E-Governance in Chicago and Cook County
Envisioning the Next Stage in Online Government Service

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ABSTRACT

Under "e-governance," governments take a holistic and integrative approach to providing online services that fosters transparency, efficiency, and collaboration for the public. We compile the online services offered by the Chicago and Cook County and classify them by end-service, orientation, and outcome to find that the City maintains a more balanced portfolio of services than the County. Through interviews with experts, we find that navigability and scale are the two leading challenges to efficient procurement policies in the City and the County. In accordance with our findings, we recommend (1) aligning long-term goals with the potential that technology offers, (2) improving procurement with emphasis on efficiency and communication, (3) upgrading technology infrastructure including an update to the STAR, and (4) reducing redundancies through restructuring individual governments and upgrading City-County collaboration.

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MISSION STATEMENT

The Paul Douglas Institute is a student-run, public policy think tank based at the University of Chicago. Inspired by the life and work of professor and Senator Paul H. Douglas, we channel public policy interest on campus into solution-orientated research projects that allow students to make an impact on the legislative process. To this end, we use a multidisciplinary approach to produce rigorous, data-driven social science research that is innovative, practical, and free from political affiliation. We often work with legislators and civic organizations, and welcome both research commissions and partnerships.

ACKNOWLEDGEMENTS

I. Executive Summary

With digitization and internet culture increasingly becoming a reality of modern life, citizens are expecting more from their local governments in terms of online services. Development of these services may enable government to be more transparent, enhance the scope and depth of citizen-government engagement, foster economic growth, eliminate sources of frustration for both local citizens and businesses, reduce government redundancy, and increase collaboration between public and private actors. These goals collectively represent successful "e-governance."

Successful e-governance, however, represents far more than incremental technology investments: to adapt to citizen expectations, Chicago must create a sustainable *cycle of innovation* which can produce a wide variety of e-governance policies across many sectors, functioning over the long term to continually respond to changing citizen needs and the creation of new technologies. Fortunately, the City of Chicago and Cook County have recently made great strides in moving towards e-governance, investing millions of dollars into a wide variety of initiatives related to the better use of technology.

In this report, we first discuss a meaningful framework of e-governance, along with its Chicago-specific potential. Then, we consider publicly announced technology initiatives to improve technology and e-governance in both the City of Chicago and Cook County governments, and develop an original roadmap of ongoing projects in order to classify initiatives by end-service, orientation, and outcome. Using this roadmap, we identify differences in progress towards e-governance between the City and the County, finding the City currently aims towards a more balanced distribution of initiatives by service outcome.

However, we identify in both the City and the County a critical potential to improve focus on the *process* of creating and working through initiatives itself, with a more robust ability to quickly and efficiently deliver on citizen expectations. Critical to this process of innovation will be the governments' private partnerships and *procurement policy* – the acquisition of goods, services, and technologies from the private sector by these local governments. To address and improve this process of innovation, we review current problems in City and County procurement, identifying two areas of focus in particular: navigability, including communication between stakeholders and a fair and low-risk bidding process, and scale, including the ability to create customized software, technology, and services that can respond to Chicago's needs while keeping in mind the budgetary and political constraints of local government.

Ultimately, to achieve successful e-governance and create an efficient process of innovation, we issue recommendations in a number of areas: first, aligning long-term governance goals with the potential that technology offers; second, concrete measures to improve the procurement process, with emphasis on efficiency measures like joint procurement as well as communication improvements to create better collaboration with vendors; third, upgrades to technology infrastructure in the city ,including issuing an update to the Strategic Technology Alignment Roadmap (STAR); and finally reducing redundancies and focusing on outcomes by considering restructuring both within local governments and upgrading City-County collaboration.

Consolidated Recommendations

1. **E-Government 2.0**. Adopt an "e-governance" framework in future policymaking and across Department and agencies, suggesting further study in the following areas to identify programs and service potential:
   - E-Courts
   - E-Democracy & Voting
   - E-Education
   - E-Finance
   - E-Healthcare
   - E-Resource Management
   - E-Safety & Protection
   - Open Source Services Development

2. **Government Procurement.** Improve the process of acquiring technology assets and services through amendments to the City and County procurement guidelines, including:
   - Further invest in e-procurement software, hardware, and web design
   - Improve bid announcements specifications, standardization, and assessment
   - Commit to increased joint procurement between local and state governments
   - Integrate "Competitive Dialogue" into the existing bidding process
   - Consider integration of relational contracting, partner procurement, or distributed commissioning in place of competitive bidding

3. **Technology Infrastructure**. Ensure increasing online service demands and future e-governance initiatives are sufficiently supported by the necessary back-end infrastructure:
   - Invest in physical storage assets and network capacity
   - Jointly procure ITC infrastructure
   - Provide a public update to the Strategic Technology Alignment Roadmap (STAR)

4. **Government Restructuring**. Consider structural changes *within* local governments, including between departments, to increase collaboration between siloed policy areas, enable easier joint procurement, encourage data sharing, and create integrative and user-friendly online services.

5. **City-County Collaboration.** Consider structural changes *between* local governments to increase collaboration between siloed policy areas, enable easier joint procurement, encourage data sharing, and create integrative and user-friendly online services.

II. Introduction: Governance Innovation & E-Government

In a digitally dependent world, information communication technologies (ICTs) have become the fundamental backbone of society, covering a broad range of sectors and services. ICTs have transformed the way we live, think and innovate. With respect to government services, ICTs have changed the way in which individuals interact with their governments as well. Individuals renew licenses, access transportation tickets, and access other vital public services online. Globally, more than seventy percent of taxpayers now file their taxes electronically, an indicator of the massive transformation ICTs have enabled in the past two decades.[1] At a time when ICTs and government services are deeply interlinked, continued online support for public services represents a vital aspect for our everyday experience.

E-Government generally refers to the use of internet to improve government activities and processes, with the aim of increasing efficiency, transparency, and citizen involvement.[2] Innovation is commonly defined as an idea, practice, or object that participants interpret as cutting-edge when assessed against comparable matters that preceded it. As the method of *delivery* demanded for public services began to change with the introduction of ICTs, innovation in e-Government began to be perceived as a significant subject matter during the 1990s.[3] Following the Internet boom, the prospect of e-government initially created widespread public excitement and significant taxpayer spending[4]. In 2004, *Time* even included three Federal websites in a feature entitled "The 50 Coolest Web sites," though surveys have an indicated a drastic decrease in public enthusiasm and even disillusionment with online government services since then.[5]

Innovation in e-Government can be measured by the e-Government Development Index (EGDI).[6] EGDI generally follows other definitions of development: some very-high- EGDI countries include United Kingdom, Japan, France and Germany, whereas middle-EGDI countries include Bolivia, Ghana and India, and low-EGDI countries include Afghanistan, Democratic Republic of Congo and Haiti.[7] The graph below demonstrates the regional averages with maximum and minimum values of EGDI in 2016. While the United States ranks 12th, Europe continues to be the indisputable leader in e-Government by region, and other developing countries continue to progress. Globally, investment in IT and e-government has continued to increase as well, though increased investment has not necessarily led to tangible improvements. A random sample of U.S. municipalities found that administrative costs have increased by 7 to 12 percent, while public opinion of government service delivery has continued to decrease, and user-engagement online continues to drop.[8] Seemingly, e-government has not lived up to the promise of the 90s and early 2000s, despite continued resources and research.

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[1] Baumgarten & Chui (2009).
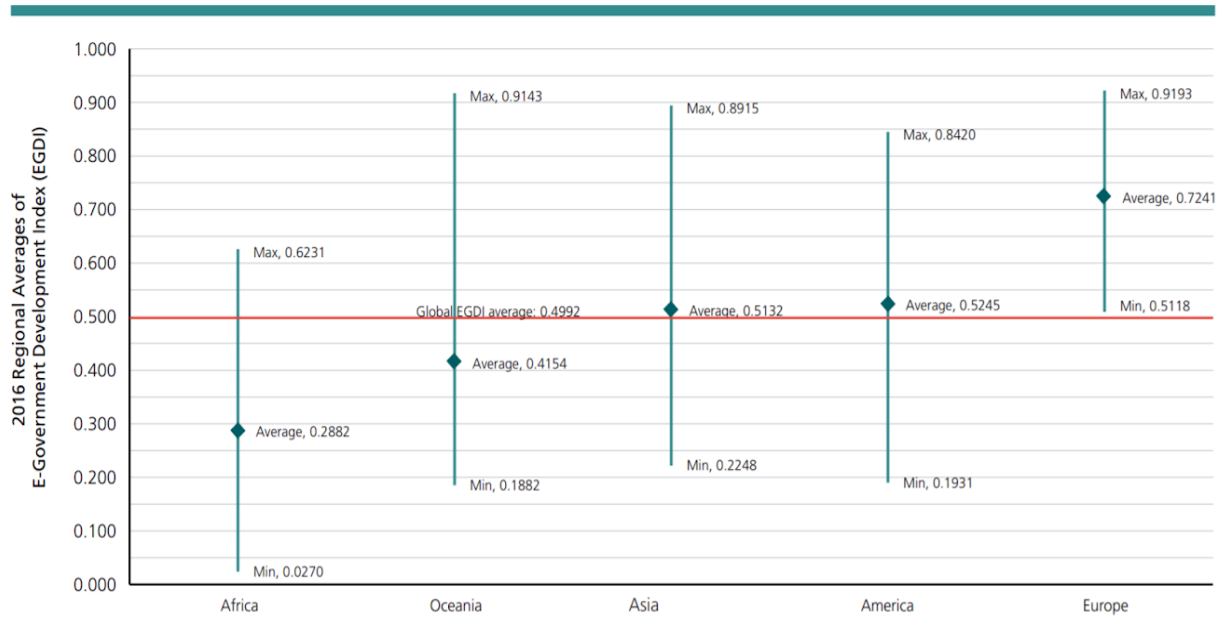[2] Trotta (2018).
[3] Ibid.
[4] Baumgarten & Chui (2009).
[5] Ibid.
[6] UN DESA (2016).
[7] Ibid.
[8] Baumgarten & Chui (2009).

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Figure 1. 2016 Average E-Government Development Index, by region

Source: UN DESA 2016

E-Government vs E-Governance

This paper forwards a paradigm shift based on a growing body of literature that highlights the disparity in investment and service improvement. Rather than a focus on incremental improvements and upgrades to current services, researchers and technologists argue governments globally should use technology to generate new services, increase civic participation, and provide holistic improvements for communities. Referred to as "E-government 2.0," the "E-Governance Era," or simply "e-governance," this paradigm shift reimagines the interaction between citizen and government through advances in ICTs, interactive web-applications, machine-learning, and predictive analytics. Authors such as Trotta theorize that such a transformation would enable a higher degree of "deliberative democracy," in which individuals and collectives could shape government services to more directly reflect outcomes- and experience-orientated preferences.[9]

Previous measures have generally failed to capture this second wave of innovation in online governance. The EGDI is a useful indicator of e-Government development; however, this measurement is relatively outdated in face of these new paradigms, which makes it difficult to discern which updates in the use of technology in public administration qualify as "truly" innovative and which are merely smaller steps in the same direction. The term "e-Government," while previously used to generally describe government services that are provided electronically, is now differentiated between e-Government and e-governance.[10] They are distinct from one another in that while e-Government can be advanced by, for example, a more practical website design, e-governance describes a broader "megatrend" towards a more active and integrative form of public policy through technology.[11] An example of the paradigm shift could be rising demand for online "deliberative initiatives" that can allow for "collective ownership of problems." Interactive surveys, blogs and forums to actively engage with users, and frequent real-time experiments to understand

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[9] Trotta (2018).
[10] Ibid.
[11] Ibid.

public sentiment can build this ownership, increasing civic engagement and better meeting the needs of individuals.[12] Moreover, this model could ensure higher trust between citizens and the government. "e-governance" rests upon the core assumption that newer technology can enable users to be to interact with the government about their needs on an interactive online platform more efficiently as they do in person. Through e-governance, government can potentially broaden the scope and depth of government/citizen relations.

The e-governance model also concerns itself with improving the overall satisfaction of society, instead of solely delivering on already existing system of public services. Trotta notes that e-governance should not displace old methods but supplement them, reduce the gap between individuals advantaged and disadvantaged by the internet (the digital divide), and embrace the mind-set of sharing as opposed to publishing.[13] In this ideal picture, both traditional and digital means are maintained in modern governance, as US Postal service and email have been coexisting for years. This is a clear example of how old methods are not necessarily inefficient methods and changing them solely for the sake of displacement could be very risky. Yet governance online also enables new possibilities with e-education, e-healthcare, e-voting, and e-markets. Embracing the mind-set of sharing can be sustained by proactively involving businesses, citizens and other agencies in society in the process of building efficient e-government systems.

Prior Research

Snead and Wright (2014) categorizes current e-government research conducted across federal, state, and local levels. They present an imbalance between research focus-areas as an explanation as to why innovation in e-government has not yet reached its full potential. Current research is categorized based on research perspectives which are policy, governance (with 10 sub-topic areas), websites, and technology.[14] Additionally, there is a full categorization that depends on methodology, such as research orientation (outputs, outcomes, processes, models, and theory), research purpose (exploratory, descriptive, and explanatory), data sources (primary and secondary), and research methods.[15] Figure 2 shows the distribution of research perspectives used in e-government research conducted for different government levels. Governance appears to be the leading research perspective for research in almost all government levels.
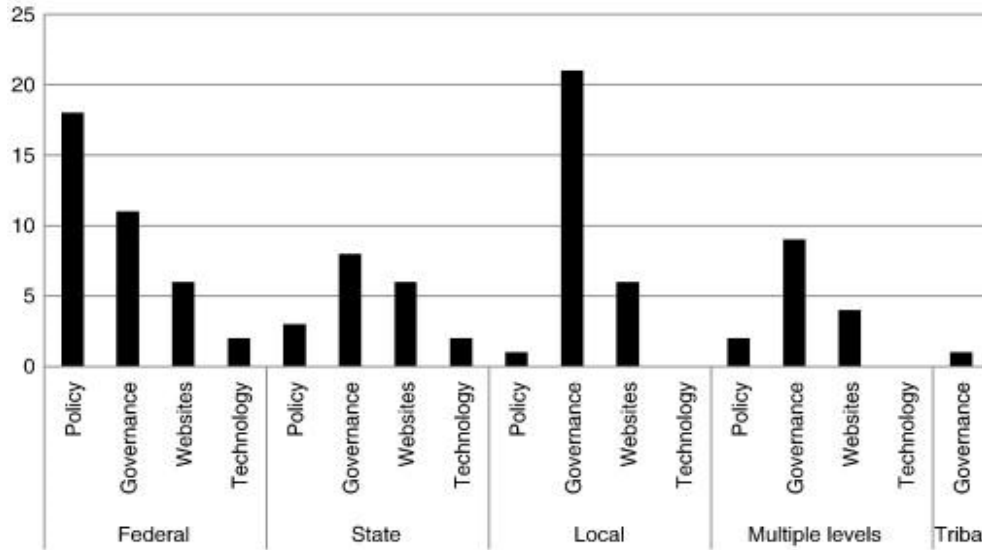
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[12] Ibid.
[13] Ibid.
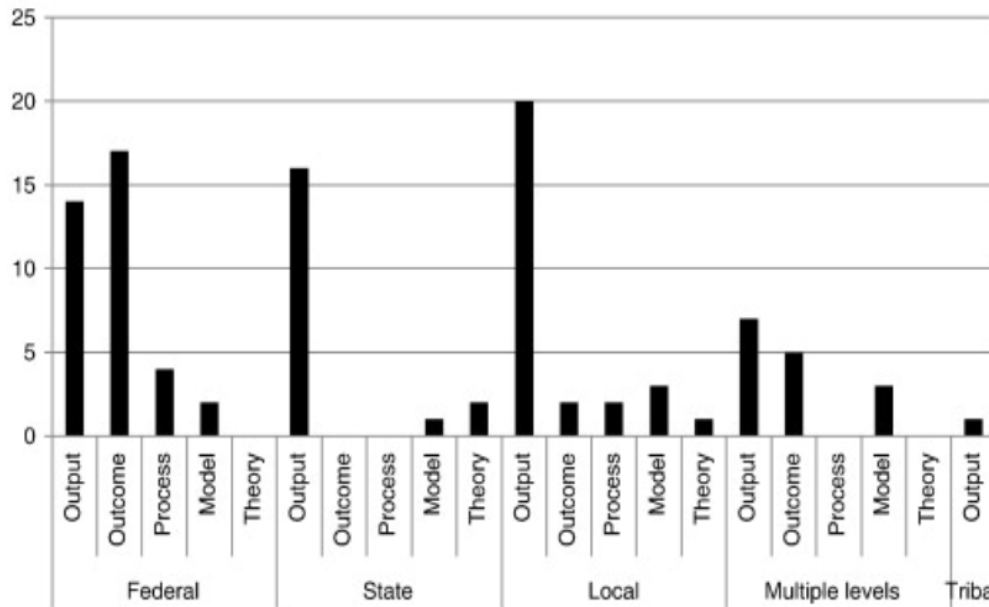[14] Snead and Wright (2014).
[15] Ibid.

Figure 2. Primary Research Focus by Government Level

Source: Snead and Wright (2014)

Here, governance refers essentially to "target issues that are associated with and/or try to understand government, including the philosophical relationship between government and citizen, role of government", social acceptance of online services, and normative arguments for engagement, and new services. Seemingly, this volume of "governance" research would have informed a second-wave "e-governance" paradigm to be included in policy. Yet the conspicuous imbalance between the adopted research perspectives is evidence that there is a lack of multiple frames/ interdisciplinary approach in most of these papers. Papers either focus only on philosophical relationships, or a specific program, or some technical detail. Insufficient emphasis on a certain perspective can result in less effective service, since the implementation focus is too narrow, new systems may not successfully integrate with other software or infrastructure, and goals between competing perspectives may contradict. A similar observation goes for the research orientation categorization. Figure 3 shows the distribution of research methodologies in research at all government levels.

Figure 3. Primary Research Orientation by Government Level

Source: Snead and Wright (2014).

As shown, output as a research orientation is the leader in almost all government level research papers. In Snead & Wright's study, "output" refers to "end-results of process implementations such as service and resource allocation, management practices, and planning efforts," while "outcomes" refers to assessments of final services delivered to constituents. "Process" refers to direct study of technology-related practices. "Model" research refers to "testing models developed to describe or predict e-government development, understand e-government adoption requirement processes, understand web design effect on trust in government, and identify benefits and costs of service performance over time. Finally, "theory" research includes approaches meant to understand "perceptions of e-government initiatives" and comparison between "two theories' effectiveness at predicting public use and demand for computer access and training." [16]

The imbalance between these orientation categories reduces the potential for a more forward-thinking innovation in e-government, as focus on output outweighs the resources that go to improving outcome, process, model, and theory. We believe that striking a balance between methodologies is significant not only because it is necessary for innovation but also because without sufficient focus especially on model and theory, transforming e-government to e-governance becomes challenging.

The Potential in Chicago

Whether investments in future e-Government move beyond minor improvements and take the form of "e-Governance" depends on the nature of these investments, and the research guiding them. This paper is an attempt to integrate theory, process, and outcome, while focusing on one specific policy context. By using Chicago as a test-ground for this paradigm shift, we connect these considerations to current policy initiatives in both Cook County and the City of Chicago. Broadly we attempt to propose a cohesive vision of several concrete improvements to be made over the coming decade,

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[16] Snead and Wright (2014).

rather than one focused policy. This paper thus serves as a prospectus for a series of more targeted reports and briefs that should follow.

In this section, we describe some of the concrete barriers to this new form of "e-governance," and give a brief overview of the policies in Chicago that may address them. In Section III, we perform an in-depth analysis of all current e-Government initiatives to understand which currently contribute to "e-governance" and where there may be more room for investment. In Section IV, we focus on the process improvements we believe are required for this new vision of governance, focusing on local government procurement practices. Finally in Section V, we propose a broad range of recommendations to move towards our vision of modern governance in the digital age, incorporating "e-governance" outcomes, process improvements, and other structural considerations.

McKinsey's "E-Government 2.0" report identifies three major challenges that have previously inhibited this paradigm shift, which we examine in the context of Chicago, namely: **1) ineffective government workflows**, **2) technical incapabilities**, and **3) limited user engagement**.[17] Ineffective government workflows relate to the absence of internal standardization, such as standard IT infrastructure, email and communications software, and web platforms. Technical incapabilities relate to a lack of Web-related specialization and human capital expertise in government agencies. Limited user engagement generally refers to a lack of public and individual input into the creation of web content, service applications, and general policy, including conversations outside of one particular web page or department.

Internal standardization ensures that all IT efforts are preserved in unity across an agency. Without internal standardization, the domains of different departments may overlap, and they might have contradicting perceptions of tasks, and of means through which they plan to achieve certain goals. The McKinsey report notes one agency in the US with over 100 internal websites and plenty of external sites linking to other departments, as well as multiple methods of maintenance. Both the Cook County and Chicago governments have devised projects to tackle the problem of inefficiency driven by lack of standardization: in the Cook County Modernization report (2018), upgrading all County computers to Windows 10 and Microsoft Office 2016 stands out as an equalizer of the tools used to maintain web-related platforms across all agencies.[18] Basing all County work in OneDrive and a new County intranet Sharepoint is another example of how transparency and open communication within an agency can promote internal standardization. The "Office 365" initiative in the Chicago Technology Plan made it possible to migrate email and productivity applications to the cloud for more than 30,000 City employees.[19] Importantly, these initiatives also enabled departments to collaborate more effectively.

The second problem identified by McKinsey, technical incapability, addresses the lack of Web-related specialization and expertise in e-government. This is partly due to the fact that the private sector is competitive by nature and is fast to reach job-seekers who have advanced technical abilities, whereas the public sector is inherently a monopoly and rarely prioritizes high technical skills as an imperative.[20] This prevents long-term innovation, and thus "participatory e-governance", since technical incapability keep e-government from being data-driven. In order to increase user satisfaction, government needs to run effective experiments with users and generate data for future development. Without the required skills, governments cannot design these critical tests, nor

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[17] Baumgarten & Chui (2009).
[18] Cook County (2018).
[19] City of Chicago (2015).
[20] Baumgarten & Chui (2009).

implement better services. Both Chicago and Cook County have taken some steps in in improving their technical capacities. For example, Cook County recently ensured that all employees used digital service desk portal for IT needs and hired an additional IT staff. A more detailed analysis of the City's and County's efforts thus far is presented in Section III.

We contend that the third problem stated in the report – dismissing users as an integral part of the creation of applications and content – holds particular importance, as it reveals the key distinction between e-government and e-governance and reveals the necessity of a transformation from the former to the latter. Innovation in government services should not come from top to bottom, but rather should evolve democratically. McKinsey notes the example of a European health authority that guarantees that healthcare providers can access data and submit their own recommendations for new applications that would potentially improve clinical care.[21] Another example is the South Korean government's "e-People" site, which accepts civil petitions online.[22] Chicago has attempted to embrace a similar approach with "CHIdeas", an online community forum launched in fall 2017 to engage Chicago residents and businesses in a discussion on how to improve services at City Hall.[23] These initiatives are exciting, and we believe there is more room to grow.

III. Governance Innovation

Governments in the Chicago region have made significant progress to incentivize and directly implement governance modernization and innovation. The City of Chicago has consistently been recognized as a leader in governance innovation. In 2010, it was ranked first nationally in online usability, sixth in citizen and social engagement, and 20th overall in digital governance by a E-Governance Institute at Rutgers University.[24] Other surveys have also continued to recognize Chicago as an innovator, including the annual *Digital Cities Survey* (6th nationally)[25] and by the Shanghai Academy of Social Sciences "smart city" ranking (11th globally).[26] This is despite relatively lackluster progress for the State of Illinois, which was ranked 38th nationally in overall e-government ratings, with only 42% of websites receiving consistent updates, 65% ensuring security safeguards, and 3% giving disability access (West 2008). However, there is still room for improvement for Chicago, especially in areas such as services (27th), Privacy and Security (29th), and Content (94th).[27] Moreover, Chicago's impressive and globally competitive portfolio of online services and innovation initiatives provides an ideal testing ground for even more radical transformations in governance in the digital age.

This section of our study analyzes all current initiatives related to digital services, modernization, and e-government across the City of Chicago and Cook County. We first delineate initiatives as prescribed by the Chicago Technology Plan, the Cook County Modernization Plan, the Cook County Consolidation initiative, and other individual projects from both governments. We then categorize and plot these initiatives to understand the areas that receive substantial policy attention and those that receive less. Finally, we identify opportunity areas to more concretely articulate the paradigm shift from e-*government* to e-*governance*.

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[21] Ibid.
[22] Ibid.
[23] See CHIdeas "About this site" page.
[24] West (2008).
[25] Sueh (2013). 6th overall for cities of 250,000 or more, tied with Austin, TX.
[26] Institute of Information Studies, 2014; ahead of Sydney, Moscow, Shanghai, and Beijing.
[27] Holzer et al (2012).

Methodology

We find that meaningful progress has been made by both the City of Chicago and Cook County, but also see clear opportunities for future investment. We present three ways of categorizing current initiatives related to e-innovation: type of service, orientation of service (i.e. what group receives the service?), and outcome of service. Initiatives that fit into more than one category are double-counted.
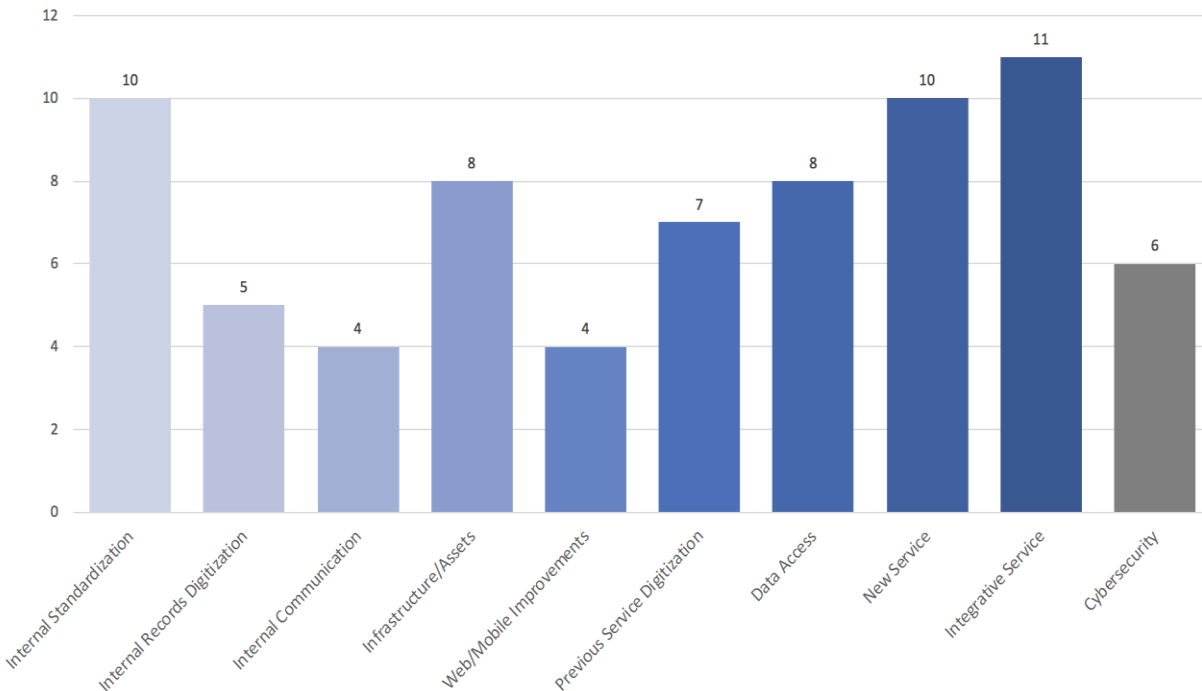
We examine over 73 individual initiatives, while noting that our list is non-exhaustive because our sources are limited to publicly disclosed information. While for some services we have access to detailed implementation records (e.g. the Chicago Tech Plan), in other areas – particularly cyber-security – the best available sources are high-level overviews of policy initiatives. This limitation precludes us from making decisive conclusions about over- or under- investment without further research. We measure "investment" in terms of the number of initiatives rather than dollar amount. While this measure is imperfect, it allows us to better understand how much attention is being given by policymakers to certain areas, rather than a reflection of the nominal costs of these initiatives.

Initiatives by Typology

1. End-Service

Figure 4 shows the 73 initiatives we identified across the City and County, categorized by type of end-service provided. Furthermore, it arranges service types from most internal (left) to most external or public-facing (right) applications. Internal Standardization (IT protocols, software, Enterprise Resource Planning systems) dominates investment in government-focused technology upgrade initiatives. In comparison, internal "intermediaries" of Internal Records Digitization (case management systems, digitalizing criminal, legal, or non-confidential health records) and Internal Communication (data exchanges, Voice/Video/Messaging hardware or software) both receive less attention. Externally, New Services (such as website guides, Internet of Things (IoT) connected sensor data, and predictive analytics applications) and Integrative Services (technology training, digital access centers, public technology events) also receive a substantial amount of investment, while Previous Service Digitization (reminder or text-alert systems, online permit filings) and Web/Mobile Improvements (services, usability/design enhancements, mobile sites) receive less attention. Finally, there is a comparatively moderate amount of initiatives in Infrastructure/Assets (server upgrades, broadband, and IT personnel) and Data Access (public publication of data sets). Infrastructure is likely proportional to overall investment, while Data Access represents effortful initiatives, though could be interpreted as either Digitization of Records, Previous Service Digitization, or a New Service.

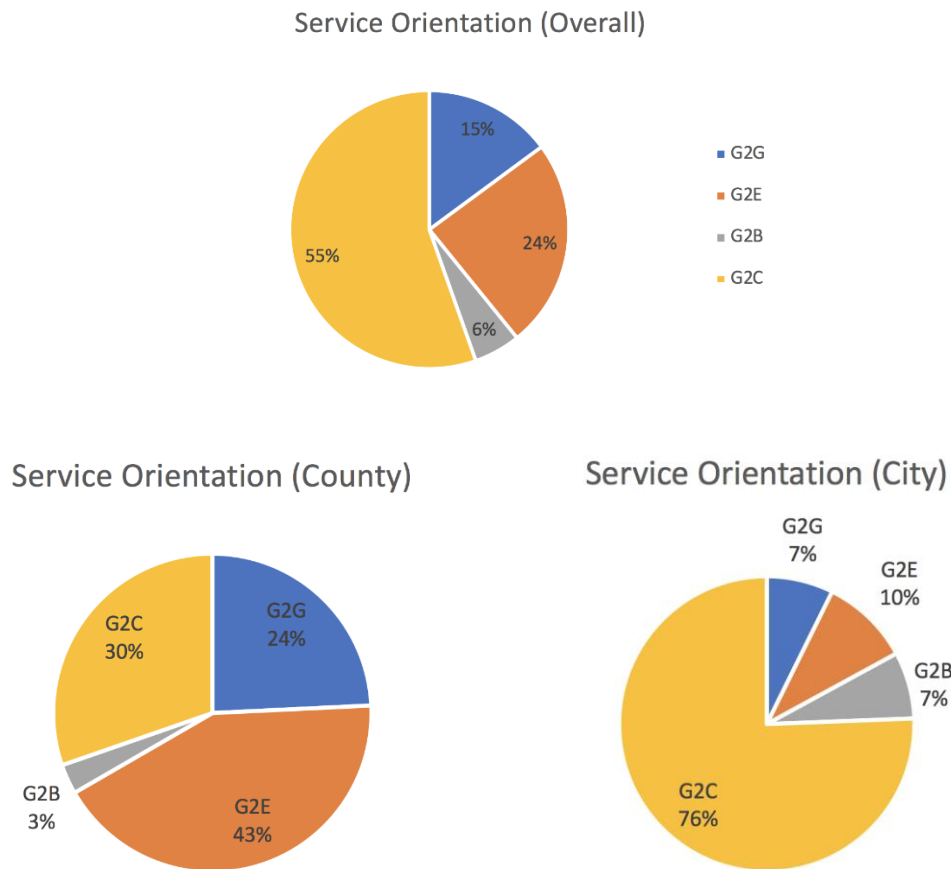**Figure 4. Chicago E-Government Initiatives by End-Service**

2. Service Orientation

Figure 5 displays e-innovation initiatives grouped by service orientation, a categorization used by a substantial amount of academic literature studying e-government.[28] We identify each initiative by stakeholder relationship, namely Government-to-Government (G2G), Government-to-Employee (G2E), Government-to-Business (G2B), and Government-to-Citizen (G2C). Notably, we find that G2C programs and services comprise 76% of initiatives in Chicago, and 55% of initiatives overall. Meanwhile, G2C, G2G, and G2E are remarkably balanced in the County. Across all initiatives, G2B is by far the smallest category at 7% in the City and just 3% in Cook County. This finding does not suggest that Chicago and Cook neglect the commercial sector, as we specifically exclude a) other non-technology business friendly economic incentives and b) one-time technology events for businesses, which do otherwise occur and are sponsored by both governments.

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[28] Nussir & Bell (2013).

Figure 5. Chicago E-Government Initiatives by Service Orientation

Service Orientation (Overall)

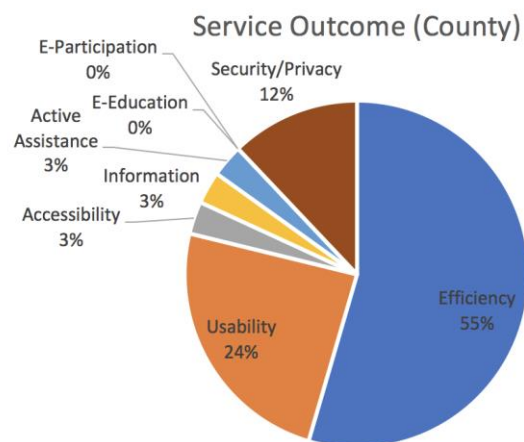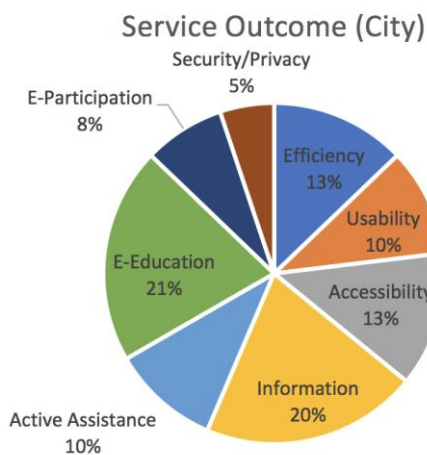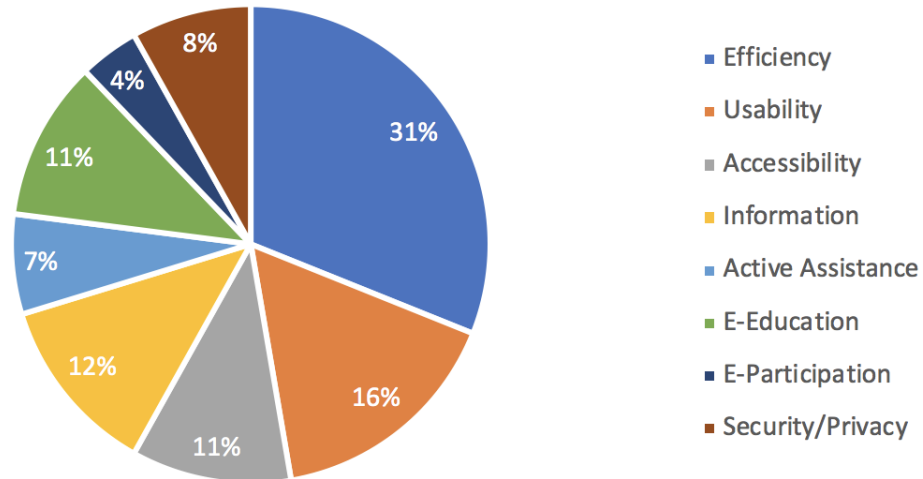Service Orientation (County)

Service Orientation (City)

3. Service Outcome

Recalling Snead and Wright (2014)'s observation that there exists substantially less focus on *outcomes* versus *output* in local-level e-government research, we sort Chicago's e-innovation initiatives by outcome for the end-user. We identify eight outcomes these initiatives seemingly attempt to achieve that may serve as a benefit for Chicago citizens:

- Efficiency – of government services
- Usability – of online/web-based resources
- Accessibility – of online services, including computer and wifi/broadband access
- Information – public data accessibility
- Active Assistance – predictive public services
- E-Education – technology training and resources
- E-Participation – programs which facilitate direct communication, deliberative democracy, or participation in the e-government ecosystem
- Security/Privacy – data privacy and cyber-security

Snead and Wright (2014) also find that e-government research generally lack research methodologies, multi-method evaluation, and the necessary theoretical framing to properly inform policy. This paper thus attempts to reverse this trend by, among other efforts, including the three typologies presented in this section.

Figure 6. Chicago E-Government Services by Outcome

Service Outcome (Overall)

- Efficiency
- Usability
- Accessibility
- Information
- Active Assistance
- E-Education
- E-Participation
- Security/Privacy

Service Outcome (City)

Service Outcome (County)

Discussion

Substantial differences between the City of Chicago and Cook County are revealed by our findings. In terms of Outcomes, the County is investing heavily into Efficiency (55%) and Usability (24%) improvements by number of initiatives (see Fig. 6), while the City is rather evenly balanced between all Outcome categories. We argue this difference in distributions is not a misallocation of policy effort, but rather an indication that the County and the City are simply in different phases of an e-Government progression. Our results mirror the major legislative effort for technology consolidation in Cook County and the several integrated, cross-department aspects of the Chicago Tech Plan (for Cook County technology consolidation, see "Information Technology Consolidation Resolution," Res. 18-2017). More broadly, we the difference in distributions reflects the differences in structure of Cook County versus the City, wherein the County's agencies and departments are significantly separated formally and informally. This separation was a consistent theme across several

interviews conducted for this study, and may have served to create an overall slower progress towards technology upgrades thus far. We believe addressing these systemic barriers may be necessary for a more innovative, long-term e-governance.

Service Orientations also differ substantially between the County and the City. While the County is split rather evenly between G2G, G2E, and G2C, the City's e-innovation initiatives are 76% Government-to-Citizen. At first glance, the City's focus may seem like an ideal and accountable mix. However, an imbalance between these categories may also represent an under-investment in the necessary infrastructure, systems, human capital to successfully keep pace with other G2C initiatives. In contrast to the County, the City's integrated nature balances within Outcomes, but may need to focus more on other aspects of *process* and support functions, as suggested by Snead and Wright (2014). For example, this could include an update to the Strategic Technology Alignment Roadmap (STAR) meant to improve back-end support services, which was still in development alongside these other investments in 2015 ("18 Month Update" 2015, 27).

Second, as mentioned earlier, the City and County both give less investment to G2B-related services as compared to other service orientations. Overall, innovation in this category represents only 6% of recent initiatives. Current examples include the City's "Paperless Small Business Center," a Previous Service Digitization and an Efficiency Outcome which provides businesses with easier access to online permits and business licenses ("18 Month Update" 2015, 27), and the CleanTech Innovation Bridge, a fund akin to venture-capital to aid with start-up development for transportation, energy, and environmental technology ("18 Month Update" 2015, 38). Not mentioned in these categorizations is the issue of procurement, which we believe presents a major hurdle to G2B engagement and more broadly, our vision of e-governance. The opportunities to improve G2B initiatives through procurement policy are discussed at-length in Section IV.
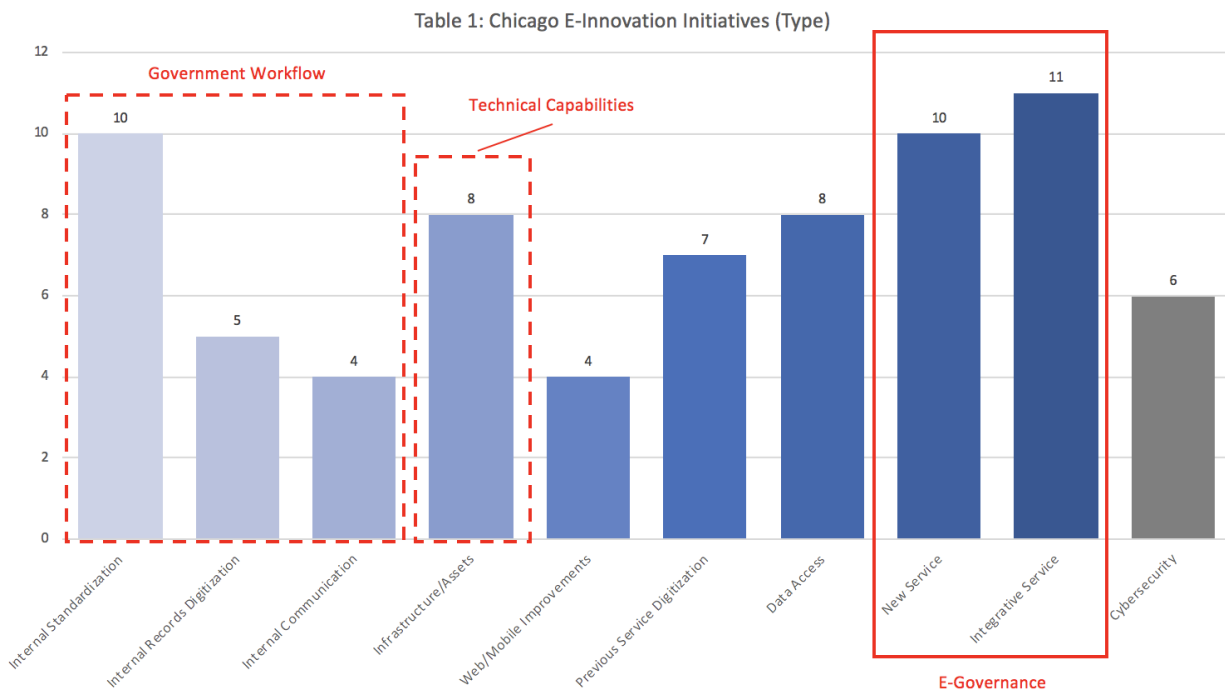
Finally, we find a meaningful indication of a second-generation e-governance, though also ample opportunity to provide further investment. Using the definition provided by Trotta (2018), we look for examples of policy designed to develop an interactive online ecosystem by either 1) encouraging online engagement 2) providing mechanisms for substantive participation and involvement or 3) creating deliberative democratic community through technology. To quantify current initiatives, we use two methods, either including Integrative Services and some New Services in terms of End-Service type (totaling 17%), or Active Assistance, E-Education, and E-Participation in terms of Service Outcome (22%). We thus find approximately 17-22% of current technology initiatives qualify as e-governance.

Chicago & E-Governance

What do these results mean for the future vision of e-governance in Chicago? First, we find promising evidence that both the City of Chicago and Cook County have seemingly made great progress in resolving the barriers to the e-governance paradigm shift. In terms of **government workflows**, the County has made and is currently making significant efforts to optimize government processes and upgrade internal models to enable more advanced applications of e-government services in the future. Optimizing internal workflow will continue to be an important aspect in ensuring the proper *processes* to generate effective future e-governance. In terms of building **technical capabilities**, Figure 7 shows that while a fair amount of attention has gone to improving assets and infrastructure (only 8 initiatives), more could be given for both governments. Especially as web traffic increases, data usage continues to accelerate, and younger generations demand more services online (private or public), government should attempt to build ahead of this ever-increasing

demand. Most concerningly, out of these 8 initiatives across both the County and City, only one relates to hiring *one* new staff member for modernization efforts. In the long-run, human capital investment and talent will need to increase,[29] an investment which could complemented by open-sourcing content development to private individuals, nonprofits, and private entities with the necessary talent and skills to build a "E-government 2.0." As discussed in Section IV, this indicates a further necessity to address collaboration between government and private actors through improvements in procurement processes.

Figure 7. Chicago E-Innovation Initiatives by Type, Grouped by Barriers Resolved

Finally, in terms of **user engagement**, the City has begun to create several innovative policies meant to further engage Chicagoans online. CyberNavigators at the Chicago Public Library, CHA Technology Labs, and the FamilyNet Center all represent Integrative Public Services that help increase access to a future online government through technology training (Chicago Tech Plan 2015). Moreover, Chicago City of Learning (CCOL), Smart Health Centers (SSC), and CHIdeas represent current initiatives in line with a second-wave e-governance vision of e-education, e-health, and deliberative democracy. CHIdeas, for example, described as "an online community forum to engage Chicago residents and businesses in a discussion on how to improve City services, create programs and initiatives in our neighborhoods, and enhance the quality of life" (Chicago Tech Plan 2015) represents the online potential of deliberative democratic models forwarded by Trotta (2018). We recommend that Chicago take steps to further expand these new initiatives, with a special focus on expanding services to low-income and disadvantaged communities. Moreover, the County should collaborate, if not co-sponsor and manage, these initiatives to span the boundaries between City and County for the many who may not recognize their jurisdictional borders.

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[29] Baumgarten & Chui (2009).

The City and County have both applied significant effort to addressing barriers that hinder a new vision of e-governance, and the City currently has several initiatives that coincide with definitions forwarded in new e-government literature. We see Chicago as the ideal test ground for even more innovative and expansive online government services. How do we get there? In addition to the recommendations forwarded in this section, improvements to *process* are also vital to achieving a second generation of e-government. In Section IV we discuss government procurement practices in-depth, and forward substantial alterations to current practices that would enable further collaboration between citizens, government, and the private sector to achieve a model version of local e-governance.

IV. Government Procurement

The *process* of local government modernization is filled with a variety of challenges, as local governments strive to successfully identify and fulfill rapidly changing citizen needs while maintaining a communicative and transparent process. In order to achieve a second-generation E-Government, modernization of the very process of acquiring, maintaining, and facilitating use of new physical and digital technologies will be essential. A move to a modern e-governance will require technology in two forms: first, the **technology and assets** required to build new services, such as the modern computers, cloud storage, rapid broadband, server banks, local networks, and technical staff a city may need to create a new public technology; and second, the **physical and digital technology** that will actually be deployed as a part of the new innovative government service.

Government procurement, or government purchasing, is the process of acquiring these necessary goods, services, and technologies from the private sector by governments. In the United States, procurement is governed by relatively strict regulations and facilitated by competitive bidding process, in which individual companies submit the lowest possible bids to purchase a given requested good or service. Between the federal, state, and local levels, government procurement totals approximately $7 trillion annually, often between 10-15% of U.S. GDP.[30]

Whether these two technological needs are fulfilled in-house or by contract, the process of government interacting with the private market and acquiring goods, services, and technologies at highest quality and lowest cost is among the most important components of the transformation we advocate. For instance, empirical studies have long shown that public procurement is a key driver of innovation, even more so than alternative policies such as private sector R&D subsidies; recent studies have additionally found that procurement policy plays an important role in shaping markets for innovation and technology by articulating consumer preferences and creating a tangible face to the public demand for innovation.[31]

More broadly, to successfully adapt to citizen expectations in the digital age, local governments will have to work with private partners to deliver the new services and innovations. A successful procurement policy can help avoid the long timelines, byzantine rule schemes, and lag behind the private sector associated with traditional local government modernization, all while minimizing cost and maximizing transparency. When procurement in projects fails, however, the projects can quickly run over cost and inhibit communication between government and constituents; for example, in

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[30] See FindRFP, "What is Government Procurement?" Accessed June 2018.
[31] Elder and Georghiou (2007).

2003, North Carolina state CIO Chris Estes blamed poor procurement practices for $356 million in over-budget costs and complications in over 84 state projects.[32]

In Chicago and Cook County, navigating procurement will be among the most daunting challenges to completing an ambitious agenda of modernization, digitization, and consolidation policies. In 2015, a Chicago Procurement Reform Task Force issued a comprehensive report with 31 short, mid, and long-term goals for optimizing city procurement; adoption of recommended changes has been successful in some respects and proven difficult in others. The report found that while some agencies could improve procurement with limited scope changes, modifying a process or adopting a best policy, the most pressing areas for change involved larger, more structural reform.[33] In particular, the report emphasized the need for better communication, both between city agencies and between agencies and private vendors, as well as the need for increased standardization and cooperation.

Before building on the Procurement Reform Task Force's efforts and formulating areas of emphasis for procurement policy change, it is first important to survey and understand the obstacles that procurement reform must tackle. This section will focus on two areas of difficulty identified during numerous interviews with employees from the City of Chicago, Cook County, and private city partners: navigability and scaling. To be navigable for both private vendors and government officials, the procurement process must involve effective communication, consistent bureaucratic frameworks, and risk management for private sector partners. Scaling involves adopting procurement best practices at the national or international level but within the resource constraints of local government; in other words, allowing local government to stimulate technological innovation without the expensive tools used by supra-regional government. Developing robust solutions in these areas will be a critical part of implementing an ambitious transition to a second-generation e-governance and allowing for innovative services in Chicago.

Navigability: Standardization, Communication, and Risk-Management

To be navigable for vendors, a procurement policy must have uniformity of procedures within and between agencies, two-way communication between government and vendors at multiple stages of the procurement process, and increased vendor certainty about expectations and results at every stage. To be navigable for agency employees, procurement policy must be sufficiently centralized while also being sufficiently flexible, timely, and efficient, and must encourage effective competition between vendors during bidding cycles. While some literature focuses on politicians' influence on procurement and the democratic process (see Murray 2009), navigability is a characteristic that can be implemented by appointed procurement officials who follow common-sense policies like creating clear and established procedures, constructing a user-friendly website for vendors to access and view contracts, and communicating substantively and often between government agencies and between agencies and vendors.

However, merely being a pragmatic and not political quality does not mean that creating a navigable process is easy. Often, agencies can be overly decentralized with procurement policy to the point where implementing procedure change or standardization is difficult.[34] Occasionally, established procedures can become entrenched within each agency, creating distrust of change and a breakdown

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[32] Rich (2013).
[33] City of Chicago (2015).
[34] Uyarra (2010).

of communication; during interviews with Cook County officials, several expressed the view that some offices may even distrust IT or maintenance personnel, preferring to handle technical problems without drawing upon designated resources. This reluctance toward centralization can often have legitimate grounds: procurement reformers may not know the intricacies involved with each agency's work or recognize the benefits associated with a particular workflow. Thus, enhancing navigability requires gaining the trust of agency personnel and creating a two-way dialogue to establish clear and standardized procedures while meeting agency needs.

Additionally, creating a navigable process requires a sometimes painful outlay of resources, including valuable time, energy, personnel, and money. Recommendations for improving navigability in the Chicago Procurement Reform Task Force report included creating an easily accessible website for vendors to register and review all government contracts from a single, centralized location, developing universal programming for vendor outreach and training, creating a public procurement manual, and establish an information-sharing program between agencies to flag vendor noncompliance or wrongdoing.[35] Pragmatic reforms such as these are unlikely to be opposed in principle, but nonetheless require agency commitment and continued dedication of resources. Thus, employee buy-in and training must be made a priority in order to fully bring agencies on board as committed to change. Finally, resources for procurement reform should be explicitly set aside and used transparently in order to begin the required changes.

Perhaps the most difficult component of procurement to make navigable, however, is the bid protest process, in which a private bidder attempts to appeal a government's or procurement officer's bid selection. Protesting an agency decision after procurement contracts have been awarded can quickly become costly for both government and the vendor, can lead to the breakdown of relationships, may deter other vendors from competing for future bids, and may occasionally be subject to fraudulent or excessive protesting. Nevertheless, bid protests also offer the crucial opportunity to introduce accountability into the bid process, exercise oversight over appointed officials, correct errors made at any stage of the contract award, and increase public faith in the system when procedures are followed correctly. Currently, GAO statistics reveal that about 23% of federal bid protests were sustained in FY 2016; even adding in voluntary agency corrective action (resolving the dispute without resolving formal protest procedure bid protests were sustained at the federal level less than half of the time.[36]

The reasons bid protests so frequently fail are often thematically related to the root causes of the protest itself: agency misevaluation, excessive red tape, poor agency-vendor communication, and the high burden placed upon the vendor. For instance, in a review of current bid protest law in Florida, Goldstein and Prieto (2000) note that several factors which can sink a bid protest, including rapid timelines for protest submission. In cases where the procuring agency has released limited evaluatory information alongside the bid decision or where the service being procured is highly complicated, vendors--especially small vendors--may lack the necessary time to process the decision and submit an appropriate and justified bid. Additionally, even in cases of bid protests being received in a timely fashion, unreasonable agency evaluations can be difficult to overturn. For instance, a designation of a vendor as a non-responsible bidder can be nearly impossible to overturn (Goldstein and Prieto 2000). Illinois statute defines a responsible bidder as "a person who has the capability in all respects to perform fully the contract requirements and the integrity and reliability that will assure good faith

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[35] CCA (2015).
[36] GAO (2016).

performance."[37] An agency which declares a vendor uncapable or unreliable may thus exercise a high degree of power in subjectively rejecting certain bidding organizations in cases where a non-responsible designation could be at least plausible or ostensibly justified.

However, subjective agency decisions, non-standardized procedures, and difficulty of navigation of the bid protest cycles may not harm only the protesting vendor. Nedved (2015)'s review of national Czech bid protests found evidence of vendors submitting frivolous or abusive protests when the protest review process wasn't sufficiently rigorous, as the vendors calculated that seemingly subjective or arbitrary agency decisions in the bid cycle to deny a contract could just as easily become subjective or arbitrary agency decisions to award the contract after all. The biggest obstacle for successful agency-vendor relationships in this regard is not negligence on behalf of the agency or procurement officials, but a failure to understand standards, evaluations, and expectations and a breakdown of informative communication between the agency and vendor.

Scale: Procurement and Localizing the Innovation Process

Globally, procurement ranks as a crucial driver of innovation across technology categories. In 2015, public procurement counted for over 14% of the European Union's total GDP.[38] At the scale of an international organization, nation state, or even individual province, however, public procurement of innovation involves more than just the acquisition of a completed innovative good or service from the private sector. For instance, the American Small Business Administration has long lead a Small Business Innovation Research (SBIR) program that forms an important factor in private-public relations for most federal agencies, feeding a total of $2.5 billion in structured research grants into the private sector all the way until deployment into government and commercial markets.[39] SBIR has proven influential in the international community, with similar public-private collaboration building innovation from the ground up forming an important basis for EU PPI policy.[40]

At a local government scale, even for a large city, resources constrain not only the types of technology procured, but also the methods of procurement. Broad research subsidies or pre-commercial procurement for local government can encounter three types of obstacles:

1. Local government resources can be insufficient to fund the creation of new ambitious technologies from the ground up
2. Procurement officials or politicians in local government can lack the information, jurisdiction, or framework to adequately articulate consumer preferences for innovation
3. Citizen expectations of local government may change more rapidly than government leaders' ability to initiate attempts to meet these expectations

Additionally, Murray (2009) highlights the fact that increasingly local governments are guided more strongly through direct citizen-official democratic interactions--local citizenry plays an active role of democratic oversight in local administrations. Anecdotally, this may have the effect of focusing local government on the procurement and adaptation of existing technologies rather than the development of new technologies like at the regional, national, or international level. Whatever the reason, typical local government procurement cycles -- such as those modeled by Uyarra (2010) in a

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[37] 30 ILCS 500/1-15.80.
[38] European Commission (2015).
[39] SBA (2015).
[40] Rigby et al. (2012).

study of procurement in local government in the Great Manchester area of England -- focus on acquisition of already well-pioneered innovative goods and services.

This preference exhibited by local government for off-the-shelf software is a primary source of scaling difficulties as compared with larger governmental organizations. For instance, significant amounts of procurement at the state and federal level consist of tailor-made contracts where the service or product in question will be developed cooperatively or created through the lifespan of the contract. This sort of an open-ended contract with high expectations but many complicated logistics questions and individual details presents a variety of logistics challenges for local governments, including the fact that competitive bidding on such contracts is often a highly subjective affair. For instance, it can be difficult to determine whether a lower bid offer is of a proportionately lower quality than a more expensive bid offer, and differentiate the unique proposals from each firm. Furthermore, the process of planning and bidding for such complicated contracts necessary for new innovation can often be a costly enterprise for businesses. Stakeholder complexity, goal ambiguity in bid announcements, and other navigability issues augment the cost for enterprises, making small-scale bids unattractive to vendors.[41] One vendor explicitly noted that the consequence of "the expensive process" of highly-tailored service or product delivery is that "companies decide not to compete for procurement tenders in small municipalities."[42] High costs and low contract rewards can be prohibitive to all but the largest and most confident vendors, further lowering bid competitiveness and excluding small and medium enterprise (SME) vendors from procurement opportunities. Furthermore, as Moe and Paivarinta (2013) suggest, these costs may even exclude large enterprises in the private sector, preventing talent pools from working on innovations in local e-governance.[43]

Chicago Procurement

What is the state of procurement in Chicago, and how may it help or hinder innovation for future e-governance? As the third largest city in the United States, Chicago is a significant actor in government procurement, the City alone spending approximately $2.5 billion in contracts and budgeting $3.27 million for procurement administration in 2014, excluding sister agencies.[44] Having presented Navigability and Scale challenges, we believe there is room for improvement with significant impact in terms of cost-savings and innovation acceleration. Rather than replicate more specific findings by prior reports, we attempt to evaluate three broad concerns of Efficiency, Navigability, and Scale, Efficiency referring to the widely shared goal of cost-reduction in terms of paperwork, labor hours, and duplicate applications.[45] Improvement in all three metrics would enable significant cost reduction. More significantly, targeted changes in Navigability and Scale would enable the innovation necessary for a second-generation E-Government, discussed more deeply in Section V-2.

To evaluate progress in each goal, we create the rough proxies of e-procurement system usage, private-sector contract issues (including bid-protests), and joint procurement contract frequency. E-procurement systems can be used to reduce paperwork, digitize application progress, and reduce bid review time.[46] Bid-protests and other surveys can reveal information about the desirability of

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[41] Moe and Paivarinta (2013).
[42] Ibid., 316.
[43] Ibid.
[44] CCA 2015, 10.
[45] Ibid., 20.
[46] European Commission (2010).

submitting bids and winning contracts for a given government. Finally, joint procurement contract frequency can indicate progress on the scale of contracts available to vendors, as municipalities aggregate for bid amounts. We use data provided by Cook County, information from the Chicago Procurement Reform Taskforce report, and interviews of CIOs, technology officers, and related staff to reveal trends related to Efficiency, Navigability, and Scale. A short discussion follows.

Efficiency: a fair amount of progress has been made in implementing e-procurement. The Cook County OPA's eProcurement system usage has significantly increased from 8,000 to more than 12,000 active vendors over the past five years.[47] As per the recommendations in the Chicago Procurement Reform Taskforce, the City is currently migrating vendors to their new iSupplier e-procurement platform.[48] Continued investment should be made to enable all vendors to engage with procurement officers online, reducing costs for both the contractor and procurer. Many European countries, having previously implemented e-procurement systems in the early 2000s, experienced significant savings.[49] With these substantial benefits, Chicago governments should continue to invest in ensuring procurement platforms are updated, accessible, and visible for vendors and procurement staff.

Navigability: Interviews and information about prior bid-protests indicate Navigability could be improved in both the City and County procurement processes. While both governments have made efforts to increase the navigability through workshops, guideline improvements, and the introduction of e-procurement systems, procurement represents a continued barrier to better contracts and further innovation. Bid-protests, wherein a vendor protests a particular bid decision for any contract, are not publicly disclosed by either entity. One pertinent example demonstrates the difficulty of the procurement process, wherein a construction company's bid was denied to insufficient financial rating, after the company 1) released financial statements and was certified for the project 2) increased their credit line to comply with a new estimated imposed by a state agency 3) released another financial statement to update their City financial rating.[50] The City reevaluated the company's financial capability rating only after the bid was rejected. Furthermore, the subsequent bid protest "was never reviewed nor answered." [51] A combination of delays, coordination challenges between government agencies, and unclear but inflexible contract requirements seemingly contributed to the original protest.

More generally, the Chicago Procurement Task Force Report states "the complication and confusion created by varying processes and forms can create barriers to entry and frustration among businesses… fueling the perception that Chicago is a challenging city with which to do business." [52] Higher barriers represent substantial costs for private enterprises, and can often exclude SME vendors. Substantial revisions to the contract details and bidding guidelines are necessary, beyond minor adjustments in sub-processes. Both the City and County should additionally consider reviewing and publicly publishing bid-protests to further improve procurement process, accountability, and access.

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[47] Cook County CPO (2018).
[48] See the City of Chicago's "iSupplier Portal," accessed August 2018.
[49] Italy gained efficiency benefits of €67.5 million on procurement volume of € 419 million; Austria reported €178 million on Federal procurement volume of €830 million, and the UK Buying Solutions gained saved €732 million on €5 billion, averaging 17% savings on total procurement volume. Moreover, Norway reported 20-40% reductions in order-time, and Italy found they were able to cut approximately 400,000 labor hours totalled across all municipalities (European Commission, 2010).
[50] *Acura, Inc. v. City of Chicago*, 2013 IL App (1st) 122441-U/
[51] Ibid., 8.
[52] CCA (2015), 13.

Scale: As large population centers, the City and County individually spend large amounts of capital on contracts annually. However, scale still pales in comparison to the State or even Federal contract sizes. Trends in joint procurement infer that contract scale offered by Chicago governments may be decreasing. Table 1 demonstrates a consistent decline in "piggyback" contracts, a legal mechanism in which a local government can use a prior contract from another municipality to purchase new materials from vendors.

Table 1. Piggyback Contracts in Cook County, 2013-2017

Year	2013	2014	2015	2016	2017
# Piggybacks Completed	42	32	29	21	9

Source: Cook County CPO 2018.

Moreover, Cook County only completed one Joint Procurement contract in the last 5 years.[53] Within the City, several opportunities exist to increase joint purchasing across sister agencies (namely, Chicago Public Schools, Chicago Transit Authority, Chicago Housing Authority, City Colleges of Chicago, Chicago Park District, and Public Building Commission of Chicago) that are yet to be pursued. As identified by the Procurement Reform Task Force, "none of the Participating Members can afford to remain within the silo of its own operations. Opportunities to save money and resources are lost when agencies award parallel procurements that could have been issued jointly, duplicate the establishment of vendor pools, and implement inconsistent compliance efforts." [54] Both the County and City should consider efforts to increase contract scale, which would attract more substantial process investment from private actors and increase bid competitiveness. However, it should be noted joint procurement can reduce flexibility for the municipality and serve to exclude SME vendors, meaning increases in joint procurement should be targeted to appropriate contracts versus a standardized goal.[55]

Procurement and E-Governance: Consistent challenges across Efficiency, Navigability, and Scale must be addressed to create the proper foundation for a second-generation E-Government. As prior research reviews have indicated, focus on process improvements in connection with specific policy outcomes will be key to create the changes necessary for a much wider transformation in governance. Specifically, efficiency improvements would product cost-savings that could be reinvested in new e-services and increase the capacity for more complex pre-commercial contracts. Navigability improvements could improve the ability for private actors to provide more tailored services, with both increased flexibility and standardized guidelines for iterative contracts. Finally, joint procurement and other measures to increase contract scale in certain cases could enable incentivize firms with specialized talent-pools to invest resources in producing new applications for local governments. These considerations are described in more detail in following Recommendations section.

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[53] CPO 2018; see contract 12-28-318: http://opendocs.cookcountyil.gov/procurement/contracts/12-28-318.pdf
[54] CCA (2015).
[55] NIGP (2013).

V. Recommendations

1. E-Government 2.0

Substantial investments in E-Government since the Internet boom of late 1990s have not translated to a system of E-Government that fulfills its potential. This situation signals a need to advance to the next level of E-Government, referred to as "E-Government 2.0", or simply "e-governance," as outlined throughout this paper. Our recommendation presented here is framework that should be considered in all future policymaking, rather than a definitive list of programs.

E-governance, differently from its preceding model, promises to move beyond making minor changes in web development, and presents a standardized, data-driven, user interactive, and efficient model that answers the demands of a digitalized democracy. Standardization requires a centralized view of policies across a government agency and consolidated implementations that are powered by a will to collaborate across agencies. Data-driven policy should be driven by pilot programs and technology policy experimentation to raise user satisfaction. These experiments should, even if they fail to generate anticipated results, be considered opportunities for general feedback and further development. User-engagement should be considered in policy-management, program marketing, citizen-services, and IT teams should work in solidarity with other departments for the holistic goal of increasing usability and navigability. This mentality of testing and learning is critical, and possible only through adopting a data-driven strategy that bases its core assumptions on numerical patterns and trends observed in the various online government services. Additionally, factual data must be collected and distributed in a secure environment, which necessitates more emphasis on cybersecurity investments. Increased cybersecurity would accelerate fast, data-based decision making, and ensure greater trust and sharing across different teams of an agency.

We believe this framework should guide all future policymaking and local programs. While specific programs and initiatives may be recommended in later papers, we recommend the e-governance framework should be considered in the broadest possible range of policy areas, and could include:

- E-Courts
- E-Democracy & Voting
- E-Education
- E-Finance
- E-Healthcare
- E-Resource Management
- E-Safety & Protection
- Open Source Services Development

Overall, E-Government 2.0, or e-governance is a forward-thinking, progressive model that puts the interests of users and research and development in technology before the simple appearance of providing better services. Both Chicago and the Cook County can benefit from further and intentional inclusion of this model into daily policymaking.

2. Procurement

In order to build a foundation for a second-generation E-Government, substantial changes to public procurement must be implemented to ensure local governments are equipped with the necessary tools to facilitate this transition. As identified in prior research, continued attention to *process, theory,* and *models* is essential to building new forms of governance. We give recommendations related to **investment** in the procurement process, **frameworks** for reimagining public procurement in Chicago, and specifications of **Public Procurement for Innovation (PPI) and Pre-Commercial Procurement (PCP)** models recently implemented in the European Union. Further study and implementation of some, if not all, of these initial recommendations will enable more ambitious technology policy and e-governance in Chicago.

Investment in Procurement: Investment in the process of procurement is important achieving grander policy goals. In an effort to improve the efficiency, navigability, and scale of current procurement practices, governments in the Chicago region should:

1. **Invest in E-Procurement Software, Hardware, and Web Design**, including website and user-interface enhancements, real-time competing bid information, and linkages to related bid opportunity announcements in other municipalities and states.
2. **Improve Bid Opportunity Specifications**, so that requested contract details are feasible, clear, and flexible. As noted in vendor panel results, realistic requirements are by far most important, while "very detailed requirement specifications would limit" vendors' abilities to show bid strengths, service quality, and other differentiating qualities.[56]
3. **Provide Weighted Assessment Categories** that are specific to the opportunity announcement in order to 1) improve bid quality 2) reduce uncertainty in bid selection and 3) promote clearer expectations for both procurer and bidder, as indicated by vendor and CIO surveys.[57]
4. **Commit to Increased Joint Procurement**, across agencies and governments, including joint procurement contracts, joint pre-qualified vendor pools, and other information sharing on specific vendors.[58] Joint procurement processes are especially necessary between City and County efforts, but ought also be considered alongside other major cities and counties.
5. **Standardize Bid Opportunity Announcements** across agencies and governments. As panel results indicate, "lack of coordination and standardization of the procurement process was ranked as the 4th most important challenge by both procurement personnel and CIOs."[59] Standardizing procurement processes across governments would more easily facilitate joint procurement, offer higher scale to vendors, and reduce administrative investment.

New frameworks for public procurement will also be necessary for meaningful procurement reform, especially one orientated towards stimulating innovation and responding to quickly-advancing technological demands. Should Chicago choose to become a procurement model for other municipalities nationally, governments in our region should:

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[56] Moe and Päivärinta (2013), 317.
[57] Ibid.
[58] CCA (2015).
[59] Moe and Päivärinta (2013), 317.

1. **Adopt a Benefits-Realization Framework**, wherein the bidder and procurer both submit forecasted benefits of any product or service purchased by the City, and bids are evaluated based on a wholistic cost-benefit analysis rather than lowest bid amount. As ranked by vendors, procurement managers, and CIOs, "experts across all three panels rated the issue of facilitating change in the work processes and benefits realization as the most important procurement-related challenge," especially as it relates to implementing this framework before bid decisions are announced.[60]
2. **Treat Procurement Processes as Goal-Oriented Policy** in order to achieve new innovation in solving unique public challenges that the private sector does not address. Specifically, procurement should be conceptualized as a way to tackle "grand challenges" of climate change, aging populations, or inequality through targeted but mission-oriented bid opportunities rather than simply as a purchase mechanism.[61]
3. **Consider Bid Reform to Incorporate Relational Contracting, Partner Procurement, or Distributed Commissioning,** wherein the bid process would be supplemented with public-private procurement partnerships that create cooperative product design, development, and delivery standards rather than competitive bidding for procurement of new technologies.[62]

Public Procurement for Innovation (PPI) and Pre-Commercial Procurement (PCP) represent the ultimate goal in procurement reform, wherein local governments can incentivize non-public entities to produce new public technology and applications for a second-generation E-Government. These models represent ways in which governments, even on a local scale, can 1) improve **government workflows** to be compatible with the new digital economy 2) source **talent and technical capability** outside of government agencies to develop new applications demanded by a new age of citizen-government relationships and 3) ultimately design applications that enhance **user engagement**, accelerating application and content development through *process* enhancements. A full implementation of PPI and PCP models in local procurement would address all three systemic barriers to an e-governance transition, while enabling development of more ambitious policies and programs.

Integration of PPI and PCP in the U.S. municipalities would also update procurement practices domestically to be in-line with innovation-oriented procurement policies already being implemented in the E.U.[63] PPI and PCP on a local level can specifically spur new innovation by focusing on demand-side procurement, and more specifically by 1) providing capital in specific localities, especially benefitting SMEs and enabling locally-sourced tailored solutions 2) compensating local market failures by creating incentives to address systemic social and public good problems and 3) generating private interest in public service goals.[64] Examples of prior technologies that were created through PPI and PCP models include Liquid LED lighting (France), Smart@Fire protective clothing for firefighters (Belgium, Hungary), and Electrified Roads (Sweden).[65]

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[60] Ibid.
[61] Edquist and Iturriagagoitia (2012).
[62] Bovaird (2006).
[63] Rigby *et al.* (2012).
[64] Edler and Georghiou (2007).
[65] OECD (2017), 21.

Collaboration with non-governmental organizations, private enterprises, and individuals is essential. In order to increase PPI and PCP on the local level, governments in Chicago should:

1. **Integrate Competitive Dialogue into Existing Bid Processes,** in which for certain contracts orientated towards PPI and PCP, bidders "are invited to participate in a competition and dialogue with the procuring entity before the requirements are fully specified." [66] Such a system would enable the fairness, transparency, and efficiency theoretically inherent to a competitive bid system, while enabling enough flexibility for vendors that are attempting to develop new technologies to solve public problems.
2. **Create Data Exchanges for Joint Procurement**, so that solutions procured through PPI and PCP are shared with other governments. Such an exchange could also facilitate easier joint procurement and thus scale for bidders interested in PPI and PCP opportunities, creating a greater incentive the private market to address public issues.
3. **Develop Accelerator Programs,** competitive entrepreneurial programs in which vendors compete in a structured environment that still enables the flexibility not found in traditional RFP processes, such as was attempted with the City of Philadelphia's FastFWD. [67]
4. **Study Ways to Fully Integrate New Procurement Frameworks**, including Benefits-Realization bid evaluation, goal-orientated policy procurement, and bid-process overhauls such as relational contracting. While competitive bid-processes may incentivize innovation for several types of PPI and PCP contracts, even more flexible mechanisms may be needed to facilitate the creation of next-generation E-Government solutions.

3. Technology Infrastructure

To further support advances in e-governance, significant investment in infrastructure will have to be devoted to increase network capacity, network coverage, server capacity, data storage, and cloud architecture over the next several decades in advance of other new technologies. Moreover, as citizen-government interactions become more dependent on the internet, individual access to online services will also be paramount. To this end, governments in Chicago should:

1. **Provide a Public Update to the Strategic Technology Alignment Roadmap (STAR) (City),** originally intended to improve back-end support services and infrastructure, which was still in development alongside other initiatives as of the 2015 update to the Chicago Tech Plan.[68] While progress has likely been made since then, a broader update to the 2013 Chicago Tech Plan would be beneficial in informing the public of the City's most recent efforts to work towards technology improvements.
2. **Invest Further in Physical Storage Assets**, including servers, data storage, and network capacity, with considerations for a 5- and 10-year, if not multi-decade regional plan related to address technology assets.
3. **Jointly Procure ITC Infrastructure**, across neighborhoods where private companies and customers do not provide such service, especially to ensure broadband access for low-income and disadvantaged communities, or where jurisdictional overlap may have created service gaps.

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[66] Moe & Paivarinta (2013), 318.
[67] Rich (2013).
[68] City of Chicago (2015), 27.

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4. Government Restructuring

A consistent theme across our research was the influence of government structure on technology policy, considerations especially relevant to future e-governance. There exists a substantial amount of separation between respective agencies, bureaus, and offices across Cook County, and to a lesser, but still significant degree between the City of Chicago and its six sister agencies (Chicago Public Schools, Chicago Transit Authority, Chicago Housing Authority, City Colleges of Chicago, Chicago Park District, and Public Building Commission of Chicago). Especially in Cook County, this separation was noted to be a significant issue during several interviews, both in terms of Cook County's technology consolidation mandate and general governance.[69]

There is much to be gained through pursuing closer collaboration between agencies within the same geographical jurisdictions. In terms of e-governance, IT consolidation, process standardization, and procurement (i.e. internal joint procurement) would be made easier should agencies work closer together. Moreover, the necessity for these efforts are byproducts, or rather indications, of the significant segmentation in Chicago local governments. Prior research has identified several structural barriers and inefficiency on the County level, with accompanying opportunities for improved government efficiency.[70] While not the focus of this report, future papers will examine these issues more closely, both on the City and County levels.

5. City-County Collaboration

Similar to agency segmentation within governments, our research consistently indicated a low level of collaboration between the City of Chicago and Cook County, both as it relates to technology and other policy areas. Originally, a Joint Committee on City-County Collaboration Report in 2011 identified between $66 million - $140 million in potential savings across 19 vetted business cases should the City and County pursue further collaboration.[71] Of those, 5 directly involved technology policy (IT Support Services, Public Safety Data Sharing, 311 Services, Geographic Information Systems, and Open Data), and 1 directly proposed increased joint procurement (Joint Purchasing), estimating savings of approximately $12M - $24M.

Meaningful progress was made as of the Committee's two-year update. In 2013, the City and County announced they had jointly saved over $70.9 million through 60 initiatives.[72] Technology policy highlights included a joint contract awarded to Microsoft for application cloud support, cybersecurity hardware and training collaboration, WAN equipment "piggybacked" contracts, and Server Consolidation. However, larger initiatives such as GIS data exchanges, a permanent master purchasing agreement between municipalities, and Right of Way collaboration were still listed as TBD.[73] While these initiatives likely progressed or were previously determined to be infeasible, subsequent public updates on these initiatives have yet to be filed. Though not the focus of this paper, we believe there still exist further opportunities for collaboration on larger projects here as well, especially those involving the future of e-governance in Chicago.

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[69] Board of Commissioners (2018).
[70] Quigley et al. (2003).
[71] Joint Committee on City-County Collaboration (2011).
[72] City-County Collaboration (2013).
[73] Ibid., 12

VI. References

Acura, Inc. v. City of Chicago. 2013. Appellate Court of Illinois, First District. No. 1-12-2441. http://illinoiscourts.gov/R23_Orders/AppellateCourt/2013/1stDistrict/1122441_R23.pdf

Baumgarten, Jason; Chui, Michael. 2009. "E-government 2.0." *McKinsey.* https://www.mckinsey.com/industries/public-sector/our-insights/e-government-20

Boviard, Tony. 2006. "Developing New Forms of Partnership with the 'Market' in the Procurement of Public Services." *Public Administration.* Volume 84, I:1. 81-102. https://onlinelibrary.wiley.com/doi/pdf/10.1111/j.0033-3298.2006.00494.x

Board of Commissioners, Cook County. 2018. "Information Technology Consolidation Resolution." Res. 18-2017. https://cook-county.legistar.com/LegislationDetail.aspx?ID=3334055&GUID=691679E8-66CB-48DB-8358-013F4B469692&Options=Advanced&Search

Bureau of Technology, Cook County. 2018. "ESB Integrated Justice Quarterly Report - June 2018." https://cook-county.legistar.com/LegislationDetail.aspx?ID=3537310&GUID=1E2B58CD-275D-445F-B6FA-33F532094461&Options=Advanced&Search=

Bureau of Technology, Cook County. 2018. "Semi-Annual Major Technology Projects Update." https://cook-county.legistar.com/LegislationDetail.aspx?ID=3309811&GUID=DEE8F520-1233-45BA-85B6-15DD6FED0FA7&Options=Advanced&Search=

Bureau of Technology, Cook County. 2018. "Information Security Framework Semi-Annual Report." https://cook-county.legistar.com/LegislationDetail.aspx?ID=3309814&GUID=A5FFEA64-9DCA-4A4A-8B35-C15DE9CE27BD&Options=Advanced&Search

CCA 2015. "Report of the Chicago Procurement Reform Task Force." https://www.ccachicago.org/wp-content/uploads/2015/11/ChicagoProcurementTaskForcepdf.pdf

City of Chicago. 2015. "Chicago Tech Plan: 18 Month Update." https://techplan.cityofchicago.org

City-County Collaboration. 2013. Report. https://www.cityofchicago.org/content/dam/city/depts/mayor/supp_info/CityCountyReport2013.pdf

Cook County. 2018. "Technology Modernization and Innovation Report 2018." https://www.cookcountyil.gov/content/modernization-and-innovation-report-2018

Elder, Jakob; Georghiou, Luke. 2007. "Public procurement and innovation—Resurrecting the demand side" *Research Policy* 36, 949-963. http://dimetic.dime-eu.org/dimetic_files/EdlerGeorghiou2007.pdf

European Commission. 2018. "Public Procurement: Performance." Accessed July 2018. http://ec.europa.eu/internal_market/scoreboard/_archives/2016/07/performance_per_policy_area/public_procurement/index_en.htm

European Commission. 2010. "Green Paper on Expanding the Use of e-Procurement in the EU." Brussels. Com (2010) 571 Final. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:52010DC0571

Holzer, Marc; Fudge, Marc; Stowers, Genie; Shick, Robert; Manoharan, Aroon; "U.S. Municipalities E-Governance Survey (2010-2011), *National Center for Public Performance*, 2012. https://spaa.newark.rutgers.edu/sites/default/files/files/EGov/Publications/US-Municipalities-2012.pdf

Government Accountability Office. 2016. "GAO Bid Protest Annual Report to Congress for Fiscal Year 2016." https://www.gao.gov/assets/690/681662.pdf

Goldstein, Joseph M; Prieto, Vanessa L. 2000. "Government Bid Protests." *Nova Law Review*, Vol 25, I:1. https://nsuworks.nova.edu/cgi/viewcontent.cgi?referer=https://www.google.com/&httpsredir=1&article=1371&context=nlr

Institute of Information Studies. 2014. "Ranking of Smart Global Cities," Shanghai Academy of Social Sciences, http://www.globalcityinfo.org/upload/files/1414917913864.pdf

Joint Committee on City-County Collaboration. 2011. "Executive Summary." 7-11. https://www.innovations.harvard.edu/sites/default/files/opex/documents/Cook%20Chicago%20City%20County%20Collaboration.pdf

Moe, Carl Erik and Päivärinta, Tero" Challenges In Information Systems Procurement in the Public Sector " *Electronic Journal of e-Government* Volume 11 Issue 2 2013, (pp308-323), available online at www.ejeg.com

Murray, J. Gordon. 2009. "Improving the validity of public procurement research", International Journal of Public Sector Management, Vol. 22 Iss 2 pp. 91 - 103. http://dx.doi.org/10.1108/09513550910934501

NIGP. 2013. "Cooperative Procurement." https://www.nigp.org/docs/default-source/New-Site/position-papers/150105_cooperative-purchasing-position-paper_complete_updated.pdf?sfvrsn=2

OECD. 2017. "Public Procurement for Innovation: Good Practices and Strategies." *OECD Public Governance Reviews*. Paris: OECD Publishing. https://read.oecd-ilibrary.org/governance/public-procurement-for-innovation_9789264265820-en#page4

Quigley, Mike; Liechty, Jason; Walz, Kimberly; Koehler, Jennifer; Nelson, Laura; Solinski, Jeanine. 2003. "Reinventing Cook County, Part I." https://www.civicfed.org/sites/default/files/Reinventing%20Cook%20County%20Part%201%20-%202003.pdf

Snead & Wright, 2014: John T. Snead, Elisabeth Wright, E-government research in the United States, Government Information Quarterly, Volume 31, Issue 1, 2014, Pages 129-136, ISSN 0740-624X, https://doi.org/10.1016/j.giq.2013.07.005

Sueh, Jason. 2013. "2013 Digital Cities Winners," http://www.govtech.com/local/2013-Digital-Cities-Survey-Winners-Announced.html

Rich, Sarah. 2013. "Boosting Innovation by Rethinking Government Procurement." GovTech. http://www.govtech.com/budget-finance/Boosting-Innovation-by-Rethinking-Government-Procurement.html

Rigby et al: John Rigby, Patries Boekholt, Abby Semple, Jasper Deuten, Ramona Apostol, Stephan Corvers, Jakob Edler. 2012. "Feasibility study on future EU support to public procurement of innovative solutions: Obtaining Evidence for a Full Scheme." https://ec.europa.eu/docsroom/documents/13204/attachments/1/translations/en/renditions/pdf

SBA. 2018. "The Small Business Innovation Research (SBIR) Program." https://www.sbir.gov/about/about-sbir

Trotta, Anthony. 2018. "Advances in E-Governance: Theory and Application of Technological Initiatives." Routledge, New York. https://books.google.com/books?id=jF0lDgAAQBAJ&printsec=frontcover&source=gbs_ge_summary_r&cad=0#v=onepage&q&f=false

UN Department of Economic and Social Affairs. 2016. "United Nations E-Government Survey." UN, New York. http://workspace.unpan.org/sites/Internet/Documents/UNPAN97453.pdf

Uyarra, Elvira. 2010. "Understanding the Innovation Impacts of Public Procurement." *European Planning Studies*. Vol 18, I:1. https://doi.org/10.1080/09654310903343567

West, Darell. 2008. "State and Federal Electronic Government in the United States, 2008," *Governance Studies,* Brookings. https://www.brookings.edu/wp-content/uploads/2012/04/0826_egovernment_west.pdf

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