# Identifying Success Factors and Challenges of 311-Driven Service Integration: A Comparative Case Study of NYC311 and Philly311

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## Abstract

*A 311 system provides quick and easy access to non-emergency municipal services and information through a consolidated channel. This study explores the operation of 311 contact centers in New York and Philadelphia and identifies critical success factors and challenges of 311-driven service integration. Analyzing the qualitative data from semi-structured interviews with 311 center staff and city government officials, the study presents some key findings. Having the right technology in the right time is identified as a critical technological factor. While the lack of interoperability between a 311 system and departmental legacy systems remains a major technical barrier to connecting a variety of systems, human agents fill the middle ground so that training for qualified agents is crucial for their role. Inter-agency coordination and collaboration is pivotal to creating and updating service level agreements and knowledgebase. However, turf protection raises cross-organizational concerns. The mayor's strong leadership, political champions, and the executive support help resolve interdepartmental conflicts.*

## 1. Introduction

An increasing number of city governments are looking to the consolidation of municipal services as one of the ways to make their cities more efficient, effective, transparent, and accountable [5,26,27]. A 311 program is considered one particular strategy for service integration. The system is providing quick and easy access to non-emergency municipal services and information through a consolidated channel.

The 311 contact centers serve for residents, businesses, and visitors as a front line of municipal services. Their back-office functions support efficient resource allocation and informed decision making. As such, cities with 311 have touted such contribution to customer services and city management [1,7-14,22,28]. Nevertheless, few studies have addressed changes in city government enabled by 311 [29,30,34-36]. Given paucity of research on 311-driven service integration, an important research question remains unaddressed: *How does 311 create capabilities for service integration at the city level?*

Using a multi-case study of 311 contact centers in New York and Philadelphia, this paper explores the practices of 311-driven service integration. This research is qualitative and inductive so that the paper concludes with a new understanding based on grounded theory drawing from the data of semi-structured interviews. The paper is structured into seven parts, including the foregoing introduction. Section 2 provides the background information of 311 systems. Section 3 describes research method and data in detail. Section 4 and 5 presents the results of the qualitative analysis of the data from semi-structured interviews in New York and Philadelphia, respectively. Section 6 suggests a multidimensional understanding of 311-driven service integration. Section 7 offers some final comments.

## 2. Background of 311 systems

"311" is the toll-free number that the US Federal Communications Commission reserved for non-emergency contact services. A 311 system, first launched in Baltimore in 1996, has rapidly spread across the country. Now it encompasses call center services and multiple channels (phone, kiosk, email, short message service, social media, and smart phone apps) for service and information requests. It is, more than a mere call center, the centerpiece of advanced systems of people, technology, and business processes [21,37].

311 systems are also interchangeably used with "311/CRM" [9,33], where CRM stands for customer relationship management. While CRM refers to a discipline of constituent-focused management of government, the presence of a 311 number does not necessarily mean a government has implemented CRM [33]. A 311 number is just technology and one method for receiving requests for service [9: p.54]. Unless it is built on constituent-focused processes and staff behaviors, it is not CRM.

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 [9,20,24,30]. 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 [4,31,33,35].

While the term "311/CRM" is distinguished from merely 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 powered by CRM are differentiated into service and non-service activities, as described in Table 1.

**Table 1. Main tasks of CRM-enabled 311 centers**

| | Inbound communications (Citizen-initiated) | Outbound communications (Government-initiated) |
|---|---|---|
| **Service activities** | • Service request | • Information provision<br>• Service request follow-up |
| **Non-service activities** | • Service status<br>• Complaint and comment handling<br>• Information provision<br>• Referral | • Citizen survey |

Source: [33: p.126].

## 3. Method and empirical strategy

A comparative case-study approach is employed for the qualitative study of 311 contact centers in New York City (NYC311) and Philadelphia (Philly311). Focusing on the two cases of service integration enabled by 311, this empirical study explores similarities and differences between the selected cases. The methodological nature of the study is inductive. It does not pursue to examine findings and arguments from the previous literature (deductive), but it rather aims to suggest a theoretical (grounded in and emerging from data) frame for a better understanding of service integration capabilities made by 311.

Rich data are collected through semi-structured interviews with individuals who are in charge of or related to 311 center management and operation. Because of the relative newness of the research theme, purposive sampling is employed to identify individuals who could provide important information [15]. This sampling method is employed in selecting information-rich cases to conduct an in-depth study [39] and grounded theory-based research [23]. Directors of 311 centers as an initial informant were asked to recommend other individuals who have sufficient knowledge in various aspects of 311 operation. Interviewees include executive-level officials, 311 staff people (managers in different functions), and representatives of other departments related to 311 operation. The sampling ended up with 16 people in Philadelphia and 11 people in New York.

The data was collected through 27 in-depth interviews—three interviews by phone, while face-to-face interviews for all others—in 2011 and 2012, and then more information was gathered through follow-up communication. All interviews were conducted in a semi-structured way with two interviewers to minimize personal bias. Each interview lasted 60 to 90 minutes. The semi-structured manner has the flexibility to follow up on new information presented in the context of an interview and to explore new findings in depth. Each session was recorded then transcribed. A summary of the interview was sent to each participant for verification that their views were understood as they intended. Feedback from some interviewees provided helpful clarification and further insights. Table 2 lists sample interview questions and probes.

**Table 2. Sample interview questions**

*Q. How is technology being used in the 311 center?*
- The role and impact of technology used
- Existing technologies leveraged
- New technologies deployed
- Technology-related or technical challenges

*Q. How is the 311 center organized and managed?*
- Organizational structure
- Businesses processes and workflows
- Budget and funding mechanisms
- Managerial and organizational challenges

*Q. How is the 311 center governed?*
- Governing body and structure
- Roles played by staff, partners, and stakeholders (including citizens)
- Governance processes for decision making, information sharing, and conflict resolution
- Cross-organizational challenges

Due to the emergent nature of this research, a ground theory approach is adopted for an analysis. Grounded theory refers to 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 [17]. Grounded theory is thus derived from systematically gathered and analyzed data through research [17,36]. It is the most prominent framework for analyzing qualitative data [2,38].

Following the processes of grounded theory building, interview transcripts were coded to identify common patterns with an inductive approach. For this research, coding is a process of labeling, separating, compiling, categorizing, and organizing qualitative data [3,6,19]. Descriptive codes are used so that interview transcripts were coded in sentence or multi-sentence chunks.

## 4. A case study of NYC311

On January 31, 2002, the Mayor Michael Bloomberg proposed a customer service initiative to provide non-emergency services and information through one all-purpose phone number. Department of Information Technology and Telecommunication (DoITT) was given only one year for implementation. In September, 2002, DoITT began the transition of the 10 largest call centers and over 250 employees to the 311 system. After one year preparation, the Mayor Bloomberg officially announced the launch of NYC311 contact center on March 23, 2003. Call volume has ever increased annually and the quality of customer service has been improved so far. As a result, in the scores of the American Customer Satisfaction Index (ACSI) that Customer Feedback Insights (CFI) Group released in 2011, NYC311 far surpasses public sector and is on par with top scoring private sector industries. NYC311 is now considered as a benchmarking case for other customer service organizations across the country and around the world.

### 4.1. Critical success factors of NYC311

#### 4.1.1. Technological factors. The adoption of new technologies and further diversification of contact channels are vital to improving efficiency and effectiveness of service delivery and information provision. A call center professional said:

[NYC311] is the most expensive channel. We have to focus on other channels. Now customers can get to us by texting us. They can go to 311 online and we also have more of a robust IVR (interactive voice response). They

don't need a person to talk to them about it. It is not going to take away our job at all, but it would make our job easier. It would be less of a burden on us because a lot of these simple requests can be handled by the customer in different ways. … Also, there is an iPhone app and hopefully there will be an android app soon.

According to one senior manager, "text messaging and smart phone apps are being used to get more people to use more types of intake." Twitter is being used as a proactive tool: for example, sending out daily Tweets about alternative side street parking. Some interviewees said that a next generation may change the nature of the contact center with the active use of digital and mobile tools.

#### 4.1.2. Organizational factors. The executive support, human resource management, and contingency capacity are identified as organizational factors. All interviewees agreed that what got NYC311 started is the mayor's clear vision of open government. "We needed a political champion," said a former NYC311 senior staff person. "Mayor's Office of Operations (MOO) was the hammer."

The second factor is human resource management. Especially, training of call center representatives (CCRs) is pivotal to the quality of 311 service. Training sessions open not only for new hire trainings but also for refreshing training, training for veteran CCRs, and also training for supervisors. According to the training expert, two types of skills are required to all CCRs: soft skills (face-to-face and voice-to-voice) and system skills.

The third factor is contingency capacity. The contingency capacity for NYC311 is prepared for overflow management and emergency plan. NYC311 employs a vendor for overflow calls. The team of Vendor Management estimates the demand and supply in two months window in terms of call volumes. Another process involves emergency operation plan, which is part of Continuity of Operations (COOP). In the past weather-related events, many volunteers served as temporary CCRs in the call center. The emergency plan includes how NYC311 trains and uses city employee volunteers in emergency.

#### 4.1.3. Cross-organizational factors. Two factors (a supervising organization, and interdepartmental collaboration) that NYC311 interviewees identified are categorized into the cross-organizational dimension. Many interviewees saw which organization should supervise NYC311 as an important factor. The organization to which NYC311 reports has changed from DoITT to MOO. Since DoITT is a technology agency and NYC311 is a peer to the other agencies,

NYC311 had difficulty to tell other agencies that they're not doing their job in the right way. That's why MOO is an appropriate place for NYC311. A senior analyst said, "We started as a part of DoITT. The technology aspect of this was over and done. Now it's more about accountability."

Another success factor is interdepartmental collaboration, which is involved in various processes such as revising service-level agreements (SLAs),[1] and updating knowledgebase.[2] A senior content analyst talked about interpersonal (between the analyst and the departmental liaison) collaboration in updating content related to a particular department:

> If we need to get the agency involved, because we're responsible for the writing and presentation of the content in our [CRM] system, it needs to reflect truly what the agency does and is responsible for. 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.

A representative from one of SLA departments described the nature of interdepartmental collaboration:

> It is a "we" process. 311 cannot absolutely make decisions on forms without our input. So it's definitely a collaborative effort. For the most part we were able to get forms built and things done in [CRM] as we have asked them to do. It is a collaborative effort, so "we" means [us] and 311.

## 4.2. Challenges of NYC311

**4.2.1. Technological challenges.** Technological challenges include system complexity and the lack of interoperability. Work-order systems and integration between CRM and departmental legacy systems have a high level of complexity. For example, while an entry in some agencies is made into the CRM system and directly into their legacy system, others cannot because CRM is not integrated throughout the agency. The lack of a fully integrated system does not allow CCRs to get any real-time information about the actual resolution process within an agency [33: p.98].

"[The lack of interoperability] was the most challenging one because we are building a new

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[1] A service-level agreement (SLA) defines specific timeframes for completion of tasks. Having SLAs enables CCRs to inform citizens when they can expect work to be completed or service requests fulfilled. For instance, in one city, a dead animal must be removed in three days and an abandoned vehicle within thirty days.

[2] A knowledgebase catalogs responses (correct answers) to various types of inquiries, which CCRs can access to increase both the quality and the consistency of service. A more streamlined version of the knowledgebase is directly available to constituents via a Web portal.

application and infrastructure on top of an old legacy city government," said a former deputy director of DoITT. Filling the gap between the CRM system and departmental legacy systems relies on the role of CCRs or agents from SLA departments. Reliance on human agents as middleware is also a challenge because CCRs need to be familiar with all different stand-alone legacy systems. A senior staff person said, "[CCRs] 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." Hence the delivery of seamless frontline services depends on the role of CCRs as a middle ground for mediating between CRM and legacy systems.

**4.2.2. Organizational challenges.** Limited funding and bureaucratic procedures are identified as organizational challenges. Especially, the economic downturn in the recent couple of years has had direct impacts on the 311 contact center operations. "Our call volume has just gone up and up," said a senior analyst. "With budget cuts and having fewer people answering the phones, our wait times to speak to someone is obviously got longer." On the other hand, this financial challenge may offer an opportunity for innovation toward efficient workforce management and effective data use. One manager said:

> The challenge is funding. We've lost anywhere 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.

Another major challenge arises from characteristics of the "public sector" call center. Compared to the private sector, the speed to market and slow procurement become a serious challenge for this age of agility. There is one view:

> How come, why does it take you so long to put a mobile app up, or why is that? Those are the balance of government work. We need to have a strong procurement process and we need to have a strong oversight process because it is the taxpayer's money, so I understand that, but that makes timeline longer. … Procurement is the challenge, which is the delay, in every step of that. 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. There's a reason, but that's by far the biggest challenge.

For this professional organization, the hiring procedure relied on civil service exams is considered a challenge inherent in public bureaucracy. One senior call center manager said,

Taking a test doesn't mean you will be a good manger. Here is our reality. … The worst case scenario is 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? … 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.

**4.2.3. Cross-organizational challenges**. Interviewees identified two main challenges to interdepartmental collaboration. These cross-organizational challenges include liaison-relied interpersonal collaboration and departmental turf protection.

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 and attitude of liaisons. Thus, liaison-based coordination is influenced by interpersonal collaboration to a substantial extent. Liaisons may have their own responsibilities for their department other than informing 311 agents of updates. They may have on rotation, and it may take some time for them to be familiar with the role as liaisons. 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. … Very few agencies have a dedicated 311 liaison. Each liaison may not know about a marketing campaign that's going to be started next week. So it's like a struggle trying to get them. "Anything coming up in the next three months?" Unfortunately your liaison might not be the person who knows that, because you have a liaison who doesn't care what happens to 311.

Organizational turf protection has been a serious challenge, especially in the beginning of NYC311. Now some degree of interorganizational tension 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 existing call centers:

[Other agencies] didn't want to give up their call centers because with their call centers there were jobs. That was a huge challenge. They didn't want to give up their numbers. "We do things differently, so you can't possibly standardize that." That was a common answer.

A liaison from an SLA department had a cynical view of the 311 launch because she had seen turf protection as very strong. She said:

In the beginning, 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. Everybody is protecting their turf. That was the biggest challenge.

The initial turf conflicts were resolved by the city's government structure—the mayor's power based on the strong mayor system. One interviewee said:

There was a political turf struggle. New York is a different structure. 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.

# 5. A case study of Philly311

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—"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 using their 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. As a consolidated channel that integrates the existing call centers, 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, short message service, and social media. Philly311 was created in the crest of economic downturn so that it had to start with under-equipped and under-staffed conditions. Also the system was built with a tight timeframe (preparation for only 11 months). Currently it does not operate 24 hours a day and 7 days a week due to budgetary constraints.

## 5.1. Critical success factors of Philly311

**5.1.1. Technological factors**. The critical success factors drawing from the interviews have led to the successful launch within an aggressive timeframe and the operation that meets the initial level of goals. 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. Instead of buying a new system, the city has added extra features to the low-cost software and created its own technological patches. Overall, adaptation and flexibility was pivotal to overcoming the earlier challenges from under-equipped conditions.

Though adaptation was a smart solution to technologically under-equipped conditions, a Philly311 senior staff person stressed "the right technology at the right time" as a critical success factor of 311 systems:

> 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.

Philly311 staff interviewees agreed that if they have sufficient amount of money, they will invest immediately in CRM and other technologies necessary for call center operation. As Ginsberg's [16] observation of Philly311 found, 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. To build back-office capabilities, investment in core technologies at the early stage is critical.

**5.1.2. Organizational factors**. Leadership of the top management, executive support, organizational learning, and staffing are identified as organizational factors for the success of Philly311.

The mayor's leadership was exerted through putting forth the vision for the whole city and sharing the vision with city government employees. One of the city's deputy directors said, "311 is the mayor's priority, ensuring to deliver his priorities in milestone." One interviewee at the police department said, "His vision emerges around the roles of police officers." Like this, the mayor's strong leadership has led the key departments to follow his vision for improving customer 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 a primary tool for making this happen. Consistent strong support from city leaders and top management is vital to making this vision a reality.

With the mayor's strong leadership, the first-launch-then-fix approach required quick learning by doing. According to Philly311 launch project team members, they quickly learned what other cities are doing. In addition to learning from best practices of some early 311 adopters, Philly311 learned by doing from citizens and other departments.

Flexible staffing (internal transfers and on-loan call agents) turned out to be necessary because the best case scenario for peak performance and operation has never happened. Instead, the staff has developed the required skills through internal training of inexperienced transferred employees to perform well even under less than ideal conditions.

**5.1.3. Cross-organizational factors**. Strategic partnership and interdepartmental collaboration are identified as success factors in the cross-organizational dimension. Some private sector customer service centers were important partners of Philly311 for developing a detailed strategy and implementation plan of 311 call center operations [25]. They also contributed to relieving the burden on Philly311 caused by under-staffing, providing some of their experienced agents (on-loan call-takers), 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. This strategic partnership for agent training and knowledge sharing was considered a smart way to quickly acquire practical know-how, given budgetary constraints.

Strong internal partnership with city departments was found to be beneficial to the Philly311 operations. Interdepartmental collaboration occurs in the process of creating and updating SLAs and knowledgebase. In the very beginning, 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 more, depending on the department. According to some interviewees, 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 updates 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).

## 5.2. Challenges of Philly311

**5.2.1. Technological challenges**. Under-equipped conditions and the lack of interoperability are identified as technological challenges of Philly311.

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 CRM enabled similar functionality to that of a full-blown CRM at a fraction of the costs, 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 barrier to the progress toward the next maturity phase, which requires substantial improvements in CRM and other technologies.

The patchwork of software enabled some limited functions of CRM and had concern for interoperability with legacy systems in other departments. The lack of compatibility between CRM and departmental legacy systems has remained as a huge concern, while many technical glitches have been resolved. The system's biggest challenge still lies ahead: integrating the city's service-request and work-order system.

**5.2.2. Organizational challenges**. Limited funding, under-staffing, and the change in organizational culture are identified as organizational challenges. The result of recession-driven budget cuts meant scaling back or postponing key elements. One executive-level interviewee said:

> In this economic situation, funding new programs and existing programs, appropriate at the least-level service, puts a little in 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.

The planned number of agents had been reduced from 72 to 57. Support staff positions were cut. Instead of external applicants who have contact center experience, staffing was limited to hiring city workers who were facing layoffs from unrelated jobs and didn't have any customer service experience. A series of budget cuts in 2009 and 2010 resulted in continuous layoffs and a reduction in contact center hours from 24/7/365 to 12 hours on only weekdays.

The other challenge is qualified staffing. One senior manager of Philly311 said:

> Qualified staffing is an issue. We have 50 percent of dropout rate in the city. A lot of challenges are reading and understanding the content. … For a smart city, we need to invest in how we are educating. People who came here did not use email. It takes time to train them. Basic skill sets are easier to train. But still it is a challenge. Investment in people is critical.

In addition, interviews revealed the existence of a cultural challenge. Philly311 as a city agency has a unique organizational culture distinguishable from other departments and agencies, because it serves as a leader and pioneer of customer services in the city government. According to one Philly311 staff person, Philly311 agents may feel that they have to comply with a more rigorous internal standard for excellence in customer services, which is not required in other departments. Philly311 as an agency of the city government brings a new culture (customer-oriented) to the existing bureaucracy. The agency was created as a new one in the whole city government for recent 30 years. Its role as a customer service leader 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 an organizational challenge.

**5.2.3. Cross-organizational challenges**. The lack of formal governing body for interdepartmental coordination can be a challenge and turf conflict is considered a main cross-organizational challenge to the expansion and further development of Philly311.

A formal governance body for collaboration does not exist, but instead some staff members of Philly311 meet representatives (liaisons) of SLA departments in a regular basis. Philly311 staff identified this process as informal. The mechanism for interdepartmental collaboration on revising and updating the SLAs and knowledgebase currently relies on *relational governance*, which refers to governance by commitment, mutual dependence, trust, and interpersonal relationships [18]. A senior staff member of Philly311 saw the long-term interpersonal relationship as important to collaboration across departments: "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 has worked well so far, but also recognized that the process needs to be formalized for the further expansion of the SLAs and Philly311 functions.

Many interviewees said that building partnerships with other departments was not an easy work in the beginning stage of Philly311 because there was a concern that Philly311 might let the other agencies lose their existing connections to citizens. According to some interviewees, now there is a growing recognition that the expansion in Philly311's coverage will help those departments to do their jobs more efficiently and effectively, rather than to threaten their turf. Keeping turf was a barrier to cross-organizational collaboration. Especially in the beginning, the City Council considered a 311 system as competitive about

constituent services and thus a possible threat of their reelection because they thought 311 is taking their job.

# 6. Multi-dimensional understanding of 311-driven service integration

As presented in the preceding two sections, understanding the implementation and operation of 311 contact centers involves three key dimensions—technological, organizational, and cross-organizational dimensions. Table 3 summaries the multidimensional understanding of 311-driven service integration.

**Table 3. Critical success factors and challenges of 311-driven service integration**

|  | Earlier stage of 311-driven service integration (Philly311) | Mature stage of 311-driven service integration (NYC311) |
|---|---|---|
| **Technological success factors** | • New technologies<br>• Adaptation<br>• Timing of investment | • New technologies |
| **Technological challenges** | • Lack of interoperability<br>• Unequipped conditions | • Lack of interoperability<br>• System complexity |
| **Organizational success factors** | • Top leadership<br>• Human resource management<br>• Quick learning | • Top leadership<br>• Human resource management<br>• Contingency capacity |
| **Organizational challenges** | • Limited funding<br>• Limited staffing<br>• Changing culture | • Limited funding<br>• Government procedures |
| **Cross-organizational success factors** | • Interdepartmental collaboration<br>• Strategic partnership | • Interdepartmental collaboration<br>• Supervising organization |
| **Cross-organizational challenges** | • Turf protection<br>• Liaison-relied coordination | • Turf protection<br>• Liaison-relied coordination |

## 6.1. Technological dimension of 311-driven service integration

NYC311 and Philly311 started from very different status in terms of financial and technological support. The nine vs. three years age gap can be simply a primary reason for the difference in the technological maturity, but the level of technological readiness for full-fledged CRM is substantially determined by the amount of investments at a starting point.

Despite the difference in the level of technological maturity, the two contact centers commonly showed the reactive as well as proactive use of new technologies such as social media, smart phone apps, and open platforms that is considered one of critical success factors to engage more people in the citizen-government interactions via the 311 contact centers.

There is a similar concern for a high level of complexity in using diverse technical systems and the lack of interoperability between 311 system and agency legacy systems. A common finding is the importance of human middleware that serves as a middle ground between CRM and legacy systems. In this situation, the quality of training and staffing is critical to seamless operation in the middle ground.

Adaptation in the earlier stage of 311 maturity is a success factor for 311 launch and implementation facing budgetary constraints. Also the selection of the right technology and the timing of investment in getting the right technology are considered an important success factor.

## 6.2. Organizational dimension of 311-driven service integration

The two contact centers share key success factors. Interviewees from both 311 centers saw the top leadership and the mayor's role as important because the mayors in the two cities commonly have considered 311 as a flagship initiative of their administration. For both, 311 also serves as a strong weapon of the mayor in citywide performance management.

Another common success factor is human resource management, but the focus is quite different. Philly311 interviewees emphasized flexible staffing more than qualified staffing, considering their under-staffed situation because they had to struggle with financial constraints from the very beginning. For quality training in the mature stage, a combination of soft skills, technical skills, social learning, and attitude is required to CCRs.

In spite of a difference in budget size, budgetary constraints are common challenges. Philly311 as a customer service leader of the city has another challenge, which is cultural difference. That's because Philly311 has been created as the city's new department in recent three decades and also it serves very different functions that the city government has not provided before. Challenges inherent in public sector bureaucracy keep constant. These challenges include slow speed to market, procurement procedures, and recruitment systems based on civil service exams.

## 6.3. Cross-organizational dimension of 311-driven service integration

Interdepartmental issues are mostly related to the processes of creating and updating SLAs and contents of knowledgebase. Both NYC311 and Philly311 interviewees addressed interdepartmental collaboration as a critical success factor. However, the way of the collaboration is also a challenge because collaboration heavily relies on the interpersonal relationships between liaisons and 311 analysts or between departmental call center staff and 311 liaisons. The lack of a formal governance body for collaborative knowledge management becomes a cross-organizational challenge.

In the beginning of the service integration initiative, a huge challenge was turf conflict. Identified were the two levels of interorganizational turf tension. A 311 contact center is a new agency in the city's executive branch. Indeed it takes customer service functions from other line departments. Another conflict point exists, in terms of constituent services, between 311 and the city's legislative body or other elected officials.

A critical success factor of Philly311, because it is still in its infancy, is strategic partnership with and quick learning from private sector consultant groups and leading companies in the call center industry. 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 the technology agency directly to the top management of the whole city government. The transition is considered critical to improving the relationships between 311 and other city agencies under the strong mayor form.

## 7. Conclusion

The study of 311 systems is an important and timely research topic as city governments are increasingly investing in their belief that 311 systems are one of the key strategies for serving for citizens in new and innovative as well as more efficient ways, through implementing a consolidated channel to municipal services. This paper explored the area where only little research so far has tackled—how city services are integrated by the 311 program. The two case studies of NYC311 and Philly311 revealed critical success factors and challenges of city-level service integration, and these success factors and challenges are categorized into technological, organizational, and cross-organizational dimensions. As a result of this research, the paper suggests a multidimensional understanding of 311-driven service integration. The new understanding offers implications for both researchers and practitioners. It creates a new field for academic research. The multidimensional frame may help government practitioners better understand the processes and impacts of city-level service integration. Further cross-case comparative research will need to focus on more cases of 311 contact centers in diverse social and organizational settings.

## 8. Acknowledgment

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