important than the location and type of problem. Hence geography is really the most
important part for NYC311. There is much more of an anonymous relationship between
the NYC311 customer and government. The next phase of CRM in the public sector can
involve creating a personalized customer relationship (Schellong, 2008).

Nevertheless, interviewees voiced their concerns about creating citizen profiles
and customer segmentation. The only area where NYC311 made an exception was for
social services. CRM allows government to get a better understanding of those in need to
support them. Obviously there is much lower acceptance of customer segmentation in the
public sector than there is in the private sector (Schellong, 2008). It may be politically
challenging to figure out a way to segment customers as a means of serving them
differently because, for the most part, NYC311 tries to treat all of their customers equally.
There may be some customers who are really on the tail end of the distribution that
NYC311 has to segment. There is the possibility of a process by which 311 would
segment customers not by who they are, but by the reason for their call. Currently,
NYC311 does not attempt to track individual customer behaviors. Many interview
participants agreed that the city and NYC311 are very cautious about that. A reasonable
fear is that people would fear big government—big brother is watching (Schellong, 2008: 104). One interviewee discussed the possibility of improving customer relationship management:

Where 311 wants to end up is providing optimal service for a citizen. If that means it’s my first time calling about a problem, we want to be able to resolve that problem quickly. And over time, as you start to call back, we want to start to look for patterns, like Amazon.
CHAPTER 5. A CASE STUDY OF PHILLY311

This chapter presents findings from the case study of Philly311. The chapter is structured into five sections. Section 1 describes the case, Philly311, in terms of its history and current status. Section 2 addresses the process of creating capabilities for service integration through SLAs and a knowledgebase. Section 3 presents critical success factors of Philly311. Section 4 presents major challenges Philly311 is facing.

1. Case description

Philadelphia is one of the last cities of its size to activate a 311 non-emergency toll-free number. On the last day of 2008, the mayor and the managing director opened Philly311 as a concrete step toward the administration’s goal of a “smarter, faster, and better government through customer service, government efficiency, and accountability” (see www.Phila.gov). The idea—giving the public a direct way to request services or complain and create a database of feedback to hold government accountable—was not entirely new to Philadelphia. The city already had multiple customer hotlines, but there was no single contact point. The new 311 contact center absorbed the City Hall Switchboard, the Mayor’s Action Center (the successor to the Office of Information and Complaints), the Department of Licenses and Inspections’ customer line, and part of the Department of Streets’ customer line (Ginsberg, 2010: 6). As a consolidated channel that integrates existing call centers, Philly311 basically provides three services: general information (a customer inquiry that can be resolved using the 311 knowledgebase); department referral (a customer inquiry that cannot be resolved using the 311...
knowledgebase and is escalated to a city department); and service requests (one of a specific list of requests for city service that the 311 contact center accepts and distributes to the appropriate department by automation). For that, Philly311 offers various ways to contact the city: phone call, in person (Philadelphia is one of a few cities that have a walk-in center), email (through www.Phila.gov/311), short message service, and social media (Twitter @Philly311). It does not currently operate 24 hours a day and 7 days a week due to budgetary constraints. Table 23 describes quick facts of Philly311.

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date when the system is launched</td>
<td>December 31, 2008</td>
</tr>
<tr>
<td>Number of services provided</td>
<td>Less than 100</td>
</tr>
<tr>
<td>Number of contact center agents</td>
<td>Less than 60 (fulltime city employees)</td>
</tr>
<tr>
<td>Departments on SLAs</td>
<td>Managing Director’s Office (MDO), Streets, Licenses and Inspections (L&amp;I), Police (PPD), Water, Parks and Recreation (DPR), and Fairmount Park</td>
</tr>
<tr>
<td>Annual budget</td>
<td>About $3million</td>
</tr>
<tr>
<td>Operation hours for call/walk-in center</td>
<td>8 am to 8 pm on Monday to Friday, Closed on Saturday, Sunday, and holidays</td>
</tr>
<tr>
<td>CRM</td>
<td>Novo</td>
</tr>
<tr>
<td>Request type distribution on average</td>
<td>General information (70%); Departmental referral (17%); Service request (12%)</td>
</tr>
<tr>
<td>Knowledgebase</td>
<td>More than 3,000 articles (Information about 50 city and state agencies)</td>
</tr>
</tbody>
</table>

The number of services provided through Philly311 is currently less than 100, since only seven departments have joined SLAs with Philly311. Table 24 lists the main services requested. These services are delivered by the seven SLA departments.

Philly311 service is not mandated to all city departments and agencies. Philly311 staff identified key citizen service areas of the city and selected those to be the first wave of Philly311 agencies. As a result, the seven departments included in Table 23 have been
identified as core providers of frontline service. Currently Philly311 responds to service requests related to only these departments, while the 311 non-emergency function of providing general information covers more diverse agencies and departments.

Table 24. The list of main service requests to Philly311

<table>
<thead>
<tr>
<th>Service request</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abandoned Auto</td>
<td>Vehicle that appears to be abandoned</td>
</tr>
<tr>
<td>Building Construction</td>
<td>Problems with building construction including no permits</td>
</tr>
<tr>
<td>Building Dangerous</td>
<td>Building causing a possible dangerous situation</td>
</tr>
<tr>
<td>Dangerous Tree</td>
<td>Live tree causing damage to adjoining property</td>
</tr>
<tr>
<td>Ditch</td>
<td>Man-made hole in street needing repair</td>
</tr>
<tr>
<td>Drainage Maintenance</td>
<td>Property with external sewage issues</td>
</tr>
<tr>
<td>Illegal Dumping</td>
<td>Dumping of debris on street or public area</td>
</tr>
<tr>
<td>Graffiti Removal</td>
<td>Building or other surface needing graffiti removed</td>
</tr>
<tr>
<td>Maintenance Residential</td>
<td>Residence with Interior or External maintenance issues</td>
</tr>
<tr>
<td>Rubbish Collection</td>
<td>Trash that was not picked up on designated trash day</td>
</tr>
<tr>
<td>Sanitation Violation</td>
<td>Trash that was not put out correctly</td>
</tr>
<tr>
<td>Street Light Other</td>
<td>Street light needing wiring or other type of work</td>
</tr>
<tr>
<td>Street Light Outage</td>
<td>Street light needing bulb replacement</td>
</tr>
<tr>
<td>Street Tree</td>
<td>Tree between sidewalk &amp; curb needing maintenance</td>
</tr>
<tr>
<td>Traffic Other</td>
<td>Traffic light request where immediate repair is not needed</td>
</tr>
<tr>
<td>Traffic Signal Emergency</td>
<td>Traffic signal needing immediate repair</td>
</tr>
<tr>
<td>Vacant House</td>
<td>Building that needs to be cleaned &amp; sealed</td>
</tr>
<tr>
<td>Vacant Lot Clean-up</td>
<td>Vacant lot needing clean-up or debris removal</td>
</tr>
<tr>
<td>Zoning Business</td>
<td>A business operating without proper licenses or zoning</td>
</tr>
</tbody>
</table>


The most frequent inquiries for general information and departmental referral include police district or report request (PPD), court location or judge information (First Judicial District), code violations or licensing (L&I), trash or recycling information (Streets), facilities or inmate locator (Prisons), parking violations and towing locations (Philadelphia Parking Authority), city tax information (Revenue), water pipes and inlets (Water), water billing (Water Revenue), and child services (Human Services). The number of requests for seasonal information such as snow and flood emergency planning increase substantially during certain weeks.
According to the interviews, the city’s executives are considering the expansion in terms of services and information by adding more departments to the SLAs. Regarding the limited scope of the SLAs, one of the Philly311 Launch Project Team members said, “311 is still in infancy, just three years old.” Most interviewees also agree that Philly311 has developed successfully since the launch, but there is still plenty of room for further improvement and extension to follow and catch up with other advanced versions of 311 systems in New York, Chicago, Baltimore, San Francisco, and elsewhere.

**Figure 3.** Philly311 maturity model

<table>
<thead>
<tr>
<th>PHASE 1</th>
<th>PHASE 2</th>
<th>PHASE 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>LAUNCH</td>
<td>TECHNOLOGY</td>
<td>PROJECT IMPLEMENTATION</td>
</tr>
<tr>
<td>Current status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Initial level</td>
<td>Repeatable level</td>
<td>Defined level</td>
</tr>
<tr>
<td>Disciplined process</td>
<td>Standard and consistent process</td>
<td>Predictable process</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Continuously improving process</td>
</tr>
</tbody>
</table>


With this recognition, Philly311’s Project Team members have created a maturity model illustrated in Figure 3. 311 systems of other metropolises with histories of ten or more years are identified as being in the mature stage. In the model, Philly311 is still in phase 1, the initial level, because technology as a key tool of advancement to the next phase has not been fully utilized. The business process of Philly311 will evolve from the current disciplined process through the standard and consistent process to the predictable process. The final phase in the trajectory stabilizes sustainable improvement in adopted technologies, contact center representatives, and internal business processes.
Throughout phase 1, Philly311 has achieved many improvements. Table 25 shows the milestones of Philly311. Interviews with Philly311 staff and former Launch Project Team members provided concrete information as to what has happened since the preparation stage, specifically one year before and one year after the launch.

**Table 25.** Milestone events of Philly311

<table>
<thead>
<tr>
<th>Time</th>
<th>Events</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan 2008</td>
<td>• Mayor Nutter announces the launch of 311 system</td>
</tr>
<tr>
<td>Mar 2008</td>
<td>• Performance Management Advisory Group forms</td>
</tr>
<tr>
<td>Apr 2008</td>
<td>• Partnership with a national consulting firm starts</td>
</tr>
<tr>
<td>Jun 2008</td>
<td>• Finalizing the implementation plan</td>
</tr>
<tr>
<td></td>
<td>• 311 Director hired</td>
</tr>
<tr>
<td>Jul 2008</td>
<td>• Interdepartmental collaboration on populating knowledgebase</td>
</tr>
<tr>
<td>Sep 2008</td>
<td>• Recruitment plan changes due to budgetary constraints</td>
</tr>
<tr>
<td>Oct 2008</td>
<td>• New internal hire training</td>
</tr>
<tr>
<td>Dec 2008</td>
<td>• <strong>Launch (24/7, 365 days)</strong></td>
</tr>
<tr>
<td>Jan 2009</td>
<td>• Getting on-loan call agents from private sector partners</td>
</tr>
<tr>
<td></td>
<td>• Snow emergency</td>
</tr>
<tr>
<td>Apr 2009</td>
<td>• H1N1 flu epidemic</td>
</tr>
<tr>
<td></td>
<td>• The first reports to PhillyStat, City Council, and executive leadership</td>
</tr>
<tr>
<td>Jun 2009</td>
<td>• 500,000 inbound calls</td>
</tr>
<tr>
<td>Sep 2009</td>
<td>• Operation hours reduction (8 to 8 on Monday to Friday, 9 to 5 on Saturday)</td>
</tr>
<tr>
<td></td>
<td>• Staff cuts</td>
</tr>
<tr>
<td></td>
<td>• Southeastern Pennsylvania Transportation Authority (SEPTA) strike</td>
</tr>
<tr>
<td>Oct 2009</td>
<td>• IVR installed</td>
</tr>
<tr>
<td></td>
<td>• Neighborhood liaison program launched</td>
</tr>
<tr>
<td></td>
<td>• 1,000,000 inbound calls</td>
</tr>
<tr>
<td>Dec 2009</td>
<td>• Snow emergency</td>
</tr>
<tr>
<td>Jun 2010</td>
<td>• 2,000,000 inbound calls</td>
</tr>
<tr>
<td>Jul 2010</td>
<td>• Operation hours reduction (8 to 8 on Monday to Friday)</td>
</tr>
<tr>
<td></td>
<td>• Staff cuts</td>
</tr>
<tr>
<td>Oct 2010</td>
<td>• Flood emergency</td>
</tr>
<tr>
<td>Dec 2010</td>
<td>• Flood emergency</td>
</tr>
<tr>
<td>Apr 2011</td>
<td>• 3,000,000 inbound calls</td>
</tr>
</tbody>
</table>
The idea of 311 had been discussed since the previous administration, but launching a 311 system in the city was not actually considered for various reasons including budgets, other priority agendas of the city, and the lack of strong political champions. The current mayor’s campaign team seriously considered the possibility of a 311 program in Philadelphia. In January 2008, the mayor and the managing director (the city’s chief executive officer) announced the launch of Philly311 within the year. Fulltime capacity for preparation was created in the following month. The Philly311 project began on March 18, 2008. On that day, the Managing Director’s Office (MDO) gathered a Performance Management Advisory Group. This group, comprised of private sector partners, members of academia, and city government employees, was tasked with developing a vision for a customer service and performance management system, including Philly311 and PhillyStat (the city’s performance review program in which the top leadership members participate).

In early April, the Philly311 Project Team began working with a national consulting group to develop a detailed strategy and implementation plan. The finalized plan developed by the Project Team with the support of external partners was approved by early June. Throughout the summer, the Philly311 Project Team worked on the civil service testing process to hire staff and select software and technology tools. In July, a group of over 30 Philly311 liaisons from various city departments began populating the Philly311 knowledgebase. These liaisons helped to populate over 2,000 knowledgebase articles (currently more than 3,000) using existing departmental frequently asked questions (FAQs), literature, and brochures.
As summer turned to fall, the economic recession across the nation caused a severe loss of revenue in the city’s budget. In November 2008, the city implemented an emergency budget package to address a billion-dollar shortfall to occur over the following five years, including a $108 million deficit that year. Just two months before the public launch of Philly311, resources devoted to marketing and advertising for Philly311 were eliminated. All marketing/advertising had to be done at a grassroots level using internal city government resources.

The budget cuts meant scaling back or postponing key elements of the Philly311 strategy. The insufficient budget created two severe challenges: under-staffing and under-equipping. The Project Team leadership decided to delay hiring externally and hire only internal city government transfers, including city employees who would have otherwise been laid-off due to the economic downturn. Philly311 was not able to install the kind of software best suited for integrating 311 with city agencies’ computers and generating data for the public and city managers to analyze, and they had to use old, Web-based CRM software and tailor it using internal resources to meet the needs of a large municipal 311 system (Morgan et al., 2009). The Philly311 Project Team, the Managing Director’s Performance Management Team, and the city’s Division of Technology worked together to configure the CRM system to be an easy-to-use tool to track calls, look up information using keyword searches, and send service alerts to the appropriate department. Some specific city departmental work-order systems were tied to Philly311 so that service alerts could go directly into a department’s system, representing functionality similar to that of a full CRM system at a fraction of the cost.
Despite the two big hurdles—preparing the launch on a tight timeline and having to do so with under-equipped and under-staffed conditions—Philly311 was successfully launched on the last day of 2008. The Philly311 Project Team members emphasize in interviews that the impetus for the launch even under unfavorable conditions is the mayor’s strong will to make his vision for customer service the reality and the dedication of his leadership team to helping launch the system. The Project Team made it easier to engage city government employees in the 311 launch project by sharing the mayor’s clear vision.

According to Philly311 senior staff members, Philly311 is now preparing to move forward to phase 2, but budget constraints have led to a reduction in operation hours and staff for the past three years since the launch. Philly311 started with a shortage of six agents, and the original operational goal of 57 agents has still not been met. To help overcome hiring challenges and keep up with an ever increasing call volume, Philly311 staff had to get creative. They encouraged many of the same city department liaisons who helped to populate the knowledgebase to volunteer in the contact center. Those liaisons were quickly trained to take customer calls and assist with other back-office functions. In addition, Philly311 partnered with a popular health insurance company to take on-loan call agents from its well-performing call center. After an initial training period, these on-loan call agents began taking calls side-by-side Philly311 agents.

“Philly311 can serve as a model for other counties and cities that are thinking about starting 311,” said one Philly311 staff person. Beginning in 2008, challenges resulting from under-staffing and under-equipment have not been fully resolved. However, interviewees, looking back on the three years, offer insights into overcoming challenges.
The Philly311 experience highlights how a city can launch and operate well with an aggressive timeline and budgetary constraints.

2. Building capabilities of service integration

With the goal of catching up with other cities and becoming a national leader in customer service, the city government launched Philly311 within a very tight timeframe (only 11 months from February to December in 2008), which no other city of Philadelphia’s size has managed to do so quickly in launching a 311 center operation. The aggressive timeline itself was not a serious problem, but rather, early challenges (under-equipping and under-staffing) stemmed from the budget crisis experienced by the whole city government during the national economic recession.

One of the Project Team members said, “To citizens Philly311 looks seamless on the front side, but the back office operation is really complicated.” Regarding that, Ginsberg’s (2010) case study of Philly311 provides an account for the gap between the citizen perception of frontline services and the back-office implementation: “This sequence—starting with the front-end contact center and then building the back-end coordination with city agencies along the way, if feasible—was the opposite from what was generally recommended” (p. 9). The model of Philly311 apparently shows the strategy of beginning by providing public-facing customer services and then establishing back-end capabilities for service integration later. The move to phase 2 requires substantial improvements in the back-end coordination and integration, and thus, Philly311 is now implementing CRM projects and other technology projects to go
forward to the next level of maturity (see PhillyStat presentation: www.phila.gov/performance).

Back-end coordination to build frontline service integration capabilities was conducted through two processes: creating SLAs (related to service requests), and creating a knowledgebase (related to general information and departmental referral). The process creating SLAs integrates the city’s core frontline services into a single consolidated channel, and the process creating the knowledgebase leads to integrating numerous pieces of department-specific information into a single database. This section describes how SLAs and a knowledgebase are created.

2.1. Integration of service channels through service level agreements

Philly311 is integrated with agencies through written SLAs. One of the Project Team members emphasized, “Everything started with service level agreements.” These SLAs were completed before the public launch of Philly311. Of crucial importance to help the city government improve service delivery and customer service were SLAs made between Philly311 and various city departments (Morgan et al., 2009). Written SLAs codify each function of the city’s seven departments (i.e., MDO, L&I, Streets, Police, Water, DPR, and Fairmount Park) with a specific timeframe for completion. These are agreements as to what the customer could expect when they called Philly311 to place a service request. SLAs are also a formal contract between a service provider and customers that quantifies the minimum quality of service which meets the business need (Hiles, 1994: 14).
SLAs bind Philly311 to each particular city department. For example, if a city department agreed in their SLA to deal with an abandoned building in 20 days, this information is communicated to the customer and the department is held accountable to complete the service in that amount of time or provide information back to Philly311 as to why the service could not be completed in the agreed-upon amount of time. There is a perception of SLAs as an internal policy of service delivery. One staff member of an SLA department said, “We created a service level agreement, which was internal policy that did not exist before.”

In the early days of Philly311, many SLAs were reviewed and revised. The SLA review and revision process allowed city departments to learn more about Philly311 operations and in turn allowed Philly311 to learn more about the workings of other departments. The process also helped Philly311 to better communicate appropriate expectations to the customers, in terms of when services would be completed. SLA data from Philly311 was being used to discuss city departmental performance at public PhillyStat meetings.

Further work for service integration entails the connection between customer requests for frontline services provided by SLA departments and the work-order systems of key city departments. Huge efforts were devoted to the development of a Web-based CRM system that would be integrated with Philly311 and departmental work-order systems (Moulder, 2009: 4). Some work-order systems are tied to Philly311 so that service alerts could go directly into a department’s system.
2.2. Integration of information channels through knowledgebase

Philly311 has created the city’s first-ever knowledgebase (a searchable database of information about various city services and the list of questions that can be asked about those services and answers) with a clear process for updates and corrections. The process of creating the knowledgebase entailed interdepartmental collaboration on the integration of department-specific knowledge and information. The knowledgebase enables CSRs and residents to look for an answer simply by typing a few keywords (Ginsberg, 2010: 6). Philly311 staff members have collaborated with representatives from other departments on reviewing, updating, and revising both SLAs and the knowledgebase for readily available responses to service and information requests, through regular meetings with internal partners who are essential to citizen service. One of the Project Team members described the process of creating the knowledgebase:

How did we populate our knowledgebase? We had no time and no money. Other city employees helped us populate the knowledgebase, putting information into the system, validating information in terms of the outside perspective, also in terms of allowing employee to learn about what the department actually does. In the initial launching period, [we said to the department] “Here is the knowledgebase. Look at that and check it out what the department does.” … Architecting process continued on. Formal and informal. The executive team played the game. They asked some questions to city departments. [The departments said] “We have it there” or “We don’t have it there.” That takes a lot of guts. We opened the process, and we formalized the process, kind of presentations and performance management works. We make sure all channels are open to have feedback and get some advice.

Like this, departmental commissioners and deputy mayors got into the action by playing frequent games of “stump the knowledgebase,” where city leaders would ask the Philly311 knowledgebase random questions in an attempt to find missing information (Morgan et al., 2009). According to the former Project Team member, this work proved
to be a fun and entertaining way to help ensure quality control over information in the knowledgebase. For line departments, the collaborative task to create the knowledgebase offered an opportunity for new understanding of their jobs, but at the same time it was an additional tough burden. One commissioner of an SLA department recalled the process of creating the knowledgebase.

The first thing we did was we decided who has knowledge. We started brainstorming on what is the basic thing in the knowledge center. We went through questions and answers. What do people call you about? And then how do they answer that? I actually transferred my staff to 311. There was a period of training. We also had weekly meetings to figure out what other issues are. It was a growing pain. It was really understanding capacity, what we do, what a system is, what it means to say, what we respond to service request.

3. Critical success factors

This section presents critical success factors drawing from the interviews. The factors have led to the successful launch within an aggressive timeframe and the operation that meets the initial level of goals.

3.1. Technological factors

3.1.1. Adaptive strategy

Since recession-driven budget cuts were causing under-staffing and under-equipping, the city had to create a less costly and less resource-consuming way to achieve Philly311 objectives. According to interviewees, managers of the system patched together software to emulate aspects of a full-blown 311 system. Rather than buy a new system, the city has added extra features to the low-cost software and created its own
technological patches. Philly311’s adjustments entailed tailoring a Web-hosted CRM to meet the needs of Philly311 at a fraction of the costs. The Web-based tool provides a basic function to enable callers to type the service request number and see its status. Overall, the adaptive and flexible strategy was pivotal to overcoming the earlier challenges from under-equipped conditions, and the temporary software with short term patches became the permanent system (Ginsberg, 2010: 9). Currently, upgrading CRM software is being considered.

3.1.2. Timing of investment

Though adaptation was a smart solution to under-equipped conditions, having to use the limited CRM has been an obstacle in moving Philly311 to phase 2. A Philly311 senior staff person stressed “the right technology at the right time” as a technological factor to lead to the success of a 311 contact center:

When we begin, technology has to be part of that strategy as well because we have to use technology to improve performance, efficiency and effectiveness. Technology is key to this call center. Technology continues to improve what we have. We need to have the right technology at the right time. We need to invest in this organization. It helps us from a customer service standpoint. That’s ability to collect data. Why are they calling? What can we do to improve? Customer situation comes from the use of the data. This is why PhillyRising (the city’s neighborhood revitalization initiative) comes in and PhillyStat comes in because they use our data to determine why constituents are calling, responding to them adequately and timely. Technology is key to these functions. For that, we need the right technology at the right time.

Even if technology is critical to 311 functions, the city could not invest the right technology (CRM, IVR, and telephony among others) at the right time (before the
Another interviewee who has a role in managing Philly311 day-to-day operation commented:

Having the full capacity wasn’t feasible from where we were, because we actually launched in the midst of budget crisis. So this new agency was launching all these great things in the middle of budget crisis. We clearly could not move forward with upgrading with our CRM, and we didn’t change our recruitment strategies. The budget crisis impacted us in a significant way, but we are still able to achieve a majority of outcomes we established. But we didn’t achieve what we thought about our CRM.

Philly311 staff interviewees agree that if they have a sufficient amount of money, they will invest immediately in CRM and other technologies necessary for call center operation. As Ginsberg (2010) reveals, the sequence of investment—“starting with the front-end contact center and then building the back-end coordination with city agencies along the way” (p. 9)—was in opposition to a general model of 311 contact centers. Thus the following steps to improving Philly311 should invest in the right technology at the right time.

### 3.1.3. Frontline service channel diversification

New technologies to diversify frontline service channels offer opportunities for bringing more people into 311 services. One senior staff person said:

We saw significant increase in using social media, especially Twitter. Twitter use is very event-driven. We got a hurricane and an earthquake in the same week. The following week we had a storm. Those three events increased our Twitter followers because we were providing information and updating it. People realized we did that. … Our finding is that this is a new medium that people are using to make a request or follow-up on requests. But that’s not the most ideal. Twitter allows limited characters. Email vs. call vs. social media. Each has its own strengths and weaknesses. … For us, calling or coming to the walk-in center is a primary vehicle that people are using to reach us. But we’re seeing some flipping in the numbers. The call center is still a predominant way to choose to interact
with us. But we’re seeing a little decrease in calls and an increase in
e-mails and an increase in social media. What this is saying to us is that
some people might be migrating to those new options.

As this interviewee said, phone calls will continue to be a primary way to submit
service requests, but different channels are being used in a mixed way varying with
different functions (requesting services, looking up information, getting alerts, and
tracking requested service). In addition, some interview participants agreed that the
channel management may need to change reflecting the increase of 311 users who fall
into the digital generation (Generation Y), or the following generation after them.

3.2. Organizational factors

3.2.1. Leadership

Many interviewees recognized top management leadership as a critical success
factor. The mayor’s leadership was exerted through putting forth his vision for the whole
city and sharing it with all government employees. A core member of PhillyStat said,
“311 is the mayor’s priority, ensuring to achieve his priorities and milestones.” One of
the Project Team members talked about how the mayor’s vision and leadership
influenced the launch and initial operation of Philly311 in the early days of Philly311.

The driver was the mayor, the mayor’s vision at that time, and the
managing director drove aligned to the mayor’s vision. As a project
manager, I was involved in many projects both inside and outside the city.
Any project manager wants more time and more money. But the mayor
took a strategic risk. We were going to set a time limit, at least for the
launch. That’s a fixed thing. But I think we have seen government can do
that before. His approach is “open that door and then make the fix.” We’re
going to open up basically. For me, that’s really motivational from the
project management perspective. We were facing great financial collapse.
Then how did we sustain that? We’re sticking to the mayor’s vision even
in this environment, which was very real, in the end of 2009 and 2010. …
Honestly saying, the emergency timeline [to launch 311] might be crazy. For the timeline, eight months window vs. three years window? We need to prioritize. We don’t have enough time for everything. Give us top 10 or top 20. That changes the conversation. These five come in this period, and another ten later. That’s the project management perspective, not the customer perspective. Customers don’t care about the crazy timeline. How challenging? … But in retrospect, we made it easier to engage city employees in the 311 project by having a clear vision. … The mayor would not say two years later. He announced the plan at the end of the first term. No one has done that before. Not only the timeline, also financial crisis. … The mayor opened the door for us basically, and allowed that to happen by having such a clear vision.

Other interviewees from SLA departments also agreed that leadership at the top and vision from the top are critical to 311 center operation in collaboration with other agencies and departments. One interviewee at PPD said, “His vision emerges around the roles of police officers.” In this way, the mayor’s strong leadership has led the key departments to follow his vision for improving customer service and join the activities to assist Philly311 implementation. One executive-level interviewee explained the meaning of visioning in the city.

A critical factor is vision of what the city looks like. We need to have the ability to communicate about that vision in clear simple terms to everyone. And about what the change looks like and how we want that. Change in behavior, oftentimes, commitment, communication of what the change is. What the change is and why it is important to each individual and each organization, including citizens, community groups, city employees, city leadership, and the whole range of people.

3.2.2. Executive support

One of the key organizational factors is strong executive support and commitment to 311 service. As champions of Philly311, the top leadership suite (the mayor, the managing director, and their team) has a shared vision for customer service. The mayor proposed a strategic goal for the city: to make the city’s government a national leader in
customer service. He and his leadership team see Philly311 as the primary tool for making this happen. Consistent strong support from city leaders and top management is vital to making this vision a reality. Many interviewees said that executive support plays an important role in ensuring city government employees are aware of the value of Philly311 and turning them into internal champions for Philly311.

Another root of strong executive support is the executives’ view of data-driven management. Philly311, according to executive-level interviewees, is seen as essential to the larger performance management effort being carried out in the city. The mayor, the managing director, relevant deputy mayors, and representatives from the departments and agencies meet regularly for PhillyStat meetings where the data from Philly311 is used to discuss departmental performance. Managing, tracking, and monitoring organizational performance through these meetings relies heavily on data from Philly311.

One Philly311 staff person said, “We are the only agency-level centralized database. Nobody has that.” The 311 center manages the repository of all logs of communication (calls, emails, and text messages) with citizens. By providing city agencies and officials with access to information about citizen needs, Philly311 is recognized as a foundation for more informed decision making throughout the city. In general, there is a sense that city resources are being more effectively and strategically allocated and used. In this way, Philly311 provides the city’s executives with a powerful tool for performance management based on accurate data.
3.2.3. Quick organizational learning

With the mayor’s strong leadership, the first-launch-then-fix approach required quick learning by doing. One of the Project Team members recalled the learning process before the launch:

We had very limited call center operations. But it was really transitional. We quickly learned what other cities are now doing. We spent a lot of time in Baltimore and Chicago. We went to New York. We faced challenges. We later learned. … We had limited experiences, at least in the customer service function.

In addition to learning from practices in other cities, Philly311 learned by doing (from citizens and other departments). A Philly311 senior staff person talked about learning by doing in the first year.

We are now able to respond appropriately to customers. We are moving to the proactive stage. But in the first year, the first snow, customers were telling us. This year, what happened is a huge win from us. Customers are calling here, we collect data, and people began to see the change.

3.2.4. Human resource management

Two success factors related to human resources are identified. First, flexible staffing (internal transfers and on-loan call agents) turns out to be critical because the best case scenario for peak performance and operation has never happened; instead, the staff has developed the skills through internal training of inexperienced transferred employees to perform well even under less than ideal conditions. Launched during a budget crisis, Philly311 was initially restricted to hiring city workers who were facing layoffs from other city departments.

Second, a comprehensive skill set is required for the higher quality of individual CSRs. According to a senior manager of an SLA department, having complementary skill
sets is a critical success factor for her department, and thus team members should have various complementary skills. Similarly, 311 call center representatives should have several required skills and job attitudes in terms of customer service agents and users of call center technologies. One senior staff member of Philly311 addressed required skills as a call center agent:

The call center is a little bit different from a regular government job, in terms of having the right skill sets. We need to make sure that they have the right skill sets and they are a good match for this call center. Customer service people fit the call center. Two different skill sets are required: customer service skills and technical skills.

3.3. Cross-organizational factors

3.3.1. External strategic partnership

Private sector companies with their own customer service center were important partners to the Project Team in developing a detailed strategy and implementation plan that addressed all elements of the project plan in terms of administration, staffing, technology, budget, and facilities for 311 contact center operations (Moulder, 2009: 4). They also contributed to relieving the burden on Philly311 caused by under-staffing, providing some of their experienced agents (on-loan call agents), when budget cuts made it difficult to keep the 311 contact center sufficiently staffed. According to a senior staff member, the Philly311 contact center agents learned from private sector best practices, and in turn the on-loan agents from private call centers learned more about how the city works. The partnership with customer service professionals from some private companies also offered a mentoring opportunity for Philly311 agents and supervisors. This strategic partnership for agent training and knowledge sharing was considered by all to be a smart
way to acquire practical knowhow, given budgetary constraints. One senior staff member recalled what happened in the period of preparation and after kick-off.

A, B, and C (private sector call centers) came into the center. I think we couldn’t have survived without their assistance. The project team came up with that. I have not heard about that from any other cities. Private sector entities gave us their home call center employees who take calls on our behalf. They were a mentor for other agents. They wanted to partner with us. … This happened a month or two before the launch and six to eight months after the launch. That was a serious commitment. A call center’s training manual, B call center’s agents, and C call center’s training with 311 staff. The private sector has got to provide customer service, so it is very competitive. We wanted experience from the most competitive industry.

3.3.2. Interdepartmental collaboration

Strong internal partnership with city departments was found to be beneficial to the Philly 311 operations. These partnerships helped align each department with the city’s broad, strategic goals. One senior Philly311 staff addressed how the contact center started collaborating with other departments:

We treated the implementation of this agency as a project. … We’re the first new department in 30 years. In a long time sense, a new department was created. We treated it like a project, and therefore we developed a project team. We did not develop a cocoon. What we did was that we invited various members throughout the city. We identified key departments. … We reached out to our customers. We identified our high-volume customers within the city. We started having monthly, some regular meetings with internal departments. … In the beginning, we just listened to their perspectives and what their concerns were. We understood their concerns. … Based on the types of services, we looked at their functions—what they do. We focused on services, not general information, but actual delivery of services, because we do for them as a service point, which allows them to concentrate on actual delivery of the service. We had regular, weekly meetings with those folks and a lot of other ancillary support departments as well, and we got everybody’s input. “Here’s our project.” People brought their concerns to the table. They gave us information to understand their department, and it also allowed us to build relationships because we had to rely on information they provided. “We
own this system, and you own the content.” We had to convince them that this is a good thing. “Put your information into our database.”

Philly311 staff interviewees saw that there have been open conversations going on all the time. The process creating the SLAs is considered the result of intensive collaboration:

We’re the only agency that has city-level information and a centralized database. Nobody else has that. Nobody has the ability to do that. We also say, “Listen, we can’t go in. We are not telling you what to say. You tell us.” Some folks who have their role to work with the departments on the service level agreement initially picked the number because this is new. … From PhillyStat’s performance management side, the PhillyStat team is not going to tell you. We don’t tell the department how long it should take to do anything. So that number comes from the department. … We communicate. We can look at some benchmarking. We can look at what other cities are doing right now. This model is collaborative. … This is more about a collaborative type of approach, but is monitored.

Philly311 staff contacted representatives of key service departments. Bringing these departments into the SLAs and finalizing the first version of the SLAs took a couple of months or longer, depending on the department. The values and benefits of the Philly311 system as a shared service capability were introduced to them, with lessons from practices in other major cities. According to the interviews, strong leadership from the top and the whole city government-wide customer service orientation helped departments come on board.

In addition to interdepartmental efforts for creating SLAs, creating the knowledgebase required continuous collaboration. Once they decided to join the Philly311 system, volunteers from the departments came together with Philly311 staff to populate the Philly311 knowledgebase. Continuous feedback and communication (through monthly meetings) between Philly311 and those departments has resulted in
ongoing updating and enhancements to the knowledgebase. Hence, the partnership of Philly311 with other departments is built on the integration of the departments’ knowledge about their services (content) into the 311/CRM (system). Also, some interviewees from SLA departments said that the interdepartmental collaboration helps to detect and correct errors and problems in the legacy system.

4. Challenges

This section presents challenges Philly311 has faced. These challenges are grouped into four categories: technology, organization, cross-organizational governance, and the context of the city.

4.1. Technological challenges

4.1.1. Under-equipped system

The technological challenges addressed by interviewees were mostly about under-equipping. Specifically, Philly311 staff wanted to upgrade back office software such as the CRM and database systems for information sharing. One executive-level interviewee claimed, “The city has not invested technology, and so really the city is far behind others.” As addressed before, Philly311 did not install software best suited for integrating 311 with city agencies’ legacy systems and generating data for the public and city managers to analyze, but instead they had to adopt old CRM software. The Web-based CRM system enabled similar functionality to that of a full CRM system at a fraction of the cost, but the patched software cannot emulate all aspects of a full-blown 311 system.
While adaptation was critical to the launch, it is also a hindrance to progress toward the next maturity phase, which requires substantial improvements in the CRM system and other technologies used for Philly311.

4.1.2. Lack of interoperability

The patchwork of software enabled some limited functions of CRM and caused concern for interoperability with legacy systems in other departments. The lack of compatibility between CRM and departmental legacy systems has continued to be a huge concern, while many technical glitches have been resolved. Ginsberg’s (2010) case study of Philly311 reported technological issues in the first year.

In earlier days, some service requests were not completed within the promised timeframes. The overdue service requests were attributed to the fumbled handoff of housing inspection requests between Philly311 and License & Inspections. In many cases, the requests were received but not reported back to Philly311 as completed or not. Officials blamed the lack of an automated link between the two computer systems. … Only two departmental computer systems—those of the Streets Department and License & Inspections—could be connected to the Philly311 system using the custom-coded patches, known as interfaces. For those departments, 311 agents had to perform two manual maneuvers, one of which required retyping customer information, to make each interface work (Ginsberg, 2010: 9). Work-order computer systems at the Water Department, Police Department, Fairmount Park, Parks and Recreation, and others have not been connected, meaning staff in those agencies must tap into the Philly311 system to retrieve service requests. … There are many isolated and unseen technological and human slip-ups in the 311 rollout (p. 8–9).

The early limitations, while perhaps inevitable at startup, led to a gap between expectations and reality, and in turn fed criticism from users and members of the City Council. Many initial problems no longer exist, but the system’s biggest challenge still
lies ahead: integrating the city’s service-request system and work-order system. One senior 311 staff said:

Department A is a little more complex, because we don’t have data entrance to their system. In the case of Department B, the agency enters data into our system, and then turn around and enter some information into their system. Those things just didn’t match, and even worse. … Their daily challenge is “I need to help this customer, but I have several other customers waiting.” So time is always in the back of their mind. They don’t have a work-order system.

Therefore, the lack of interoperability between CRM and the departmental systems (legacy data systems and work-order systems) impedes seamless operation.

4.2. Organizational challenges

4.2.1. Limited funding

Managerial and organizational challenges basically come from budgetary constraints in recruiting qualified call center agents and keeping call center operation open 24/7. As the result of recession-driven budget cuts, the system’s anticipated budget was cut by at least 60 percent before it even started (Ginsberg, 2010: 2). The budget cuts meant scaling back or postponing key elements. Limited funding has a negative impact on investment in hiring experienced agents and purchasing technologies. One executive-level interviewee said:

In this economic situation, funding new programs and existing programs, appropriate at the least-level of service, puts little into technology. A city tends to lag behind technology for funding reason. And also we didn’t get the right professionals who do the right jobs.

From the beginning, Philly311 did not have any resources for marketing or community outreach to attract new users (Ginsberg, 2010: 6), because the marketing
budget was eliminated just two months before the launch, due to budget cuts (Moulder, 2009: 5).

4.2.2. Under-staffing

The MDO reduced the planned number of agents from 72 to 57 (Ginsberg, 2010: 11). Support staff positions were cut. Most significantly, the administration decided late in the summer of 2008 that Philly311 could only consider candidates from among ranks of city workers whose jobs were being eliminated. Instead of external applicants who have contact-center experience, Philly311 was limited to city workers facing layoffs from unrelated jobs. Out of 51 call agents hired by the December launch, about half had no contact-center experience. The rest had been agents for the switchboard, the Mayor’s Action Center, the Streets Department and L&I Call Center.

The quality of staff is another significant trait in Philly311’s understaffed situation. One senior manager said:

Qualified staffing is an issue. We have a 50 percent dropout rate in the city. A lot of challenges are reading and understanding content. … For a smart city, we need to invest in how we are educating. We can see that. That’s a high priority for the mayor. We need to invest. People came here, and they did not use email. It takes time to train them. Basic skill sets are easier to train. But still it is a challenge. Technology is a huge challenge, but investment in people is critical.

Philly311 officials braced for a high level of staff turnover, given the pool of involuntary workers they had to pick from (Ginsberg, 2010: 11). Absenteeism reached 15 percent in the early months of the first year. Turnover ended the first year at 53 percent, nearly five times higher than citywide staff turnover on average. According to one senior
manager of Philly311, “Retention is an issue here. We lose 35 percent. A call center has a pretty high rate.”

4.2.3. Cultural change

While these challenges have continued since the kickoff of Philly311, interviews revealed a new organizational challenge. Philly311 as a city agency has a unique organizational culture distinguishable from other departments and agencies, because it purports to serve as a leader and pioneer of customer services in the city government. According to one Philly311 staff person, CSRs might feel that they have to comply with a more rigorous internal standard for excellence in customer services, which is not required in other departments.

We have a standard for excellence all the time. We maintain our culture excellence. That’s culturally shocking among internal employees. So I’m hearing, “Why do we have to perform at a high level when they don’t?” That continues to be a challenge, because they are not seeing the rest of the city.

Related to this challenge, Philly311 as an agency of the city government brings a new culture (customer-oriented and citizen-focused) to the existing bureaucracy. Philly311 was created as a new agency in the whole city government for recent three decades. Its role as a leader in customer service is expanding across the whole city government and still adjusting to the relationships with the bureaucratic structure and other traditional departments. In this sense, cultural conflict with other departments is considered a challenge.
Internally, Philly311 is still in the early phase in terms of 311 system maturity as a combination of people with different backgrounds and different expertise. One senior staff addressed the internal culture challenge:

One of our initial challenges is getting better. That’s culture. We are a blend of some internal people and some internal knowledge. We have a mix of people. We need to get a perfect blend.

4.3. Cross-organizational challenges

4.3.1. Interpersonal-based coordination

Governance-related challenges mostly lie in the way of interdepartmental collaboration. A formal governance body for such collaboration does not exist, but instead, some staff members of Philly311 meet representatives (liaisons) of SLA departments on a regular basis. Philly311 staff identified this process as informal. The city government considers expanding the scope of services and information provided by Philly311 by including more departments in SLAs. The process through which the current SLAs were created is based on interdepartmental collaboration. To establish the interdepartmental agreements, Philly311 staff identified potentially high volume customers (departments) and contacted them. Through the meetings, Philly311 staff decided who has knowledge of city services and information. This process has been semi-regularized, but not based on a formally institutionalized process. With this informal process, there is a challenge in bringing additional line departments into the SLAs, because Philly311 does not have a formal governing body for organizing new interdepartmental collaboration and cooperation. Thus the mechanism for interdepartmental workings on revising and updating the SLAs currently relies on
relational governance, which refers to governance by commitment, mutual dependence, trust, and interpersonal relationships (Goo et al., 2009). A senior staff member of Philly311 saw the long-term interpersonal relationship as important to collaboration across departments: “We need to get it done. We get together and feel good by meeting again and again and again. Long-term relationship just gets it done.” Interviewees agreed that the process based on the long-term interpersonal relationship has worked well so far, but recognized that such an interpersonal-based coordination needs to be formalized as a form of institutionalized governance for the further expansion of the SLAs and Philly311 functions.

4.3.2. Turf protection

The early days of Philly311 did not bode well for the future of interorganizational partnerships. Many interviewees said that building partnerships with other departments was not easy work in the beginning stage of Philly311 because there was a concern that Philly311 might cause agencies to lose existing connections to citizens. According to some interviewees, now there is a growing recognition that the expansion in Philly311’s coverage to other departments will help those departments to do their jobs more efficiently and effectively, rather than threaten their turf. One interviewee recalled the early perception of Philly311:

That was a huge concern for everybody—city agencies, city council—because people saw it as competitive. I’m happy to say, three years in a row, people get it now. A majority of folks now get it. We keep that communication, and we just introduced to do it during the project implementation. We said, “We are not taking your job. We are helping your job and enhancing your job. I can tell you all day that this really helps you and this has resources.” But they’d say “I’m still thinking.”
As such, turf protection was a barrier to cross-organizational collaboration. The City Council especially considered a 311 system as competitive on constituent services and thus a possible threat to their reelection. In the beginning of Philly311, the competitive relationship was the result of the tug-of-war between branches of local government over constituent service (Ginsberg, 2010: 13). A Philly311 manager said:

The City Council was rough when I first came in because the City Council definitely has a serious role. That’s what the City Council is there for. They’re doing constituency services. Now it comes through 311. They want to be reelected. In the first year, it was tough, really tough, but I got them to bring into the system. We started monthly meetings with City Council staff. They have a lot of questions about Department A, B, and C. We got feedback. We got them to begin to put service requests into our system. So what they found was easier and they put service requests into our system. In the first year, Council budget hearing was tough. … We have developed the relationship with the City Council. Because they also have some services, there was a concern of competitiveness between the two. We are glad to say that three years later those relationships have formed and clearly there is no competitiveness. First, the City Council office does not have resources to support the sheer volume of calls that we get here. Second, there are some things that 311 just cannot do. That’s outside the scope of what we do. The City Council plays such a vital role in registration and other things that they do.

Since the City Council increasingly recognized the value of Philly311, the relationship between the City Council and Philly311, according to Philly311 staff interviewees, has changed from being competitive in terms of constituent services to being complimentary. A Philly311 Project Team member emphasized the difference between Philly311 and the City Council in their role:

There was competition to the role that the City Council is playing. A guiding principle is engaging with people. For citizens, 311 never does complicated zoning, complicated L&I issues. We don’t want to do similar works. 311 allows the City Council bread and butter constituent services. More, deeper constituent services. We did frequent briefing and frequent engagement. I talked with Council staff. I said, “Listen, we’re just doing this. You think we’re adversarial. We do not compete with you, and this is actually a service tool. We make available a knowledge database. We are a
call center. We gave you training on the technology.” That’s some of the expectation games.

Turf tension between Philly311 and the City Council has been reduced because Philly311 enables the City Council to use their resources more effectively by saving their budget and staff time spent on providing constituent services. Philly311, according to interviewees, has freed-up Council resources, primarily Council members’ time, so Council members can focus on other important needs of city residents. Philly311 provides the City Council with information about service requests and completion status with respect to each of 10 Council Districts (see www.phila.gov/311/reports.html).

The growing recognition of differences between Philly311 and the City Council in their roles reduced turf tension. One of the main channels for constituent services before Philly311 was the City Council, but the channel was not for all citizens of the city. Philly311 is considered an effective tool for accountability and transparency of constituent service delivery that the City Council couldn’t guarantee. One interviewee differentiated Philly311 and the City Council:

311 creates clear accountability over what the expectation was. X number of days was supposed to solve the problem, but Y number of days was actually taken. What happened? 311 makes honest conversation. “OK, here’s what happened.” This didn’t really exist before. … Residents want to know how they can report an abandoned vehicle and what they are doing about an abandoned vehicle. In the prior system, they would go to a Councilperson’s office because it was a central point. There was no clear starting point. The City Council office calls to contact L&I. “Do me a favor. I got a situation over here.” Someone in L&I may or may not work for the issue. That was the complex nature of the city government. Now people just are calling 311. All that they have to say is “Here is my problem.” One of key things is that the system is referred and trackable. At the end of that call, they receive a reference number. They can call us back or they can go to the Web. They can see what’s going on with that. Even if the Council office is using some excel spreadsheet to check information, there is no reporting mechanism. Customers now have a
timeframe for completion of tasks. We’re going to take them to see what’s going on.

Based on what was heard from interviewees, Philly311 and the City Council are comparable as an initial contact point for frontline service requests. Table 26 shows the result of the comparison between Philly311 and the City Council.

Table 26. The comparison between contact points for service requests

<table>
<thead>
<tr>
<th></th>
<th>Philly311</th>
<th>City Council</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Structured</strong></td>
<td>Structured</td>
<td>Less structured</td>
</tr>
<tr>
<td><strong>Technology</strong></td>
<td>Highly technology-based</td>
<td>Not using technology</td>
</tr>
<tr>
<td><strong>Data</strong></td>
<td>Quantitative data</td>
<td>Not data-driven</td>
</tr>
<tr>
<td><strong>Focus</strong></td>
<td>Customer-oriented; Whole city covered</td>
<td>Constituency-oriented; District-oriented</td>
</tr>
<tr>
<td><strong>Issues solved</strong></td>
<td>Routine services</td>
<td>Difficult needs (e.g., zoning)</td>
</tr>
<tr>
<td><strong>Problem solving</strong></td>
<td>Responsive and proactive</td>
<td>Responsive</td>
</tr>
<tr>
<td><strong>Main benefits</strong></td>
<td>Better customer service; Data-driven management</td>
<td>Constituent functions</td>
</tr>
</tbody>
</table>

Philly311 is highly structured because it is based on the SLAs, work-order systems, and standard procedures, while the City Council is less structured. Philly311 covers all types of anonymous customers who make a request for frontline services, including residents and businesses within the whole jurisdiction of the city and also visitors. The City Council members focus on constituents in Council Districts, since their geographic interest is the district because of their main concern for being re-elected. Main issues solved are also different. While Philly311 tackles routine services, the City Council handles more difficult issues that individual citizens or businesses cannot take care of by themselves (e.g., zoning, registration, code enforcement, etc.). In terms of an approach to problem solving, Philly311 is both reactive and proactive while the City Council is basically reactive to constituents’ demands.
4.4. Contextual challenges of the city

According to the Philadelphia 2035 comprehensive plan (Philadelphia City Planning Commission, 2011), the opportunity to access the Internet is not available for 41 percent of Philadelphians, and half of households cannot afford broadband Internet at home, which therefore, creates a digital divide. One of the city’s major challenges is the lack of digital access. Yet, in order to be an informed and engaged citizen, technology-based tools and skill sets are required. Accordingly, the digital divide is a big concern for the city government to provide services and information through the Internet and new media to residents.

Despite the nearly ubiquitous commercial availability of broadband in Philadelphia, there is a risk of a widening digital divide between those who use and benefit from broadband and those who do not (Philadelphia City Planning Commission, 2011: 122). The individuals who do not use and do not have access to the Internet are likely to be the most economically disadvantaged in the city and live in neighborhoods with the highest rates of unemployment and lowest rates of educational attainment. The use of digital technologies has become an important mechanism by which individuals find and apply for jobs, obtain information about their community, continue their education, and access public services (increasingly migrating to the Internet). Thus it is critical for the city to recognize that a digital world may present another set of challenges for economically disadvantaged residents of Philadelphia. Regarding that, the citywide digital divide is a challenge to Philly311. One PhillyRising staff person said, “The digital divide is a pain when we talk about the idea of 311 that makes things a lot easier, more efficient.”
On the other hand, interviewees suggested some opportunities that new technologies offer. The city government is now recognizing an increasing number of Internet users through their smart phones rather than desktop or laptop computers. Internet connection through mobile phones is increasingly considered a possible way to closing the digital divide in the city. The extension of the 311 system to smart phones was considered by interviewees as a way to further promote citizen engagement and active feedback of 311 services from citizens. Also, social media provides the population with a new connection to city government. One Philly311 staff member said, “The call center is still a predominant way to choose to interact with us, but there has been a decrease in calls, and an increase in emails and social media.”
CHAPTER 6. A COMPARATIVE STUDY OF NYC311 AND PHILLY311

As a product of inductive research, this chapter proposes models of service integration through a comparative study of NYC311 and Philly311. The chapter is structured into three parts. Section 1 presents the results of the cross-case comparison and a framework for multidimensional understanding of 311-enabled service integration. Section 2 suggests some propositions as new theoretical insights into the relationships among various factors influencing 311-enabled service integration, thereby elaborating the preliminary understanding of service integration drawing from the literature review. Section 3 suggests an evolution model to understand the integration of municipal services. The models are grounded in the qualitative analysis on a series of in-depth interviews at the two 311 contact centers.

1. Multidimensional understanding of 311-enabled service integration

As presented in the preceding two chapters which described the results of the grounded theory analysis of the qualitative data, understanding the implementation and operation of 311 non-emergency contact centers involves three key dimensions: technological, organizational, and cross-organizational. While some aspects of the two 311 contact centers are similar, despite their different statuses (NYC311 as a more mature implementation of service integration, and Philly311 still in a relatively early phase of service integration), the details of their implementation and operation are disparate in other aspects. This section presents the cross-case comparison.
1.1. Technological dimension

The beginnings of NYC311 and Philly311 were very different in terms of financial and technological support. The age gap between the two, nine years vs. three years, is a primary reason for the difference in the technological maturity between NYC311 and Philly311, but the level of technological readiness for full-fledged CRM and back-office support technology (i.e. business intelligence) is substantially determined by the amount of investments from the start. Some interviewees of Philadelphia government said that the city has not invested in technologies. Given the current controllable number of inbound calls, the Philly311 contact center operates and manages the system well. However, the system may have limitations in dealing with an ever growing number of calls due to additional city agencies on SLAs.

<table>
<thead>
<tr>
<th>Category</th>
<th>NYC311</th>
<th>Philly311</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical success factors</td>
<td>Channel diversification</td>
<td>Channel diversification</td>
</tr>
<tr>
<td></td>
<td>Back-office support technology</td>
<td>Adaptive and flexible strategy</td>
</tr>
<tr>
<td>Challenges</td>
<td>Lack of interoperability</td>
<td>Lack of interoperability</td>
</tr>
<tr>
<td></td>
<td>System complexity</td>
<td>Unequipped conditions</td>
</tr>
<tr>
<td>CRM</td>
<td>Siebel (full functions)</td>
<td>Novo (limited functions)</td>
</tr>
<tr>
<td>Larger integrated system</td>
<td>CSMS</td>
<td></td>
</tr>
<tr>
<td>Business intelligence tool</td>
<td>Oracle (10G)</td>
<td></td>
</tr>
<tr>
<td>Content management tool</td>
<td>Interwoven</td>
<td></td>
</tr>
<tr>
<td>Open platform</td>
<td>Currently developed</td>
<td></td>
</tr>
<tr>
<td>Online 311</td>
<td>NYC311 Online</td>
<td>Philly311 Online</td>
</tr>
<tr>
<td>Twitter</td>
<td>@311NYC</td>
<td>@Philly311</td>
</tr>
<tr>
<td>Smart phone apps</td>
<td>Available for some services</td>
<td>In preparation</td>
</tr>
</tbody>
</table>

As shown in Table 27, NYC311 is equipped with a suite of front-end and back-end systems, while Philly311 does not have back-office systems or Siebel CRM software. NYC311 has developed Customer Service Management Systems (CSMS), which include
system integration over various aspects of 311 components, such as: CRM, telephony, voice network systems, LAN systems, and platform environment. With the move to phase 2, NYC311 has been transited from a one-to-one platform to a one-to-many platform and an open platform.

Despite these differences in the level of technological maturity, the two contact centers revealed a similar concern for a high level of complexity in having to use diverse technical systems at the same time and the lack of interoperability between the 311 CRM system and agency legacy systems. A common finding is the importance of human middleware that serves as a middle ground between CRM and other departmental legacy systems. In this situation, the quality of training and staffing is critical to seamless operation in the middle ground. There is a huge difference in the extent of complexity between the two systems. Whereas Philly311 provides less than 100 services and has SLAs with only seven departments, NYC311 provides more than 4,000 services and has SLAs with seventeen departments.

The reactive as well as proactive use of new technologies such as social media, smart phone apps, and open platforms is considered to be a critical success factor in engaging more people in citizen-government interactions via the 311 contact centers. There is a difference between the two contact centers in technology-related success factors identified by interviewees. Interviewees at Philly311, which is still in phase 1, agreed that adaptive and flexible strategies are a success factor for a 311 launch and implementation in budgetary constraints. They also considered the selection of the right technology and the timing of investment in getting the right technology as an important factor. The difference in the perception of technology-related success factors between
NYC311 and Philly311 arises from the different levels in technology maturity: while NYC311 started with the best suite of technical systems, Philly311 employs adaptive strategies.

1.2. Organizational dimension

The two 311 contact centers have a shared understanding of core success factors in the organizational dimension. Interviewees from both 311 centers saw the top leadership and the mayor’s role as important because the mayors in the two cities have commonly considered 311 as a flagship initiative of their administration. Interestingly, both 311 centers started with the current mayor’s inaugural promise that the administration will launch a 311 contact center as a citywide customer service agency.

The two cities have a slightly different city government structure. The City of New York has a traditionally strong mayor and the City Council, which has had relatively less power because the City Council’s main role is as the city’s legislation body. On the other hand, the City of Philadelphia has the same format of an elected mayor and the City Council plus an appointed professional manager ("managing director") and his/her leadership suite (Managing Director’s Office). In Philadelphia, while the mayor has been a strong political champion of Philly311, the managing director and MDO have been executive and administrative support for Philly311. For both cities, 311 non-emergency contact centers also serve as the mayor’s weapon in citywide performance management: for example, standardization of key performance indicators (KPI), regular reviews of agency performance, and monitoring and tracking progress. Currently NYC311 and
Philly311 report their day-to-day performance and operations to the mayor via MOO and MDO, respectively.

Table 28. The comparison in the organizational dimension

<table>
<thead>
<tr>
<th>Category</th>
<th>NYC311</th>
<th>Philly311</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical success factors</td>
<td>Top leadership</td>
<td>Top leadership; Executive support</td>
</tr>
<tr>
<td></td>
<td>Human resource management</td>
<td>Human resource management</td>
</tr>
<tr>
<td></td>
<td>Contingency capacity</td>
<td>Quick organizational learning</td>
</tr>
<tr>
<td>Challenges</td>
<td>Limited funding</td>
<td>Limited funding</td>
</tr>
<tr>
<td></td>
<td>Goal-demand misalignment</td>
<td>Limited staffing</td>
</tr>
<tr>
<td></td>
<td>Bureaucracy-laden procedures</td>
<td>Cultural transition</td>
</tr>
<tr>
<td>Organizational structure</td>
<td>Line and staff (six functional verticals)</td>
<td>Mostly line</td>
</tr>
<tr>
<td>Annual budget ($)</td>
<td>About 50 million</td>
<td>About 3 million</td>
</tr>
<tr>
<td>Operation hours</td>
<td>24/7/365</td>
<td>8 to 8 only for weekdays</td>
</tr>
<tr>
<td>Walk-in center</td>
<td>Operating in regular hours</td>
<td>Operating in regular hours</td>
</tr>
<tr>
<td>Mayor’s influence</td>
<td>Strong</td>
<td>Strong</td>
</tr>
<tr>
<td>Reporting structure</td>
<td>DoITT → MOO</td>
<td>MDO</td>
</tr>
<tr>
<td>Emergency capacity</td>
<td>24/7/365 plus COOP-based plan</td>
<td>Temporarily 24 hours, and back to ordinary operation after emergency</td>
</tr>
<tr>
<td>Performance review</td>
<td>Mayor’s Management Report (MMR)</td>
<td>PhillyStat</td>
</tr>
</tbody>
</table>

Another common success factor is human resource management, but the focus is quite different. Philly311 interviewees were more emphatic about flexible staffing rather than qualified staffing, considering their under-staffed situation, and thus internal transfers and quick training were critical factors to their basic call center functions because they had to struggle with financial constraints from the very beginning. NYC311 interviewees suggested other success factors related to human resource management.

With its nine-year history, the call center has success stories of individual employees with long-time commitment to NYC311. The call center helps CSRs develop their career path in the customer service industry. NYC311 promises the promotion—from CSR to team leader to supervisor to manager—of qualified CSRs within the call center hierarchy,
especially its internal human resource management system. Also, CSRs can move to the analyst group or training group if they have qualifications as an analyst and trainer. This motivates NYC311’s CSRs to develop their career in customer service. By contrast, Philly311 is a relatively small organization (less than 60 agents in all, including mostly line agents and several support staff members), so there are only limited opportunities for Philly311 CSR career development.

Quality training is also an important success factor. NYC311 training professionals emphasized soft skills, technical skills, social learning, and attitude as representative of the city government. NYC311 has more systematic courses for training because it has Training Department as a supporting professional group, while training in Philly311 is based on person-to-person quick knowledge transfer rather than a professional curriculum of courses for new hires.

There is a huge difference in budget, but NYC311 has budgetary reduction challenges, just as Philly311 does, where limited funding causes understaffing. As the city’s customer service leader, Philly 311 faces the additional challenge of cultural difference from other city departments and agencies. That’s because Philly311 is the city’s newest department in the last three decades and it serves functions very different from what city government has ever provided before.

NYC311’s challenges are different because it is in a more mature 311 stage. While Philly311 considers the increase in call volume a key success indicator, NYC311 is now concerned about more efficient management of workloads and is addressing the concern by setting a reasonable goal rather than an overloaded one. However, challenges inherent in a government bureaucracy are consistent. These public bureaucracy-laden
challenges include slow speed to market, a slow process of procurement, and recruitment systems based on civil service exams.

In addition to critical success factors and main challenges that interviewees identified, there are some differences in organizational structure between the two 311 contact centers. NYC311 is the largest 311 contact center, and is clearly divided into call center lines (CSRs, supervisors, team leaders, managers) and staff (functional supporting groups or verticals). Most of Philly311 employees are call center agents, and important supporting functions (e.g., knowledge management and content management) are individually conducted by a small number of specialists rather than by particular teams.

1.3. Cross-organizational dimension

Interdepartmental issues are mostly related to the processes of creating and updating SLAs and contents of knowledgebase. Both NYC311 and Philly311 interviewees addressed interdepartmental partnership as a critical success factor. However, the current method of interdepartmental collaboration is also a challenge to some extent because collaboration relies on interpersonal relationships between liaisons and 311 analysts or between departmental call center staff and 311 liaisons. While some meetings in some departments occur on a regular basis, other departments do not meet 311 representatives frequently. Furthermore, not all agencies have liaisons. In addition, the roles and responsibilities of liaisons do not have authority in the 311 contact centers. Some services and issues are time-sensitive, so a last minute addition of new services or notices to the 311 system may cause an inconvenience to citizens. Such a thing often happens when liaisons do not inform 311 of new services in a timely manner. This does
not happen in all departments or with all liaisons, but reliance on informal event-driven meetings often causes both 311 and departments to miss important changes in services and information. Some interviewees thus considered the lack of a formal governance body for collaborative knowledge management as a cross-organizational challenge.

Table 29. The comparison in the cross-organizational dimension

<table>
<thead>
<tr>
<th>Category</th>
<th>NYC311</th>
<th>Philly311</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical success factors</td>
<td>Interdepartmental partnership</td>
<td>Interdepartmental partnership</td>
</tr>
<tr>
<td></td>
<td>Supervising organization</td>
<td>Public-private partnership</td>
</tr>
<tr>
<td>Challenges</td>
<td>Turf protection</td>
<td>Turf protection</td>
</tr>
<tr>
<td></td>
<td>Interpersonal-based coordination</td>
<td>Interpersonal-based coordination</td>
</tr>
<tr>
<td></td>
<td>Burdens on other agencies</td>
<td></td>
</tr>
<tr>
<td>SLA departments</td>
<td>17 departments</td>
<td>7 departments</td>
</tr>
<tr>
<td>Knowledgebase participants</td>
<td>50 departments</td>
<td>300 agencies in city, state, and</td>
</tr>
<tr>
<td></td>
<td></td>
<td>federal</td>
</tr>
</tbody>
</table>

In the beginning of the service integration initiative (311 launch project), turf conflict was a significant challenge. Many interviewees in both cities suggested the two dimensions of interorganizational turf conflict. A 311 contact center is a new agency in the city’s executive branch. Indeed, it takes customer service functions from other call centers and other service departments. Another conflict point exists between a 311 contact center and the city’s legislative body (City Council) or other elected officials. In both cities, the two types of interorganizational tension have been resolved by the mayor’s strong leadership and the increasing recognition that the 311 system actually helps these other entities do their job. However, turf concerns still exist, especially when 311 contact centers explore the addition of new departments and agencies.

In addition to the tension resulting from protecting organizational turf, some interviewees in New York viewed the increase in workloads on SLA departments as a cross-organizational conflict. Interviewees in Philadelphia did not mention this conflict.
The reason is the difference between a 24/7 operation and an 8am-to-8pm weekday only operation. NYC311’s 24/7 operation receives service requests that departmental call centers could not receive in the evening and night time, and transfers the requests to other departments. Oftentimes the departments are not ready for processing the increasing service requests in terms of staff capacity.

In terms of critical success factors and challenges, there are some differences between NYC311 and Philly311. A critical success factor at the earlier phase of service integration, as Philly311 is still in its infancy of service integration, is strategic partnership with and quick learning from private sector consultant groups and leading companies in the call center industry. NYC311 interviewees also addressed the importance of collaboration with external partners in early days, but their views are more related to the current status (as a more technologically and organizationally mature level of service integration) than to phase 1.

NYC311 interviewees emphasized the relationship of 311 with a supervising organization. The important fact is that the reporting structure and the supervising organization had changed from DoITT (the technology agency) to MOO (the top management of the whole city government). The transition is considered critical to improving the relationships between the 311 center and other city agencies under the strong mayor form. As such, the mayor’s leadership and his or her relationship with the 311 contact center are pivotal to mitigating cross-organizational challenges to city-level service integration.
1.4. Contextual dimension

Table 30 exhibits the top 10 areas of service request. The lists may reflect the difference in citizen demands between the two cities in some way, but what services 311 contact centers provide also determines the priority areas. The list for Philly311 only reflects service requests to the seven departments included in SLAs, so the list is not comprehensive of all demands from citizenry. The service requests included in the top 10 only reflect services that L&I and the Streets Department provide. Thus, an understanding of the top 10 as the city’s priority service areas might be limited to the coverage of current SLAs. However, the list is still an important resource for understanding the demands of residents, visitors and businesses on frontline services and also understanding the city’s context where those services are requested more frequently than others.

<table>
<thead>
<tr>
<th>Category</th>
<th>NYC311</th>
<th>Philly311</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top 10 service requests (As of June, 2012)</td>
<td>Alternate side parking; Yellow taxi lost and found; Yellow taxi complaint; Night noise survey; Noise complaint FAQs; Pay a parking ticket; Find a towed vehicle; Sales tax information; New York City Rent Increase information; Landlord maintenance complaint</td>
<td>Maintenance residential; Smoke alarm; Vacant house; Abandoned automobile; Rubbish collection; Vacant lot clean-up; Graffiti removal; Street light outage; Sanitation violation; Illegal dumping</td>
</tr>
<tr>
<td>Priority agenda for citizen engagement</td>
<td>Proactive outreach and data use</td>
<td>Bridging the digital divide</td>
</tr>
<tr>
<td>Public-facing impact as a priority goal</td>
<td>Open data to the public</td>
<td>Basic-level community engagement</td>
</tr>
<tr>
<td>Use of customer information</td>
<td>Not using any personal information</td>
<td>Using information of PhillyRising neighborhoods (distressed communities)</td>
</tr>
</tbody>
</table>
The level of access to the Internet is distinct between the two cities. 41 percent of residents in Philadelphia still don’t have access to the Internet (Philadelphia City Planning Commission, 2011), while the national average is 78 percent, according to the report of the Pew Internet and American Life Project (Zickuhr & Smith, 2012). Thus the digital divide is a huge issue in the city. Given this context, Philly311’s strategy is quite different from NYC311. That difference is a result of 311 system maturity and expansion, in addition to Philadelphia’s characteristic as an aggregation of neighborhoods—disparities in socioeconomic conditions among neighborhoods within the city. NYC311 interviewees addressed the challenge that 311 cannot get any personal information other than address and zip code. The 311 data is being used for current performance indicators, but it does not allow the contact center to find a new pattern of service request and information use by citizens. However, Philadelphia recently got an opportunity for segmentation of some 311 users because the PhillyRising Collaborative Initiative and Philly311 neighborhood liaisons have information on people with basic needs in certain distressed communities. While in its pilot stage, the initiative generates a new possibility of 311’s extension to collect more personal information in order to provide services proactively.

Interviews from the two cities addressed public-facing impacts quite differently. While the two 311 contact centers share common mission components such as accessibility, accountability, and transparency, the public-facing impact of NYC311 extends to open government, especially open data. New York’s open government initiative is a key factor of NYC Digital, which is the city’s road map for the digital city (see www.nyc.gov/html/digital/html/home/home.shtml). NYC311 is also aligned with the
road map. Various initiatives for open data are being implemented. NYC311 historical geo-data about service requests and complaints are available to the public at the city’s open data program (nycopendata.socrata.com/). This contributes to greater accountability and transparency of service delivery. In addition to timely responses to citizen demands on more basic levels, NYC311 considers opening data to the public as an important way to encourage citizen engagement and transparency. In this regard, there is a difference between NYC311 interviewees and Philly311 interviewees in view of public-facing impacts. Philly311 people are enthusiastic about the integration of basic services and also for citizen engagement by residents’ report of community issues. NYC311 people also appreciate such functions made by the 311 contact center, but they now aim at a more progressive proactive stage: for example, open data.

1.5. Building multidimensional understanding of service integration

As discussed up to this point, 311-enabled service integration is understood in four dimensions: technological, organizational, cross-organizational, and contextual. The cross-case comparative study of the two 311 non-emergency contact centers suggests a set of critical success factors for and main challenges to creating 311 system-enabled service integration capabilities. Figure 4 illustrates and summarizes the multidimensional understanding of 311-enabled service integration drawing from the empirical evidence of 311 non-emergency contact centers in New York and Philadelphia. This framework adjusts the preliminary multidimensional understanding of service integration (derived from the literature review and suggested in Table 7) to the context of city-level service integration enabled by 311 non-emergency contact centers, thereby suggesting new
findings (distinctions from the preliminary understanding) as insightful and valuable results of this study.

**Figure 4.** The multidimensional model of 311-enabled service integration

The multidimensional model of 311 system-enabled service integration considers the importance of some other aspects that were not highlighted in the preliminary understanding of service integration drawing from the literature review. This empirical study defines its research context as “city-level” and “311 system-enabled” service integration. The critical success factors and main challenges emergent from the context are somewhat different from the preliminary findings based on the literature.

The lack of interoperability and system complexity are common technological challenges that were also identified from existing literature of service integration. By contrast, technology-related success factors are quite different. Important factors in the
service-level integration included diversification of channels for frontline services by proactive use of emerging technologies and platforms, adaptive and flexible strategies, and timing of the technology investment.

Success factors and challenges in the organizational dimension are quite similar to those in the literature-based preliminary understanding. Top leadership, human resource management in staffing and training, organizational culture, and funding are important organization components of service integration. The context of city-level 311-enabled service integration suggests unique aspects. Crucial factors for 311-enabled service integration include the speed of organizational learning for creating service integration capabilities and contingent capacity for managing crisis and emergency situations. Public bureaucracy-laden procedures such as civil service exam-based recruitment and slow procurement processes hinder improvement of customer services in the organizational innovation of non-emergency contact centers. In addition, given the misalignment between targeted goals of the 311 center’s organizational performance and the level of citizen demands, maintaining an appropriate workload for dealing with integrated services is an organizational challenge that the 311 center may experience in the mature level of service integration.

In the cross-organizational dimension, interorganizational collaboration and a governing body remain common success factors across both the preliminary understanding and this empirical model. Turf protection is considered a common barrier. This study suggests some unique findings. The empirical evidence highlights the importance of strategic partnership with external organizations (e.g., private sector partners and consultants) other than government agencies and departments. While the
previous literature emphasizes the role of a governing body and structure in creating service integration capabilities, the multidimensional model based on empirical evidence addresses the importance of the organizational structure surrounding the service integration agency. An organization supervising the service integration agency has a great impact on resolving cross-organizational barriers such as interdepartmental conflicts. Interorganizational collaboration relies only on interpersonal-based (e.g., liaison-dependent) coordination and communication without any formalized or institutionalized governing body.

The context of the city is also a unique aspect that distinguishes the model based on empirical evidence from a preliminary understanding. The areas of main services delivered by the service integration capabilities reflect citizens’ needs and demands on frontline services. A way of facilitating citizen engagement in 311-enabled communication is to reflect various (technological, social, political, economic, cultural, and demographic) conditions of the city. Public-facing impacts made by service integration capabilities may differ with the context of each city. In this sense, service integration capabilities can be developed differently depending on the conditions of each city.

2. Connecting factors influencing 311-enabled service integration

This study goes beyond refining and elaborating on the preliminary multidimensional understanding of service integration by focusing on the more specific context of the 311 system-enabled service integration at the city level. To do so, this section connects critical success factors and main challenges identified from a
comparative case study of NYC311 and Philly311. Exploring the relationships between service integration factors is not just an extension existing understanding but creation of new understanding. That is also considered a unique contribution of this study to theory.

In the preceding section, success factors and main challenges are categorized into technological, organizational, cross-organizational, and contextual dimensions. While this way of interpreting the cases allows for enhanced application of the previous understanding to 311 contact center-driven service integration in the city context, identifying the meaningful relationships between success factors and challenges is distinguished from a simple listing of factors in prior studies.

For example, cross-organizational concerns are mitigated by organizational success factors, as executive leadership can be effective in substantially reducing turf tension. Well-trained professionals are critical to solving problems that result from a lack of system interoperability. As such, issues in the technological and cross-organizational dimensions also have operational and managerial implications. The cases of NYC311 and Philly311 demonstrated that agencies involving service integration have to change, reorient, and harmonize their operation, management, and also systems. In this way, new strategies may be applied or proposed on the basis of the relationships between success factors and main challenges.

Positive effects of obvious success factors (for example, staff expertise, leadership, and interorganizational collaboration) and negative effects of expected challenges (for example, the lack of technological interoperability, limited funding, and resistance to organizational integration) on creating service integration capabilities do not merit much attention. Rather, more important are connections between success factors and challenges,
which also can be extensively interpreted as strategies and practical recommendations for
government practitioners. This section describes five viewpoints as unique findings of the
study, which summarize the connections among success factors and challenges of city-
level service integration that the case studies of NYC311 and Philly311 revealed.

2.1. Service integration strategies adjusting to funding situations

Empirical evidence from the case studies of NYC311 and Philly311 supports
connections between funding situations for service integration initiatives, strategies for
acquiring technological tools and human resources, and performance goal setting. Figure
5 shows service integration strategies for technological equipment, staffing, and goal
setting, which are differentiated by funding situations.

**Figure 5. Service integration strategies adjusting to funding situations**

<table>
<thead>
<tr>
<th>FUNDING</th>
<th>Sufficient</th>
<th>Insufficient</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TECHNOLOGICAL</strong></td>
<td>▪ Investment in the right tool at the right time</td>
<td>▪ Adaptation</td>
</tr>
<tr>
<td><strong>TOOLS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>HUMAN</strong></td>
<td>▪ High qualification for staffing</td>
<td>▪ Public-private partnership</td>
</tr>
<tr>
<td><strong>RESOURCES</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>PERFORMANCE</strong></td>
<td>▪ Targeting a higher level of performance</td>
<td>▪ Goal-demand alignment</td>
</tr>
<tr>
<td><strong>GOAL SETTING</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The timing of investment in the right technology is a critical success factor for
technology-driven service integration. While limited funding impedes investment in the
right technology (oftentimes costly) at the right time, adaptive and flexible strategies help
create service integration capabilities when city governments face technologically under-equipped conditions due to limited funding.

Given sufficient funding, a 311 contact center can recruit CSRs with higher qualifications in skill sets as a combination of technical skills and soft skills. Also, the contact center can acquire more technical experts and content analysts to strengthen the supporting staff function. By contrast, insufficient funding requires a smart strategy to maintain a reasonable level of organizational performance with budgetary constraints. For example, Philly311 took advantage of public-private partnerships (with private sector call centers located in the city). Philly311 quickly learned about day-to-day call center operations from private sector call center agents who volunteered for the city’s customer services.

The funding situation is critical to determining a target goal of the 311 contact center operations. For instance, promotion from the 80/30 goal to the 90/30 goal (90 percent of calls should be processed within 30 seconds) requires more financial resources to employ more CSRs. The higher call processing target is a costly goal. Under insufficient funding, one strategy is to allow flexible goals or contingency-based goals to be adjusted according to fluctuations in citizen demands.

2.2. The importance of training in interoperability and consolidation

The role of 311 contact center professionals in service integration is essential in two aspects: enabling technological interoperability between different systems, and consolidating a variety of requests for city services and information into a single channel. Especially important is the role that 311 contact center agents fill when, as service
integration professionals, they act as human middleware and also as customer service representatives of city government, as illustrated in Figure 6.

**Figure 6.** The roles of well-trained service integration professionals

The lack of technological interoperability between a service integration system and existing legacy systems is a serious challenge. The area that is not interoperated across systems or the middle ground between systems can be filled with the responsibilities of service integration professionals who play a pivotal role as middleware. Thus, quality staff is key to service integration, and quality training is crucial to overcoming technological challenges.

CSRs are not only recipients of service requests, but they are also the face and voice of city government. Training of soft skills such as communication and attitude
during customer calls is important to the quality of service integration from the perspective of customer service users.

2.3. The cultural challenge of city-wide service integration initiatives

311 contact centers serve a dual purpose: as a customer service organization, and as a government agency within public bureaucracy. These two distinct characteristics of 311 contact centers cause cultural challenges. As illustrated in Figure 7, 311 contact centers have to place emphasis on two different sets of values which are often conflicting. There is pressure from the customer service industry to be innovative, while the jurisdictional government requires compliance to bureaucratic cultures and procedures.

Figure 7. The cultural conflict in 311 contact centers

The speed of customer service and the responsiveness to customer demands are central to the consolidated channel of frontline services. Public bureaucracy-laden procedures hinder or delay advancement in customer service. Although conventional bureaucratic procedures in procurement and staffing protect public values (i.e., stability, controllability, and predictability), they are not concerned with innovation and responsiveness. It isn’t in the nature of public bureaucracy to take risks and avoiding harsh critiques from taxpayers is preferable to raising the level of customer satisfaction.
Thus, efficient management of 311 contact centers as a public bureaucracy is prioritized over effective service delivery. Given its dual nature, a 311 non-emergency contact center as a public agency may be considered an oxymoron—customer service plus public bureaucracy. 311 contact centers need to balance public agency values with the values of a customer service organization.

2.4. The role of the executive leadership in mitigating turf conflicts

While interorganizational turf tension hampers cross-organizational collaboration for creating service integration capabilities, executive support helps to reduce the degree of interorganizational conflicts. Figure 8 shows the typology of turf conflicts in building service integration capabilities.

**Figure 8.** The types of turf conflicts in building service integration capabilities

<table>
<thead>
<tr>
<th>Turf Conflicts</th>
<th>With a city council</th>
<th>With other city agencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strong mayor type of city government</td>
<td>A (The mayor’s political leadership)</td>
<td>B (The mayor’s managerial leadership)</td>
</tr>
<tr>
<td>Weak mayor type of city government</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>Council-manager type of city government</td>
<td>E</td>
<td>F</td>
</tr>
</tbody>
</table>

The two empirical cases of this study are identified as service integration initiatives in city governments with a strong mayor-council form. The City of New York is considered one of the cities with a powerful mayor. The City of Philadelphia has a unique hybrid form, where the mayor appoints the managing director as a professional manager of the entire city government. This form is also categorized as a strong mayor
type because the combination of the mayor and the managing director is a strong team against the City Council.

311 contact centers may have two conflict points of turf tension: turf conflict with a city council as a city’s legislative body, and/or with other city agencies within the executive branch. The nature of the mayor’s leadership is somewhat disparate between the two types of turf conflicts. In a strong mayor-council form, a mayor exerts his or her political leadership to mitigate the opposition from council members. In both New York and Philadelphia, the mayor has been a political champion for service integration initiatives by using mass media and public relations.

If customer service functions have already been built in each line department, service integration initiatives in large municipal governments such as New York City are subject to conflicts within the executive branch. For example, a 311 contact center may be considered a duplicate of existing functions rather than the consolidation of different customer services. The strong mayor’s managerial leadership can soothe the extent of interdepartmental conflicts. In Philadelphia, the 311 contact center provides much data about day-to-day operational performance of line departments. The city’s managing director uses 311 data as a powerful weapon for performance management. The mayor and the managing director’s leadership based on 311 data-driven management turns the potential for turf tension within the executive branch into the prioritization of performance enhancement.

Since this study focuses on only type A and B in Figure 8, further research needs to explore municipal governments with the weak mayor-council form (type C and D) and
the council-manager form (type E and F). This issue is also further discussed in the section of Implications for Research in Chapter 7.

2.5. The proactive approach to goal-demand alignment

Considering various (demographic, social, economic, cultural, and political) contexts of the city helps a city government to proactively address citizens’ needs and demands of frontline services. The city government can create service integration capacity appropriate for the city’s conditions through aligning organizational performance goals with citizen demands and proactively preparing for contingency plans to deal with fluctuation in citizen demands for particular services and information.

**Figure 9.** The combination of reactive and proactive approaches to goal setting

Figure 9 illustrates the 311 contact centers’ reactive and proactive approaches to setting organizational performance goals. The example of NYC311’s goal setting helps explain this diagram. The 80/30 or 90/30 goal is often set with the consideration of other
benchmarking cases in the customer service and call center industry. If prior practices support the achievement of the specific goal, the 311 contact center will keep that goal or formulate a slightly higher target. Through day-to-day operations, the 311 contact center receives data about the level of demands. Goals are then aligned with actual resident demands. This process often may not reflect the change in citizen demands due to unexpected events such as bad weather conditions that increase citizen demands. To avoid or minimize the gap between goals and changing demands, the 311 contact center employs the proactive approach along with the reactive approach.

The preceding two sections of case studies on NYC311 and Philly311 explained the contextual dimension in 311 contact centers. Considering various contexts of the jurisdiction helps 311 contact centers more accurately predict citizen demands on frontline services—for example, who needs what? when? and where? There may be a gap between reactive and proactive approaches in goal-demand alignment. To fill the gap, the 311 contact center builds a contingency capacity.

Many Philadelphia interviewees emphasized Philadelphia as a neighborhood-based city. Each neighborhood within the city has different settings in crime rate, economy, education, and infrastructures. That’s why the current administration makes a strong connection between Philly311 and the PhillyRising Collaborative initiative that aims to revitalize some selected distressed neighborhoods (characterized by a high crime rate and underserved neighborhoods). This is a proactive approach because the less educated residents in the distressed neighborhoods do not typically contact Philly311. Therefore, Philly311 should know who in the distressed neighborhoods needs what services. New York has similar concerns because the city has five boroughs, and each
borough has its own unique characteristics. In addition, many NYC311 interviewees said that the types and amounts of frontline services requested vary by borough.

3. An evolution model of 311-enabled service integration

Another perspective draws from the grounded theory analysis. Based on the four dimensions and some specific factors falling into these dimensions, all interviews addressed the evolution of 311 contact centers over time. A summary and synthesis of such interview data can be presented in the form of a theoretical model—the learning-curve model of 311 non-emergency contact center evolution. Figure 10 illustrates the model.

This model is grounded on conclusions drawn in interviews during which several interviewees acknowledged that the maturity of 311 systems moves along an S-shaped learning curve. NYC311 interviewees said that they are now at the end of phase 2, which means they are exploring new opportunities for the leap into the next phase. In contrast, Philly311 is still in phase 1, which interviewees characterized as a beginning, trials and errors, many hopes and fears, and learning by doing.

The distinction between Philly311 and NYC311 may be evident in terms of age: NYC311 being more mature with almost a decade of experience and history (phase 2) vs. Philly311 which is only three years old and still in its infancy (phase 1). However, the model does not place heavy emphasis on the role of time. Rather, the learning curve conclusion of this study offers the thoughtful conceptual model that takes into account development through time. New York is ahead of Philadelphia not just because they started earlier and are at a more sophisticated stage of development, but also because
various conditions in the governmental, technical, and political contexts at the start of NYC311 were different than those same factors at the start of Philly311—New York is more resource-rich than Philadelphia. For example, the difference might arise not only from local conditions but may be a reflection of the national economy as a whole (and the extent to which local conditions are impacted by changes in the national economy) and the attitudes of the public regarding spending money on government.

**Figure 10.** The learning-curve model of 311 contact center evolution

<table>
<thead>
<tr>
<th>Phase 1</th>
<th>Phase 2</th>
<th>Phase 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Technological support</strong></td>
<td><strong>(Inter-)Organizational support</strong></td>
<td><strong>Public support</strong></td>
</tr>
<tr>
<td>Function-oriented</td>
<td>Process-oriented</td>
<td>Relation-oriented</td>
</tr>
<tr>
<td>Success factors</td>
<td>Success factors</td>
<td>Success factors</td>
</tr>
<tr>
<td>Right technology</td>
<td>Technological extension</td>
<td>New technologies</td>
</tr>
<tr>
<td>Sufficient staff</td>
<td>Qualified staff</td>
<td>Proactive staff</td>
</tr>
</tbody>
</table>

**Continuous Success factors**
- The top leadership, executive support and champion
- Cross-organizational coordination and collaboration
- Well-trained service integration professionals

**Continuous challenges**
- Interdepartmental conflicts (turf protection)
- Lack of interoperability and system complexity
Systematically, the distinction between phases is also created by the view of the 311 contact centers in terms of the technological, organizational, and cross-organization dimensions. With the division, Philly311 has concerns in the beginning stage: for example, having to get all basic technological tools required for service integration, and adjusting the scope and quality of frontline services to the capacity of customer service agents and staff. NYC311, in phase 2, has continuously expanded the scope of their functions. This phase is thus characterized as the stage of speedy acceleration, value added, functional growth, and the expansion of integrated services. As shown in Figure 6, phase 3 in the learning curve refers to plateau, stability, and further institutionalization of the existing functions. However, the period of such stabilization can be short and then the 311 contact center may move up to a further advanced level.

**Table 31.** Value propositions at each phase of service integration evolution

<table>
<thead>
<tr>
<th>Phase</th>
<th>Value propositions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase 1</td>
<td>• Creating service integration capabilities requires the right technology at the right time.</td>
</tr>
<tr>
<td>Phase 2</td>
<td>• Expanding service integration capabilities requires organizational support in terms of various resources.</td>
</tr>
<tr>
<td></td>
<td>• Improving the performance of service integration capabilities requires a combination of technological readiness, qualified staff, and transformed business processes.</td>
</tr>
<tr>
<td>Phase 3</td>
<td>• Maintaining a high-level performance of service integration capabilities requires the engagement and participation of the public.</td>
</tr>
<tr>
<td></td>
<td>• Considering various contexts of the city helps a city government proactively reflect citizen demands of frontline services.</td>
</tr>
<tr>
<td>Continuous</td>
<td>• The top leadership, executive support, and political champions are critical to mitigating interdepartmental conflicts.</td>
</tr>
<tr>
<td></td>
<td>• Well-trained service integration professionals play a pivotal role as middleware between a service integration system and legacy systems.</td>
</tr>
</tbody>
</table>

Success factors and challenges at each phase can be summarized with a set of value propositions. These propositions can be used for hypotheses in further deductive studies of service integration. They also can be extensively interpreted as strategic
implications and practical recommendations for government practitioners. Table 31 presents value propositions at each phase of service integration evolution.

Phase 1 involves the initial process of building capabilities for service integration. The 311 contact centers in this phase began to create SLAs and a knowledgebase with other city departments. While technological, organizational, and interorganizational supports are necessary for all phases of 311-enabled service integration, phase 1 for building service integration capabilities primarily requires technological support. Support from the city’s technology agency (for example, DoITT in New York) is enabled by the mayor’s strong leadership, vision for the integration of customer services, and the executive-level champions in terms of sufficient funding and timely investment. Importantly, phase 1 is foundational in technological equipment such as software, hardware, and systems. Capital budget is needed in this phase. The phase that experiences new impacts of service integration capabilities is often full of excitement and innovation. Philadelphia interviewees lauded the 311 non-emergency contact system as an innovation in frontline service delivery, citizen-government relationships, and back office management. Also, some New York interviewees recalled the city administration’s excitement about service innovation through the system in the earlier stage of NYC311.

In the move toward a more mature stage, various impacts made by 311 non-emergency contact centers become more routine. The activities and functions that the contact center carries out may lose their magic, but the efficiency and effectiveness of reactive service delivery continue to improve. In this phase, a main focus is placed on the process of maintaining and further developing service integration capabilities. After phase 1 for technological readiness, the second phase requires intraorganizational and
interorganizational supports to continue expanding the scope of service integration. Human resource management is critical to this stage. In addition, interorganizational coordination and collaboration is further institutionalized in this stage.

Phase 3 begins where the performance of a consolidated channel for integrating services improves only marginally in terms of reactive service delivery. This phase seems to receive public support, so many customers appreciate the performance of the integrated service channel and it receives more compliments than complaints of integrated services. In terms of customer service, phase 1 creates a consolidated channel for reactive service delivery. Phase 2 makes remarkable improvements in reactive service delivery. The transition from phase 2 to phase 3 entails proactive service delivery, as NYC311 proactively explores where new kinds of services exist. Interpenetrating open government, crowd-sourcing, and citizen engagement, phase 3 may again identify citizen-government relationships. For example, NYC311 is currently being aligned to the citywide open government initiative by opening the data from 311 systems to the public. Not only are cities soliciting feedback on citizen services, city agencies are now also increasingly providing data and application programming interfaces (APIs) to enable citizen-developers to create applications themselves – bringing even the creation of citizen services directly to the citizens. “Open 311” provides standard and open APIs to explicitly facilitate the generation of citizen input or data and the use of citizen-generated data for development of new citizen services. By opening up the 311 system, the public can view feedback and make additional comments—enabling cities to get additional information on reported issues.
There are critical success factors for the evolution. In all phases, top leadership and executive support are central to the development of 311-enabled service integration capabilities. Interorganizational collaboration is also pivotal to 311 maturity. Phase 1 requires selecting the right technology and having sufficient agents for building the capabilities. For the expansion of service, phase 2 requires an extended suite of technological tools enabling content management, knowledge management, performance management, and business intelligence. Phase 2 is further developed with qualified staff. Thus, training CSRs, supervisors, and managers, and developing the right skill sets (for example, communication skills for frontline customer services and technical skills for dealing with multiple systems) is key to this stage. Phase 3 benefits from more proactive use of emerging technologies which may be adopted by some segments of the population who do not frequently use call center services. Currently, new technologies (social media, open platforms, and smart phone applications) available for 311 are beneficial to NYC311 and Philly311, but are restricted to certain limited functions. However, the pattern of new tool usage is being considered to develop and further diversify 311 service channels and the active use of the channels for other functions. In addition, phase 3 also can be characterized as a stage of more efficient human resource management toward decreasing operational costs while maintaining the quality of non-emergency contact services.

In all three phases, two significant challenges remain. First of all, interdepartmental tension may exist for various reasons: for example, turf protection and the lack of formalized governance. The other challenge is more technical. The lack of technological interoperability across systems is always a concern for the 311 contact
center and also any service integration initiative that uses technologies intensively and relies on technical systems. Departmental legacy systems are not integrated fully into CRM, and the use of different systems heightens complexity of the operation. Human agents serve as a middle ground to fill the gap between CRM and legacy systems. Again training the human middleware is important to maintaining the quality of seamless customer services.
CHAPTER 7. DISCUSSION AND CONCLUSIONS

The consolidation of municipal services is considered one strategy for making a city government more efficient, more effective, more transparent, and more accountable. Regarding city-level service integration, 311 non-emergency contact centers are worthy of analytic attention from researchers. However, little research addresses the service integration capabilities made by 311 contact centers. This study is therefore a timely response to the paucity of relevant research on 311 contact centers. Since the focus is on day-to-day operations and practices of city governments, the study also offers practical implications for government practitioners who implement service integration initiatives. For both academics and practitioners, the study provides a model to understand 311-enabled service integration. This final chapter addresses implications for theory, research, and practice, limitations of the study, and concluding remarks.

1. Implications for theory

This study makes some contribution to theory. The theoretical contribution comes from uniqueness of the study. No previous research has highlighted a historical process that builds capabilities for service integration over time. The learning-curve model of 311 system-enabled service integration evolution proposed in this study emerged from in-depth interviews with city government officials and managers. The model is a form by which a grounded theory is presented. The interviewees revealed that while some factors and challenges are important in all phases, others are more important to either phase 1 or 2. The shape of the maturity model (S-curve) also reflects the experience of interviewees.
So far, any theoretical model of service integration has not been suggested through an empirical study. If any, the model of e-government maturity that occurs through four- or five stages is quite conceptual. In practice, e-government has not been developed exactly following the sequential model (Coursey & Norris, 2008; Moon, 2002). In addition, the model seems to assume a linear or step-wise progress. In reality, the model of integration tends to follow a learning curve. This study suggests a learning-curve maturity model of 311-enabled service integration, and also the model may be applied to broader categories of service integration.

Regarding the nature of a learning-curve model, this study focuses on dynamic situations rather than static ones. Service integration is not made solely by a 311 contact center and its internal projects. Many partners and participants are involved in works to enable service integration. The pattern of coordination and collaboration across organizations may change over time—along the trajectory of technological, organizational, and cross-organizational maturity. In this way, the learning-curve model captures dynamic processes of service integration driven by 311 contact centers.

Another unique theoretical contribution is the presentation of the relationships between various factors emergent from qualitative research. This study refines and elaborates the preliminary understanding of enabling/inhibiting factors for service integration, which draws from extant literature. Then the study goes beyond modification of the preliminary understanding. It suggests a new understanding of the relationships between various core factors identified from empirical evidence. In this way, this study is inductive, not intending to test existing claims and correct existing understanding, but creating new theoretical insights grounded on experiences and practices.
In general, this study contributes to creating a new understanding of city-level service integration. Service integration is one way to make cities smarter—more efficient, more effective, more transparent, more accountable, and so on (Chourabi et al., 2012; Washburn et al., 2010). The term “smart city” is increasingly used by academics, city government managers, journalists, and many others. The concept of a “smart city” is evolving as a new approach to mitigate and remedy current urban problems and make urban development more sustainable. However, any theoretically solid background does not support smart city research. Since city-level service integration is one important instance of smart city initiatives around the globe, this study provides a theoretical ground for research of the initiatives to make cities smarter through the integration of services.

If the core of smart cities is a smart government that leads smart city initiatives, the importance of smart government would not be limited to municipalities. That means service integration as a smart strategy occurs at different levels of government. Hence the insights that this study offers may go beyond cities. As reviewed in chapter 2, other types of service integration—human service integration, e-government integration, and citizen-centric service integration—often occur on the national and provincial level. City-level service integration reflects the various contexts of cities, and city governments are more flexible on external conditions. While every city has its own unique context, distinguishable from others, some theoretical implications may be true across various levels of government and jurisdictions. This study puts forth new theoretical insights that can be shared: for example, the crucial role of well-trained service integration processionals as middleware between the service integration system and legacy systems,
the connection between front office systems and back office systems, the growing
importance of proactive frontline services, and the learning curve evolution of service
integration capabilities over time.

2. Implications for research

This inductive study identifies the importance of non-emergency contact systems
as an emerging research theme instead of confirming and examining some existing
theories. Indeed, there is no existing theory for which to match or place the revelations of
this empirical study. While CRM is being considered an independent topic for research of
business management and information systems, a 311 system equipped with CRM has
not been considered by any research field. The topic of a 311 contact center as a
government agency which integrates city services may appeal to the discipline of public
administration. This study is based on a balanced view of technological, organizational,
and cross-organizational dimensions of the phenomenon. Nevertheless, the study
ultimately lays more emphasis on organizational and cross-organizational success factors
as an effective means to overcoming multidimensional challenges. For example, a major
technical concern—the lack of technological interoperability across systems—is solved
by the role of human agents as middleware. The findings of this study suggest various
success factors related to public management such as: staffing, training, funding, the top
management’s leadership style, governance structure of a city, and interdepartmental
relationships. In this way, the study is offering city-level service integration as a new
research theme to the discipline of public administration.
Regarding the possibility of creating a new research direction, the study can be understood as a conjunction of multiple fields related to service integration, including information integration, knowledge sharing, governance, interorganizational collaboration, performance management, and human resource management. 311-enabled service integration can be viewed from such a diverse lens. While this study provides a comprehensive view of service integration, the interviews, for a deeper analysis on one of the selected topics, could be analyzed with a more specified theoretical perspective.

This study offers many possibilities for future research. A future work should primarily address the addition of case studies on 311 contact centers with varying organizational conditions. Additional case studies of other 311 contact centers, following inductive logic, can further enrich and deepen the understanding of city-level service integration suggested in this study. Specifically, more cases need to include 311 contact centers that can be categorized into phase 2 (see section 4 for explanation in detail).

In addition, further research needs to include cities that have the council-manager type of local government. The two cities that this study focused on have a strong mayor system (mayor-council) as a form of government. In this form, the mayor’s strong political and administrative leadership was found to be critical to building city-level service integration capabilities. The manager-311 relationship in council-manager governments may be different from the mayor-311 relationship. There are some cases of 311 contact centers under the council-manager structure. For example, Phoenix, Arizona is the largest city that has a council-manager form and 311 contact center.

This study limits its scope and context to the city level. However, both academic and practical implications related to service integration may be extended to other levels
of government. Further research needs to broaden the scope of service integration by focusing on other cases of service integration in state or federal government agencies. Also, following research will explore cases related to multijurisdictional service integration beyond a single locality, thereby examining the extent to which the implications of city-level service integration are applied to cross-jurisdictional issues.

The connections among the identified factors, the learning-curve model, and also various findings of this research offer possible hypotheses to future empirical studies. The relationships between factors identified in this study and value propositions embedded in the learning-curve model can be investigated by further deductive research. In this way, the validity of the grounded theory drawing from this inductive research can be examined. For example, quantitative research may examine which factors are more important for service integration. For that, theoretical constructs and measures for each factor and challenge need to be created.

3. Implications for practitioners

This study was heavily related to the process of data collection and analysis of the multinational research project entitled “Smart Cities Service Integration.” Because of this connection, the idea of city-level service integration can be thought of as a close link to the trendy albeit abstract concept of a “smart city.” Some cities use the label “smart city” or equivalent terms to identify themselves. The loaded term connotes the integration of core city services in its working definition (Hafedh et al., 2012; Nam & Pardo, 2011a, b). In this sense, the findings of this study and the models the study puts forth may appeal to
smart city practitioners, because it may explain core aspects of a smart government that integrates municipal services.

The direct benefit of this study can be offered to current 311 non-emergency contact centers on their paths of further development and localities that prepare to launch a 311 system. The public-facing impact of 311—accessibility, accountability, and transparency—is already well-known. For example, ICMA case studies have offered important practical lessons to city government managers. However, accessible practical knowledge is notably less about concerns, barriers, and challenges than about benefits, positive effects, and good outcomes. This study presents “how” and “why” as much as “what” because it explains in detail how the factors identified from the interviews are important for 311 non-emergency contact centers and why. Also the cross-case comparison delivers more practically generalizable findings.

The learning-curve model is useful for identifying where a call center is in relation of the phase of development. Many 311 contact centers may be currently in phase 2, but assessing whether they are closer to phase 1 or phase 3 helps create strategies for 311 center development. The model also focuses on how the two centers are resolving some technological, organizational, and cross-organizational challenges with respect to the maturity level of the 311 operation. Government practitioners can think about how they should use the success factors in considering the maturity level of their system. Furthermore, the learning curve conclusion, in practical terms, pushes cities to think of where they are, what they need, and what they are capable of doing—rather than simply trying to copy others or listening to vendors.
Given the outcomes of research in this paper, this study offers seven practical recommendations as follows.

**Practical recommendation 1:** *Invest the right technology at the right time.*

Selecting the right technology (technology best suited for city-level service integration) at the right time is crucial for building service integration capabilities. Full potentials and benefits of service integration are gained by a suite of full-fledged integration systems.

**Practical recommendation 2:** *Find a smart way to overcome budgetary constraints.* Limited funding is considered a key challenge to service integration initiatives. Given under-equipped and under-staffed conditions due to budgetary constraints, city governments should find a more flexible way to service integration. For example, as in the case of Philly311, an alternative way of investing the right technology at the right time is the adaptation of less costly systems to both internal and external customers’ immediate demands. In addition, since call centers are expensive channels for customer service, New York and Philadelphia diversify service channels to web, short message service, Twitter, smart phone applications, and any new media that citizens can increasingly use.

**Practical recommendation 3:** *Recognize customer service representatives as key to service integration.* Service integration professionals (CSRs and their supervisors in the 311 non-emergency contact centers) play a decisive role in filling the middle ground between the service integration system and older departmental legacy systems. Importantly, the quality of customer service substantially depends on their attitude and ability as representatives of city government. Hence, quality training is critical to human resource management for service integration.
Practical recommendation 4: Build strong relationships with the top management and political champions of service integration initiatives. Administrative, managerial, and political leadership enable and facilitate service integration initiatives. Since service integration requires interdepartmental coordination and collaboration, strong support from executives and leaders is necessary. Strong relationships with the top management and political champions help remove cross-organizational barriers (e.g., turf conflicts and problems in interdepartmental coordination) to service integration.

Practical recommendation 5: Reform public bureaucracy-laden procedures toward the city government-wide orientation for better customer services. Some bureaucratic (unavoidably slow) procedures such as procurement and frequent hiring impede the timely creation of new capabilities for customer services to immediately reflect citizen needs. There also may be a cultural conflict between inertia from bureaucratic procedures and customer service orientation. Customer service organizations should be sensitive of citizens’ needs and demands on frontline services, and thus the innovation of public bureaucracy-laden procedures is necessary for removing the move toward customer service-oriented government.

Practical recommendation 6: Institutionalize a governing body for coordinating interorganizational collaboration. For service integration, interorganizational collaboration needs to be based not only on interpersonal communication, but governance by an institutionalized and formalized organizational body. This can minimize human errors and encourage active participation from service delivery departments.

Practical recommendation 7: Place a service integration initiative or organization below top management’s oversight. This case study found that the best
place for the interdepartmental service integration agency is below top management. Top
management’s oversight of the service integration agency helps resolve cross-
organizational concerns in building service integration capabilities. As such, an
organizational structure may influence the effectiveness of service integration initiatives.
In the city context, the mayor’s involvement in service integration initiatives exercises a
great impact on resolving interdepartmental turf conflicts.

4. Limitations of the study

This research has four limitations. This section, along with an explanation of each
limitation, discusses how this study lessened limitations and what can be proposed for
future research to avoid similar limitations.

First and foremost, to maximize the validity of the suggested model, another 311
contact center is needed for comparison, preferably a contact center that falls between
Philly311 and NYC311 in terms of maturity, organizational size, and age. The new case
would serve as a point of comparison between the two ends of the 311 maturity
continuum; while the one (Philly311) is still in its infancy, the other (NYC311) prepares
for phase 3. Some 311 contact centers are identified as a comparable case between
Philly311 and NYC311 in terms of the 311 center size, project maturity, and the city
population: for example, Atlanta311, Boston311, Seattle311, and so on. Those 311
contact centers are considered target cases for an extension of this research. This study
has been conducted parallel to the “Smart Cities Service Integration” project, and both
NYC311 and Philly311 have been selected as cases for the cross-city and also cross-
national research of general city-level service integration initiatives, not specific to 311
systems. For this reason, an additional 311 contact center case was not considered for this study. At the conclusion of this research, this study turns out to need at least one more case for comparison because NYC311 and Philly311 are placed at either end of the 311 maturity continuum. Though all interviews were based on their retrospective view, the day-to-day details of phase 2 in rapid expansion were not often addressed or recalled in the interviews at NYC311. Instead, most interviewees remember only major events in the early days. The phase-to-phase transition point is of central importance, but what happened in the middle of each phase is also crucial for discovering success factors of and barriers to continuous growth. The following research needs to demonstrate the validity of the models proposed in this study by including more diverse cases in terms of maturity level.

Second, while critical success factors and main challenges are comparable between NYC311 interviews and Philly311 interviews, the impact of 311 non-emergency contact centers on city government was chiefly discussed at Philly311. To make all interview transcripts more comparable, the order of interview questions and the amount of the time given for each question were quite the same for each interview in both cities. Nevertheless, the influence of the 311 contact center on city government was acknowledged and more relevant in Philadelphia than in New York. The reason may be a substantial difference in the interview participants’ expectations of their 311 contact center. Philly311 interviewees consistently stressed public-facing and managerial impacts—all were positive impacts. The impact was really new to Philadelphia and the interviewees talked at length about transforming the city government in a better way—for example, more efficient, more effective, more accountable, and more transparent. By
contrast, NYC311 interviewees thought that the most impressive impact was made in the first couple of years and cited certain episodes that took place at that time—though NYC311 is still making the same impacts—while they also talked a bit about efficiency, effectiveness, accountability, and transparency increased by 311. Thus, what was discussed about the end of phase 2 maturity at NYC311 mainly included internal processes, ongoing challenges, and how the challenges can be overcome, rather than impacts that had already become familiar. Regarding this difference in the nuance of interviews, the research limitation is that the interviews relied on interview participants’ current perception of and current thoughts on the phenomenon, as NYC311 interviewees talked about current views of 311 center operations rather than recalling strikingly positive impacts of earlier days—though some interviewees gave episodic examples of the service integration system’s impact on improving customer services and internal management. For future research, a cross-city comparative study of impacts made by 311 systems is considered, but will require caution in selecting and interviewing relevant informants due to the possibility of underestimation of the impacts in a more mature stage and the possibility of overestimation of the impacts in an early stage.

Third, the composition of interview participants is different between New York and Philadelphia (see Table 15). New York interviewees are mostly people inside NYC311, but half of Philly311 interviewees include executive-level officials of the City Hall and their team (deputy directors), whose work is heavily related to Philly311. For the sampling of interview participants, the initial contact point (the director of each 311 contact center) of the two cities helped select relevant informants who have sufficient knowledge about technology, management, administration, and policy of the 311 contact...
center. In addition, the selection of interview participants was to include executive-level officials, 311 center staff professionals who have functional and operational knowledge, and representatives of other organizations related to the 311 contact center (see Appendix 4). Then the initial contact person in each city was asked to include one or two executives, several individuals from other 311-related organizations, and all other professionals working for the 311 contact center for a total of 10 to 15 interviewees. Thus, it was expected that the sampling would be made in equal composition between New York and Philadelphia. However, the snowball sampling turned out to have inevitably somewhat different composition in both cities. That is because the two cities have differences in the center size, key positions, and roles and responsibilities of the people in their 311 center operations. Instead, the research design of this study achieves the important goal of purposive sampling—to avoid redundant knowledge of the same phenomenon and find those who have new knowledge and different views. Future case studies of other 311 contact centers will consider the concern for sampling interview participants through pre-research of potential informants and their organization before the initial contact person is asked to recommend other interviewees.

Lastly, institutional factors did not draw attention from the interviewees, while the preliminary understanding of service integration derived from a wide array of literature includes some institutional components such as law, regulation, and policy. Research participants in the two cities were asked questions about institutional arrangements, but their responses consistently emphasized the importance of internal management and governance rather than institutional contexts. Possible reasons for this include: service integration enabled by 311 contact centers may be independent on institutional factors;
institutional conditions may be assumed permanent rather than as influential factors to which organizational strategies can change; or the selected interviewees may not have had much knowledge or understanding about institutional contexts. In the literature-based preliminary understanding of service integration, institutional factors are derived from literature of human service integration and e-government integration. The context in which institutional factors are most discussed in the literature differs from the context of 311 system-enabled city-level service integration in both front-office and back-office sides. This study, focusing on the latter context, highlights technological (interoperating across systems) and organizational (merging departmental call centers into a single customer service organization) integration on the service level, rather than arrangements for institutional integration. Yet, institutional factors may still be considered to influence city-level service integration in other ways not revealed in this study. Interviewees who have the authority to shape institutional components (e.g., City Council members) may reveal the role of institutional factors in 311 center operations. The future study of other 311 center cases will include individuals who can elaborate more on institutional factors.

5. Conclusion

While the primary mission of 311 non-emergency systems is to provide the public with quick and easy access to various city services and information, their benefits go beyond the efficient processing of non-emergency service and information requests. There are two ways to consider the benefits. On the public-facing side, people can use integrated services that otherwise are fragmented and inefficient. In addition to service integration, the public-facing benefit may include improvement in citizen-government
relationships and an increase in the level of citizen engagement in municipal affairs. City
governments have a new opportunity for enhancing the quality of customer services.

However, research has yet to tackle how these functions were created by 311 non-
emergency contact centers and what factors influence the service integration capabilities
and how. Given the increase in the number of 311 contact centers across the country
(currently about 280 centers), city governments are considering 311 systems one of the
keys to serving citizens in new and innovative, as well as more efficient, ways through a
consolidated channel to municipal services. Still, researchers have not recognized the
importance of 311 contact centers in city government and city management. Filling the
research gap is a timely task as a researcher in the field of public administration.

This study, following an inductive logic and using grounded theory technique,
derived models of 311-enabled service integration from the result of the qualitative
analysis on semi-structured interviews. Key findings from the comparative study of the
311 non-emergency contact centers in New York City and Philadelphia reveal
commonalities and differences between them in terms of critical success factors and
major challenges. The success factors and challenges are categorized into three key
dimensions: technological, organizational, and cross-organizational. While having the
right technology at the right time is identified as a critical technological factor, limited
funding prohibited Philly311 from starting the system with a full-fledged service
integration tool. While the lack of technological interoperability between the 311 system
and existing departmental legacy systems remains a major technical barrier to connecting
a variety of systems, human agents serve to fill the middle ground between systems.
Human resource management is therefore crucial; having sufficient agents for the call
center operation and also training for qualified staff are considered important organizational factors. Inter-agency coordination and collaboration is pivotal to creating, updating, and revising SLAs and a knowledgebase. However, turf protection raises cross-organizational concerns. The mayor’s strong leadership, political champions, and executive support help resolve interdepartmental conflicts.

The two cases in this study are found to be at different stages of 311 system maturity; while NYC311 is in phase 2, Philly311 with shorter history is now still in phase 1. The contrast between NYC311 and Philly311 helps create a model for 311-enabled service integration maturity, based on the result of a comparative study of NYC311 and Philly311. The comparative study suggests a learning-curve model of service integration evolution grounded on semi-structured interviews. A 311 contact center moves from phase 1 for technological and institutional readiness, to phase 2 for organizational expansion, and to phase 3 for stabilization of the current system.

Phase 1 establishes capabilities for service integration. For that, the 311 contact centers create SLAs and a knowledgebase collaborating with other city departments. Phase 1 primarily requires technological readiness. Phase 2 requires further intraorganizational and interorganizational support to expand the scope of service integration. Human resource management for qualified staffing and training is critical to seamless operation of the system that necessarily becomes more complicated by technological and organizational expansion. Reaching phase 3, performance of the contact center does not improve dramatically. With the transition from phase 2 to phase 3, the contact center transforms itself from a reactive service system to a reactive service plus proactive outreach system.
Going forward, this inductive study offers some implications for both researchers and practitioners. It offers new research directions and reveals many potential relationships among identified factors that can be examined in future research. The theoretical contribution of the study is the suggestion of dynamic and multidimensional service integration models, and also that the models can be used by government practitioners. It is expected that these models will facilitate understanding of service integration capabilities made by 311 non-emergency contact centers.
REFERENCES


In Proceedings of the 45th Hawaii International Conference on System Sciences (pp. 2289–2297), January 4–7, Maui, Hawaii.


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APPENDIX 1. INTERVIEW PROTOCOL

### Smart Cities Services Integration

**Interview Protocol**

- [Very brief introduction of interviewers (including their home institutions), the project, and its goals.]

  The *Smart Cities Services Integration* project is funded by the Canadian Social Sciences and Humanities Research Council (SSHRC). We are conducting a study to understand the factors which influence smart city service integration initiatives. We are studying six cities around the world – New York City, Seattle, Quebec City, Mexico City, Macao, and Shanghai; with six teams of researchers. We will use the results to produce academic publications, practitioner guides, and new educational and training resources.

- Before we begin the interview, we need to make sure you have had a chance to read this consent form. [Hand the consent form to the interviewee].

  We want to be sure you understand your rights as a research participant, so we use this consent form. Please read and sign it. You can be assured that we will keep all information confidential and nothing you say will be attributed to you without your permission. [Allow time for reading and signing.]

- Do you have any questions? [Answer any that are asked.]

- We will take one copy, and you keep a copy for yourself.

- If this is OKAY with you, we will turn on the digital recorder.
| Smart Cities Services Integration  
<table>
<thead>
<tr>
<th>Interview Protocol</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Introduction</strong></td>
</tr>
<tr>
<td><strong>We would like to take the first few minutes to hear about your job.</strong></td>
</tr>
<tr>
<td>What is your official job title in this organization?</td>
</tr>
<tr>
<td>How long have you been in this position?</td>
</tr>
<tr>
<td>What are your major job responsibilities?</td>
</tr>
<tr>
<td><strong>Conceptual Context of a Smart City</strong></td>
</tr>
<tr>
<td><strong>We would now like to get your ideas on what you think a “smart” city is.</strong></td>
</tr>
</tbody>
</table>
| What does it mean for a city to be smart?  
Can you give examples of what it means to you for a city to be smart? |
| Name some characteristics |
| Other labels for a smart city |
| **Initiative or Project Description** |
| **Now we would like to turn your attention to the initiative/project that your city has pursued. We identified that this initiative/project is an example of an effort for service integration to make your city “smart.”** |
| Please give me a five-minute overview of the initiative as you see it. |
| Motivation or incentive |
| Main goals and problems addressed |
| Services provided by the project |
| People, organizations (including non-governmental), jurisdictions, sectors involved |
| Timeline and stage of the project |
| How are multiple services integrated by the initiative/project? |
| Nature and extent of integrated services |
| Multijurisdictional, multisectoral |
| Related to multiple policy domains |
| Cross-organizational collaboration |
| Partnership or network |
| How are citizens and others using the services provided by this initiative/project? |
### Technology

**We would now like to ask you about the technology being used in your initiative/project.**

| How is information and communication technology (ICT) being used in this initiative/project? | ICTs to manage the initiative/project  
ICTs as part of strategy, infrastructure or services implemented  
ICTs to support collaboration  
ICTs to help share and integrate information across organizations  
ICTs to connect different systems or networks  
Existing technologies leveraged and new technologies deployed (e.g., social media) |
|---|---|
| What are the barriers or challenges to using technology in the initiative/project? | Legal and policy issues  
Managerial barriers (commitment, leadership)  
Organizational barriers (resources)  
Technical barriers (skills, standards, security) |

### Organization and Management

**We’d like to ask you about the organizational/managerial aspects of the initiative/project.**

| How is this initiative/project organized and managed? | Where in the existing organizational structure does the initiative/project sit  
Who is in charge of the project in each agency  
Formal operational rules guiding the project  
Organizational structure changes  
Business processes and workflows changes  
Progress tracking methods (for example, success indicators)  
Budget and funding mechanisms  
Nature and extent of partnership, collaboration, or network |
|---|---|
| What challenges is the initiative/project facing in achieving the project objectives? | Managerial challenges  
Cultural challenge  
Resource challenges  
Cross-organizational challenges in partnership and collaboration  
Political challenges |
<p>| How are these challenges being overcome? | Strategies |</p>
<table>
<thead>
<tr>
<th>Governance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Now we would like to ask you about the governance of the initiative/project.</strong></td>
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<tr>
<td>How is this initiative/project governed?</td>
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<tr>
<td>How are citizens and nongovernmental organizations involved in the project?</td>
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</tbody>
</table>

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<tr>
<th>Policy</th>
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<tbody>
<tr>
<td><strong>Now we would like to ask you about the policy environment of the initiative/project.</strong></td>
</tr>
<tr>
<td>What is the relationship between this initiative/project and the policy environment?</td>
</tr>
<tr>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Context</th>
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</thead>
<tbody>
<tr>
<td><strong>Now we would like to ask you about the larger environment of the initiative/project.</strong></td>
</tr>
<tr>
<td>How does the larger environment influence the initiative/project?</td>
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<td></td>
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</table>

<table>
<thead>
<tr>
<th>People and Communities</th>
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<tbody>
<tr>
<td><strong>We would like to ask you about people and communities affected by the initiative/project.</strong></td>
</tr>
<tr>
<td>How does this project affect and is affected by the population and communities of the city?</td>
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</table>
### Economy

Next I would like to ask you about the impact of the project on the city’s economic situation.

What is the relationship between this initiative/project and the economy of the city?

<table>
<thead>
<tr>
<th>Competitiveness</th>
<th>Attraction and retention</th>
<th>Skilled workforce</th>
<th>Job creation</th>
<th>Productivity</th>
<th>Innovative spirit</th>
<th>Entrepreneurship</th>
</tr>
</thead>
</table>

### Natural Environment

And now I would like to ask you about the natural environment in your city.

How does this initiative/project affect the city’s natural environment?

<table>
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<tr>
<th>Impact on the natural environment</th>
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</table>

### Conclusion

- That concludes the interview. Is there anything else you would like to add or discuss in more detail?
- We may need to contact you again for clarification. Would that be OKAY with you?
- Thank you very much for your time. We appreciate your participation.
APPENDIX 2. NOTICE OF APPROVAL BY INSTITUTIONAL REVIEW BOARD

UNIVERSITY AT ALBANY
State University of New York

IRB 00000589
FWA 00001970
Notice of Approval
IRB Protocol Number: 11-125

Approval Date: June 6, 2011
Expiration Date: June 6, 2016
Title: Smart Cities Service Integration
Principal Investigator: Theresa Pardo
Review Type: Exempt
☑ New ☐ Modification
Approved under Exempt Category:

☐ 1 – Research conducted in established/ commonly accepted educational settings involving normal educational practices.
☐ 4 – Research involving collection or study of existing data, documents, records, pathological specimens or diagnostic specimens.
☐ 2 – Research involving the use of educational tests, survey procedures, interview procedures or observation of public behavior.
☐ 5 – Research and demonstration projects conducted by or subject to approval of federal Department or Agency heads and designed to study, evaluate, examine public benefit or service programs.
☐ 3 – Research involving the use of educational tests, interview procedures not exempt under Category 2 if subjects are appointed public officials or research conducted under federal statute requiring confidentiality be maintained throughout the research and thereafter.
☐ 6 – Taste and food quality and evaluation/consumer acceptance studies

1. Provisions of Approval: The determination is valid until the expiration date above. If your research is expected to continue beyond this expiration date, you must submit a new protocol. You are required to maintain IRB approval for as long as the study remains active.

2. All recruitment materials and methods must be approved by the IRB (as part of the determination of exempt from IRB review) prior to being used.

3. Informed Consent: An adequate standard of informed consent has been met when required.

4. Principal Investigator Responsibilities: It is the responsibility of the PI to ensure that all investigators and staff associated with this study meet the training requirements for conducting research involving human subjects, promptly report any changes in research activity to ORRC, keep appropriate research records, and comply with all University at Albany Policies, federal, state and local laws, Declaration of Helsinki and the Belmont Report.

5. Research Records: Accurate and detailed research records must be maintained. All research records (including all IRB correspondence) must be kept for a minimum of 3 years after the completion of the research. This research is subject to an audit under the terms of the IRB’s Quality Improvement Program.

6. Modifications: All protocol modifications must be IRB approved prior to implementation. Modifications include (but are not limited to) study personnel, research instruments, protocol procedures, and/or addition of funding source.

7. Funded Research: If your research is funded or otherwise sponsored research, you must submit any changes to the grant to ORRC with the human subjects section(s) highlighted. This is true whether the source of funding is internal or external.

8. Study Closure: A study is considered to be open and active until the protocol has reached its Expiration Date or the investigator has submitted a Closure Form (available at www.albany.edu/research/compliance/Forms.htm). Until a Closure Form is received, IRB oversight of the research will remain active. A closure notice reminder will be sent to you, but it is your responsibility to ensure that you submit an updated protocol and receive an approval in a timely manner.

9. Unanticipated or adverse events: All unanticipated or adverse events must be reported to the IRB within 5 days.

10. Other:

We wish you success with your research.

Sunita M. Chowdhry
Assistant Director, Office of Regulatory Research Compliance
On behalf of the Institutional Review Board
APPENDIX 3. CONSENT FORM

Smart Cities Services Integration
Principal Investigator: Theresa Pardo
Center for Technology in Government
University at Albany, SUNY
187 Wolf Road, Suite 301, Albany, NY 12205

PURPOSE: The Center for Technology in Government is conducting a series of interviews with New York City government professionals regarding their agency’s smart city project. These interviews are part of the Smart Cities Services Integration project whose main purpose is to develop a framework for service integration within the context of a city.

YOUR ROLE: Because of your involvement with your agency’s smart city project and your expertise, we are asking you to participate in an interview to collect information about the development and implementation of your agency’s project.

POSSIBLE RISKS AND BENEFITS: There are no risks associated with the interviews. We believe there are organizational benefits to your participation in the interview because the results will help to share knowledge regarding service integration within the context of a city.

PARTICIPATION: Your participation in this study is completely voluntary. If you do not wish to participate, please let us know at this time. If you do participate, you may discontinue your participation at any time without penalty and you may also choose to skip any question(s) for any reason.

CONFIDENTIALITY AND PUBLIC REPORTS: Presentation, reports, and publications based in this survey will focus attention on the general findings. Your answers are confidential and will not be attributed to you as an individual. The references may refer to levels of government or organizations, but will never identify individuals.

CONTACT INFORMATION: If you have any questions about the design or conduct of this project, please contact Theresa Pardo from CTG at tpardo@ctg.albany.edu or Taewoo Nam at tnam@ctg.albany.edu. If you have any additional questions concerning your rights as a research participant that have not been answered by Theresa or Taewoo or if you wish to report any concerns about this project, you may contact the University at Albany Office of Regulatory Research Compliance at (518) 442-9050 (or toll free at (800) 365-9139) or via email at orcc@uamail.albany.edu.

Approved by IRB

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The University at Albany
APPENDIX 4. INTRODUCTION OF RESEARCH

SMART CITIES SERVICE INTEGRATION: BUILDING A GLOBAL FRAMEWORK

The Smart Cities Service Integration project is a multinational effort to develop a global framework to guide smart city initiatives. The study is a first-of-its-kind effort to understand the nature of the activity a city must carry out to create an integrated service. The study is not an evaluation of the initiatives, but is an effort to create new understanding of city-level service integration efforts as the foundation of a framework to guide future efforts of both academics and practitioners.

The global framework will be built through case studies of selected service integration initiatives in the cities studied. The framework will provide a guide for what cities must consider in the process of integrating services and will be used globally to inform the efforts of other cities.

Philadelphia was invited to participate in this study due to its unique role in the world and its exemplary practices in this area. Philadelphia would be one of seven cities included in this study. The other six cities are: New York City and Seattle; Quebec City, Canada; Mexico City, Mexico; and Shangai and Macao, China. Additional cities from around the world have expressed interest in participating in the study, however, the first round of research to form the foundation of the framework is limited to the cities identified above. The project is partially sponsored by the Social Sciences and Humanities Research Council of Canada and the home institutions of each of the members of the research team.

Products from the Study
This project will produce practical as well as academic results in the form of the Smart Cities Service Integration Framework that will be included in academic papers, conference presentations, and practitioner publications. We plan to produce a practical guide for service integration in city government as well.

Benefits to Participants
Cities will benefit from participation in several ways.

- **Participation in a leading-edge study of city-level service integration**: As noted above, the study is a first of its kind in that it will go beyond descriptions of individual city-level (which are by themselves valuable) initiatives to understand the activities being carried out in each city with respect to selected initiatives and across the involved cities and to fill a gap in current theoretical and practical knowledge about smart city service integration.

- **Visibility**: Due to the study being a first-of-a-kind in the area of smart city service integration efforts, the work is drawing attention in the academic, civil society community and international development agencies. The framework produced in this study will be presented globally at academic as well as practitioner meetings and conferences. The framework will be introduced to the policy and practice communities as well through articles in practitioner journals such as *Public OIO and Governing Magazine*. In all cases, the participating cities will be acknowledged for their participation and contributions to the study.

- **Recognition of the role NYC is playing as a leader in this area**: The research will highlight the policy and practice innovations necessary to achieve service integration priorities. Innovations from each city will be used to highlight key aspects of the framework.

**Interview Process**
Information about each project will be collected through interviews with those involved in the planning, design, implementation and evaluation of each specific initiative. The interview questions focus on management, technology, policy and governance aspects of the initiatives as well as their impact on the environment and communities. A copy of the interview questions is attached.

- Each interview will last approximately **one hour**.

- Ideally, for each initiative we would like to interview 10-15 people from multiple levels and functions, such as executives, project managers, team leaders, and IT experts. The total number of interviews can be reduced if necessary but to capture enough information to contribute to the development of the framework we will need a minimum of five individual interviews per initiative.

- Interviewees' names will keep confidential. Individual comments will not be attributed to individuals, nor in most cases to the specific city. The references will be to level of governments or agencies, but will not identify an individual person, unless approved by the City.

- Interviews can be conducted in **person** or on **the phone**.

- Individuals being interviewed do not need to prepare for the interview nor engage in any follow-up activity such as providing written comments.

- Each project will be asked to provide a primary contact person. That person will be contacted as necessary regarding questions related to the data collected and use of that data in publications. See below.

About CTG
The Center for Technology in Government, an applied research center, is recognized as a global thought leader in digital government research and practice. The Center is devoted to improving government and public services through policy, management, and technology innovation. Project Information is available at its homepage, [www.ctg.albany.edu/projects/smartcities](http://www.ctg.albany.edu/projects/smartcities). For more information, please contact Theresa Pardo (Director) at tpardo@ctg.albany.edu, Jana Hrdinova (Program Associate) at jhrdinova@ctg.albany.edu, or Taewoo Nam (Graduate Assistant) at tnam@ctg.albany.edu.