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Précis [pʁe'si:] // FEB 2018

E-participation for public managers in small to medium sized cities

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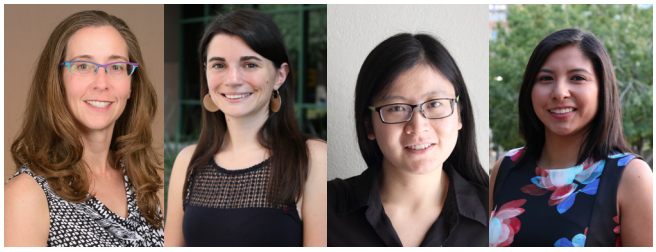
OP@LL-Conference Special Issue

ABSTRACT

Since 2010, we have been collecting data on 500 small and medium sized U.S. cities to understand the adoption and management of technology in local government. Drawing from survey (2010, 2012, 2014, 2016), website (2010 & 2014), and Twitter data (2017), we present adoption trends and managerial efforts.

These data provide insights into the socio-technical factors that shape local government online participation efforts in the US context. In the face of financial and resource constraints, managers play a critical role in technology enactment. However, the political nature of social media tools prevents managers from using them to their full potential.



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Introduction

This essay draws from the multi-year National Study of Technology Use in Government conducted by the Center for Science, Technology and Environmental Policy Studies (CSTEPS) at ASU. We draw from four surveys, website coding data, and Twitter data to address three questions:

1. *How does the context of a particular country shape the role of local e-participation?*
2. *How do institutions and their members (need to) change when adapting to digital forms of participation?*
3. *What methods should be used to research the effects of e-participation?*

The context for this research is small and medium sized US local governments, specifically cities with populations ranging from 25,000 to 250,000 inhabitants. There are 1398 cities in the US within this category. This project collects data on the census of 184 medium sized cities (populations from 100,000 to 250,000) and a random sample of 316 smaller cities (populations of 25,000 to 99,999) for a total of 500 cities. All data analysis applies weights to ensure that findings can be extrapolated to the population frame. Table 1 outlines our study design for this project. Since 2010, we have conducted a biennial survey of five managers in each of the 500 study cities: director of finance, director of parks and recreation, deputy chief of police, chief administrator in the mayor's office, and the director of community development.

In 2010 and 2014, we collected data from the 500 city websites and in 2017 we scraped data from their Twitter accounts. The contributions of this research are fourfold: (1) focuses on small and medium sized cities, (2) collects data from managers who are not in charge of technology, (3) collects baseline and longitudinal data, and (4) combines multiple methods.

2010	2011	2012	2013	2014	2015	2016	2017	2018
survey		survey		survey		survey		survey
Red Tape		Social Media		Security & privacy		Data sharing		TBD
N=902 37.9%		N=703 29%		N=790 33%		N=841 39%		
Web				Web				Web

Table 1: Research Design

How does country context shape the role of local e-participation?

National context is critical for understanding e-participation at the local level. This is especially true in the US, where local governments are often on their own to design, fund, and support technology initiatives. One of the primary goals of the CSTEPS National Study of Technology Use in Government is to establish a baseline understanding of which local governments are using technology. We also sought to identify the role of managers in promoting technology use, with the hopes of providing actionable evidence-based solutions for practitioners. Finally, we are able to identify what factors shape local e-participation and technology use in the US.

Our research finds that there is great variation in technology adoption and use across US cities. Website domains across our 500 study cities illustrate this variation where 31% of cities have ".us" website domain, 28.4% use ".org", 20.2% use ".gov", 15.4% use ".com", and 4.6% ".net". This variation in website domain might create confusion among users and showcases existing diversity across city websites. In fact, our research finds that government websites across the US vary in the provision of basic functions and more advanced services including e-services (e.g. online payments for fines and fees) and interactive forums (e.g. blogging platforms, wikis). It also indicates that the adoption of 27 key website features aimed at improving utility, transparency, information provision, e-services and civic engagement has increased from 2010 to 2014 (Feeney & Brown, 2017) and is related to geographic, political, cultural, financial, and managerial factors.

Our research finds six consistent predictors of information and technology (ICT) use, adoption, enactment, and e-participation: (1) city population, (2) form of government, (3) department type, (4) technical capacity, (5) resources, and (6) management (Feeney & Welch 2016; Li & Feeney 2014). For example, population is positively related to adoption of information tools, e-services, and website features for utility, transparency, and civic engagement. Mayor-council governments, as compared to council-manager, are less likely to have the following website features: information, e-services, utility, transparency, and civic engagement (Feeney & Brown, 2017). Perceptions of negative and positive outcomes of technology are significantly related to department type and individual technology use among managers. For example, managers who use social media to enable or facilitate e-participation report fewer negative outcomes from e-government (Feeney & Welch, 2016) and managers who use social media in their personal life report higher positive outcomes of social media use for work purposes (Fusi & Feeney, 2016).

The first three factors – population, form of government, and department type- are not changes or reforms that managers and cities can practically implement. Advising a city to grow its population or a manager to change its department function is nonsensical advice for practitioners. The fourth and fifth factors, technical capacity and resources, require increased investment of financial and human resources. Unfortunately, many US cities are facing constrained budgets as the public asks them to do more with less. *As result, the final factor, management, is a key opportunity for change and innovation in US local governments*. Our research finds that managers play a critical role in the adoption and effective use of new technologies including e-participation tools (Feeney & Welch 2016; Li & Feeney 2014) and organizational and cultural factors can shape managers' perceptions towards technology (Fusi & Feeney, 2016).

Public managers' perceptions and motives matter for technology use in government. For example, Huang and Feeney (2016) find that performance based awards are negatively related to the adoption of civic participation efforts, but public service motivation is positively related to civic engagement. Zhang and Feeney (2017) find that manager beliefs about civic participation and their perceptions about their city's need for civic participation are also significantly related to adopting ICTs for e-participation. When managers believe that the city needs more input from citizens they are significantly more likely to adopt tools for e-participation. This relationship is moderated by beliefs about participation, e.g. the belief that civic participation promotes effectiveness and that governments need to fully engage citizens in decision making (Zhang & Feeney, 2017).

We also find that managerial perceptions about the potential outcomes of technology use vary by generation, but that these differences are converging over time. Since 2010, we have asked managers about the potential positive and negative outcomes of ICT use in the work place. Figure 1 illustrates the percentage of respondents that indicated technology use resulted in a set of outcomes "to a very great extent" and "great extent", by generation across 2010 and 2016. In each population pyramid in figure 1, the left side shows proportion of respondents indicating agreement to a very great or great extent among Millenials (1981- present) and Generation X (1965-1980) managers, and the right side shows proportions among Baby Boomer (1946-1964) and the Silent Generation (1945 and earlier) managers. In both years, younger respondents had more positive views of technology outcomes, but also reported negative outcomes at a higher rate than older respondents.

Over the six-year time period, respondents reported increased negative views of technology.

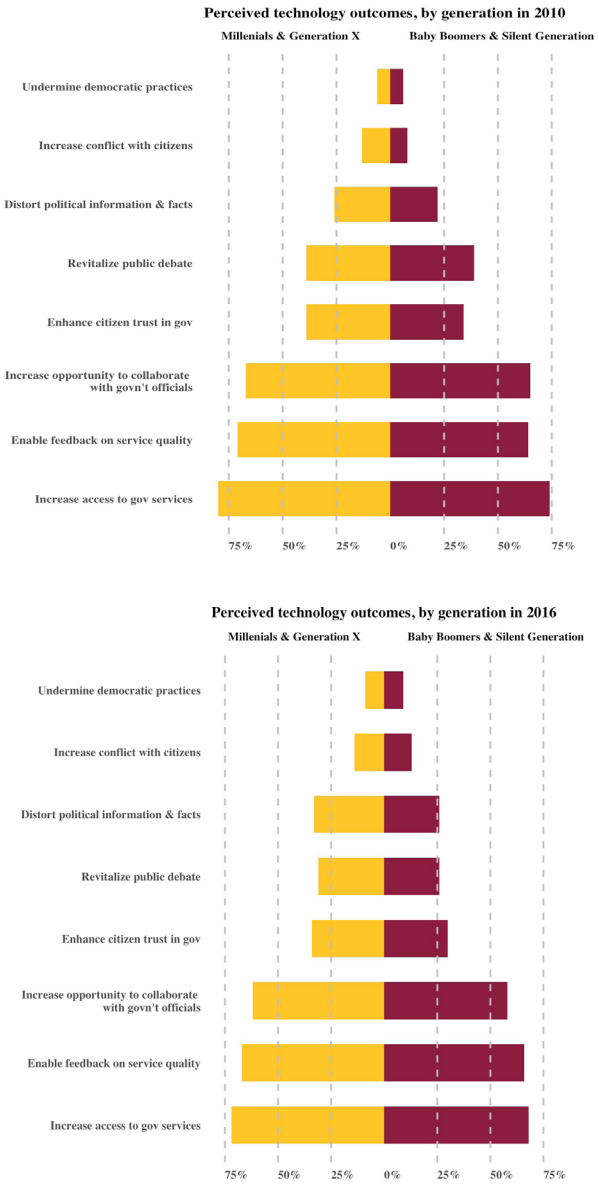

Figure 1: Perceived technology outcomes, by generation 2010 and 2016

For example, in 2010, 23% indicated that technology distorts political information and facts to a great or very great extent, by 2016 29% reported the same. There are also decreases in the proportion of respondents who reported that technology increases access to government services and enhances trust in government to a great or very great extent. For example, in 2016 70% of respondents reported that technology increases access to government services to a very or very great extent, down from 75% in 2010. Thus, we see some change in managerial perceptions of ICTs in the workplace, over time.

Figure 2 shows views of social media use in the workplace, by generation. Overall, respondents have relatively positive views of social media, with 67% agreeing that social media tools can enhance knowledge exchange. Less than 19% agree that social media tends to waste time. We find that younger managers (e.g. Millenial and Gen X) report more positive perceptions of social media as compared to older managers (Baby Boomers). For example, 56% of Millennial managers and 57% of Gen X managers report that social media makes their organization more efficient as compared to only 47% of managers who are Baby Boomers. Thus, we see that social media use and perceptions are more positive among younger local government managers.

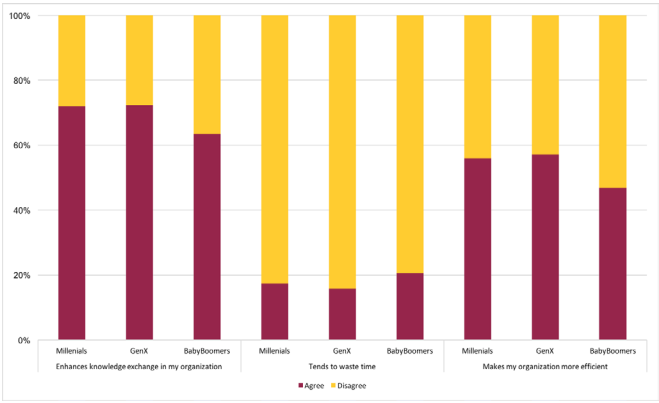

Figure 2: Social media outcomes, by generation 2016

Our research, using data from small and medium sized cities over six years indicates that in the US context, managers play a critical role in shaping enactment of technology use in government. Moreover, the views and perceptions of managers change over time and younger managers have more positive views of ICTs in the workplace, and thus represent a malleable mechanism that can be activated for change in local government.

How do institutions and their members change when adapting to e-participation?

Given the critical role of managers, it is important to investigate how institutions and their members can adapt to these new digital forms of participation.

Overall, US cities are increasing ICT use. Most US city websites are posting council agendas, city codes and regulations, voting information, and online job applications. More than 70% of cities were using social media including Facebook and Twitter in 2014, as compared to only 44% in 2010. One of the most important predictors of technology use on city websites is using an external website provider (Feeney & Brown, 2017). Websites managed by external companies are more likely to have important transparency, accountability, and accessibility features including translation, services for the visually impaired, and so on. These findings point to a useful solution to a lack of technical capacity in smaller cities.

Our research also finds that since 2010, there has been a significant increase in the provision of e-services. Figure 3 illustrates e-services by year. For example, online delivery of records or information has increased from 46% of reporting departments in 2010 to 71% in 2016. Nearly 80% of respondents report that their departments now offer online completion, submission of job applications, and online requests for services. In comparison, there is little take-up of social media technologies designed for government users. For example, GovLoop, which is designed to be the premier knowledge network for government managers, is used by around 5% of respondents and this number has stayed steady since 2010. These findings point to the important role of external providers, users, and manager buy-in.

While small and medium sized cities in the US are increasingly using ICTs, there is less evidence about how cities are using those technologies to engage in participatory practices with community members. Our data indicate that managers are increasingly using ICTs for collaboration, sharing, and coordination. From 2012 to 2016, managers in all departments have reported increasing use of tools for collaboration. 55.3% of managers in parks and recreation report using collaboration tools in 2016, up from 24.6% in 2012. Managers also report using tools for sharing.

For example, 48.1% of managers in mayor's offices used sharing tools in 2012, which increased to 74.4% in 2016. And managers are using ICTs for coordination purposes. For example, using tools for coordination ranges from 37% of managers in police departments in 2012 to 74.8% for those working in community development in 2016. Yet, we are unable to assess if those technologies have increased participation, coordination and sharing with external communities or have only reinforced existing practices and activities.

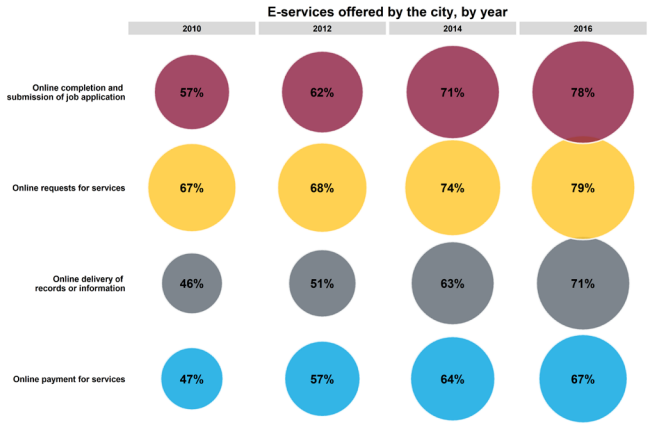

Figure 3: E-services offered by cities, by year

We also find that cities are increasingly using social media tools and that, in some cases, institutions are important for social media adoption. In our study, 439 cities have adopted Twitter accounts since 2007. Figure 4 illustrates twitter adoption over time among the study cities. The highest number of accounts created was in 2009 following President Obama's Memorandum on Transparency and Open Government. While not a formal regulation on city technology adoption, this symbolic policy was instrumental in increasing the use of Twitter. However, Twitter adoption does not necessarily mean enactment or engagement.

For example, among the 439 Twitter accounts in our study, 36 are inactive. Most of the cities in our study are using Twitter to push out news and post event details, but are not engaging with users. Most of these cities do not follow one another, do not respond to comments, and do not have accounts that are regularly monitored.

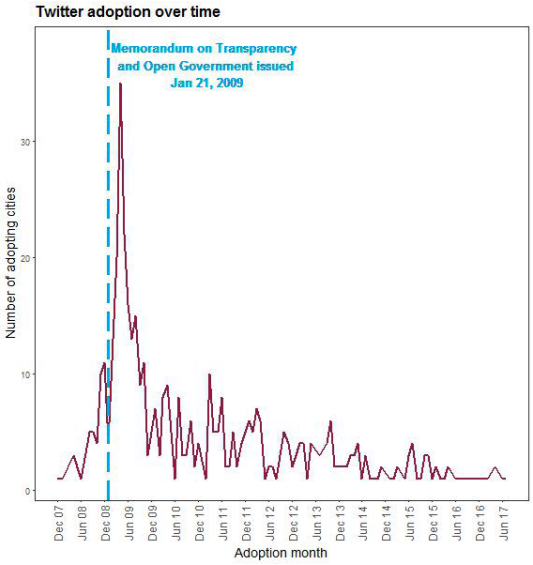

Figure 4: Twitter adoption among 500 US cities, over time

In fact, many of the Twitter accounts note strict rules about use, privacy, and nonresponsiveness. This finding suggests that in the US context, active responsiveness via Twitter is rare among small and medium sized cities.

Another mechanism for increasing transparency, participation, and citizen engagement is the provision of public data through open data portals. In this study, 191 cities (40%) have open data portals. Unfortunately, there is no research investigating the quality of these portals, the use of those portals by stakeholders, or their impact on e-participation and engagement. An important next step for our research will be to develop qualitative measures of these and other technology efforts.

Thus, we find that cities are increasingly adopting ICTs and improving website features and e-services. We also find that managerial preferences, external contractors, and symbolic policies are important predictors of technology adoption and use. However, in the US context, adoption and use vary significantly by department type, geography, political influence, and city size. ICTs are being used internally for sharing, collaboration, and coordination, while social media, when adopted, is mostly used for posting information rather than interacting with the public.

What methods should be used to research the effects of e-participation?

Our research has focused on developing a baseline and longitudinal understanding of technology use in small and medium sized US cities. Our methods have been useful for answering questions about the role of managers in technology adoption and the use of ICT. However, we have not developed an ideal mechanism for assessing government e-participation efforts, in particular the limitations of technologies for public engagement and the factors that prevent enactment of such technologies. Next research steps in this area need to focus on understanding the interaction of technology, management, and politics of ICT use for e-participation. We need to move beyond counting and categorizing measures of ICT adoption to analyze the politics of tools and the enactment of those tools for participation.

For example, categorizing technologies as one-way and two-way is not useful for understanding how and why governments are or are not engaging stakeholders electronically. Twitter, for example, has the potential to be a two-way communication technology. But in the US context, it is almost entirely used as a one-way information dissemination resource – an electronic newsletter posting government content. A possible explanation is that many of the social media tools we expect governments to use for engagement are not effectively designed for these purposes. Privileged elites have designed social media tools, such as Twitter, for private purposes to promote individuals and organizations – not for civic engagement. Twitter was not designed to enable democratic outcomes, but for the promotion of media and individual messages. In many ways, these technologies are designed to fail for government purposes.

Civic engagement is hard work. Why do we expect social media tools to make it easier? To better understand e-participation, scholars need to study the design and politics of the ICTs themselves,

rather than assuming that technologies are neutral and governments can adopt them and simply enable the achievement of public outcomes (e.g. discourse, participation). For example, tools such as Twitter – which are often designed to align with particular relationships of power and authority further an imbalance in "voice" with media and elites dominating the platform. The Twitter platform is also subject to abuse and harassment of individuals (in many cases underrepresented minorities and women), and is largely unregulated. The lack of nuanced discourse, transparent verification criteria, and the presence of bots makes Twitter a difficult if not impossible platform for civil discourse. Consider recent cases in the US where Twitter verified (provided a blue check) the account of Jason Kessler, a Neo Nazi, individual citizens who lack elite status cannot get verification.

In our study, only 127 (28.9%) of the 439 city accounts are verified. This makes it difficult to know if the account is the city official account, a parody, a private citizen, a tourism company, or other actor. Measures of followers are complicated by the presence of bots that bias upwards estimation of engagement and participation, and there is little to no way to verify "truth" or "facts" posted on the platform. For example, recently the Federal Communications Commission called for public comment on repealing Net Neutrality protections. The public forum was inundated with more than 1 million comments from bots (Lapowsky, 2017). Given these examples, how use these undemocratic platforms for informed, nuanced, public discourse? Research on ICT use for engagement must focus on the politics, design, intent, and nature of these technologies.

Conclusion

In conclusion, drawing from our multi-year study on technology use in local governments in the US, we find that cities are increasingly adopting ICTs for a variety of purposes, and, in the US context, variation in technology capacity is a constant. We find that technology adoption, use, and enactment is related to a variety of factors, and management is one of the most critical of those factors. Given our findings, we challenge researchers to take the next steps in developing a multi-disciplinary approach to study technology use in government, moving beyond simple measures of adoption rates to analyzing the politics inherent in technology design, the political intent of technologies, and the critical role of management in technology take-up, use, and buy-in. *Public managers represent the key to technology enactment for public outcomes and potentially the lowest cost mechanism for bringing about this change successfully.*

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