



Does Collaborative Technology Benefit Collaboration? Evidence of a Mixed Methods Study

Xian Gao

EasyChair preprints are intended for rapid dissemination of research results and are integrated with the rest of EasyChair.

June 9, 2019

Does Collaborative Technology Benefit Collaboration? Evidence of a Mixed Methods Study

Xian Gao

xiangao@unomaha.edu

School of Public Administration, University of Nebraska at Omaha

Abstract: Previous collaborative governance frameworks and models primarily depicted macro-level interorganizational collaboration dynamics. A complete understanding of such interorganizational collaboration, however, requires typically knowledge of micro-level intraorganizational collaborative behaviors forming foundations of these macro-level phenomena. Moreover, the common collaboration practices call for the use of technology, particularly collaborative technology, to facilitate communication and improve performance. This study thus focuses on the dynamics of intraorganizational collaboration and how the use of new collaborative technology affects collaboration process and performance. Build on the findings, it further examines the contextual factors relevant to technology effectiveness in collaboration. This study uses a mixed methods approach that contains experiment and interview data collection and analysis. Findings indicate that the use of collaborative technology does not guarantee better collaboration process and performance. Good results require supportive organizational and technological environment such as sustained leadership, planning, stakeholder engagement, mechanisms of communication, and learning. Among them, commitment from all collaboration parties to real collaboration and engagement is the key.

Keywords: collaboration, performance, collaborative technology, technology effectiveness

Introduction

Collaboration generally refers to two or more individuals or organizations working together to accomplish common goals. Collaboration may occur when there is diminishing importance of boundaries while an increasing need for interpersonal or interorganizational relations. Previous collaboration governance frameworks and models primarily depicted macro-level interorganizational collaboration dynamics (Ansell and Gash, 2008; Emerson, Nabatchi, and Balogh, 2012). A complete understanding of such organizational level collaboration, however, requires typically knowledge of micro-level intraorganizational collaborative behaviors forming foundations of these macro-level phenomena. Intraorganizational collaboration or collaboration occurring within an organization includes both interpersonal (individual level) and intergroup interactions (group level) internal an organization. Although the boundaries of these levels-individuals, groups, and organizations-may not always be explicitly identified or mutually exclusive, interactions at each level have their unique characteristics and requirements for collaboration design and management thus call for specific academic attention respectively.

The common collaboration practices call for the use of technology, particularly collaborative technology, to facilitate communication and improve performance. The management of collaboration generally requires a fundamental redesign of how individuals or organizations work, what they can provide, and how they engage and interact with other individual and organizational collaborators. Such a fundamental restructuring often involves the use of information and communication technology, especially collaborative technology. In this study, collaborative technology is defined as a set of tools that supports the joint efforts of individuals, groups, and organizations. Examples of collaborative technology include knowledge creation/management software, information sharing software, virtual conference tools, and

collaboration project management tools. Collaborative technology drives the top-down early stage e-government to a new period of collaboration, participation, and transparency. With collaborative technology, "information is co-created, citizens demand services, the policy is negotiable, and governance is shared" (Reddick and Norris, 2013, p. 498). Collaborative technology is created to improve information and knowledge communication for more effective collaboration; however, there is a lack of knowledge about the interplay between the use of it and collaboration process and performance.

In fact, during the past several decades, we have seen both successful and failing information technology projects in public organizations, yet there is no consensus on explaining or predicting success and failure. We lack knowledge about whether the use of technology results in improved organizational performance, such as increased work efficiency and service quality. In other words, there is a missing link between technology adoption and its effectiveness. Does the adopted technology necessarily bring in beneficial results? Are the factors necessary for technology adoption also crucial for higher technology performance? A missing link like this not only discourages public organizations' enthusiasm for being innovative in technology projects but also weakens their efforts to design and manage technology projects strategically.

With the above gaps in mind, this study focuses on the relationship between the use of collaborative technology and collaboration interaction and performance, in an intraorganizational context. To explore technology effectiveness in collaboration, this study asks how and under what conditions collaborative technology affects collaboration process and performance? An in-depth case study of a Midwest public organization provides evidence to address the research question. Build on the integrated experiment and interview data, this study indicates significant

practical and theoretical implications regarding the use of collaborative technology in an intraorganizational collaboration context.

The next section reviews previous research findings of technology use and effectiveness in government and the potential benefits of technology in collaboration at different levels. Follows the review, the use of a mixed methods approach in data collection and analysis is introduced. In the Findings section, experiment results and interview findings are first reported separately and then integrated into the analysis. This study concludes with significant practical and theoretical implications and a research agenda for the future.

Literature Review

Technology Use and Its Effectiveness in Public Management

Looking at the evolution of information technology in public organizations, we see a variety of predictive models, frameworks, as well as unrealized or even unexpected practices. Before the Internet emerged in the late 1980s, public organizations had already actively utilized information technology to improve operating efficiency and enhance internal communication (Bozeman and Bretschneider, 1986; Kraemer and Dedrick, 1997; Bretschneider, 1990; Ho, 2002). Early this century, staged models have been proposed to describe, predict, and suggest the process of technology evolution in public organizations (Layne and Lee, 2001; Moon, 2002; Mergel and Bretschneider, 2013). "Sometimes, these models focus on whether individual organizations are likely to be early adopters or laggards. Others view the process as moving from simple to more complex forms of the technology or more complete integration within organizational processes" (Mergel and Bretschneider, 2013, p. 390). A more empirical perspective indicated that the practical movement through the stages of e-government if any

stages exist, “is neither as accelerated nor as simple as the models posit” (Coursey and Norris, 2008, p. 532).

Regarding the effectiveness of technology, an extensive review of the literature showed that information technology had never been an instrument of administrative reform; instead, it had been used to reinforce existing administrative and political arrangement (Kraemer and King, 2008). Similarly, when discussing the role of e-government in promoting citizen participation, scholars found that only a few local governments had adopted e-democracy and even fewer local governments planned to do so shortly (Norris and Reddick, 2013).

To develop the knowledge base of technology effectiveness in public management, the author conducted a bibliometric analysis of e-government related articles published in 20 most popular e-government journals and public management journals, using the E-Government Reference Library v11.5 (EGRL) that contains 7,899 references. For e-government journals, the keyword used in Title or Abstract was “performance.” While for public management journals, the keywords included both "performance" and "e-government.” The search for articles based on these keywords resulted in 117 references in total. Also, a search for OnlineFirst/ Forthcoming articles/Advance Access/Early View articles in these 20 journals resulted in another three articles; the total number thus was 120 articles.

A closer review of these 120 articles demonstrated both normative and empirical studies. The focus of this bibliometric analysis, however, was on empirical findings given the purpose of synthesizing practical factors influencing technology performance. With this in mind, a total of 68 empirical studies among 120 articles were ultimately identified. They indicated the variety nature of technology performance studies, which covered focuses like website quality/usability, e-government readiness, e-governance performance, e-service effectiveness, e-project efficiency,

e-government evolution, organizations benefits from e-government, the success of information technology outsourcing, success rates of e-project implementation, and performance of decision making. These studies, unsurprisingly, identified a broad set of influencing factors of performance, including users' demographic conditions and IT experience, their perceived technology usefulness and risks, motivation of employees, cultural and political situation, leadership, IT governance, organizational process and decision making, resources, task-technology fit, collaboration within or among organizations, and others.

Often, these studies were celebratory when predicting the role of technology in public services provision, managerial effectiveness, and democratic values promotion. Yet solid evidence demonstrated both successful and failed use of technology applications in public management. Overall, “we lack evidence to support the claim that the use of technology for service delivery truly results in less bureaucracy and increased service and information quality” (Bretschneider and Mergel, 2011).

Collaboration at Different Levels and Potentials of Technology

Research on collaboration primarily focus on collaborative efforts occurring across organizational boundaries, that is the interorganizational collaboration. Relevant frameworks and models depicting its dynamics and process are produced. Also, a list of influential factors is identified. Emerson, Nabatchi, and Balogh (2012) referred the collaboration process and dynamics to principled engagement, shared motivation, and capacity-building for joint action. Influential factors include policy and organizational agreement, levels of conflicts or trust, shared understanding, communication, leadership, external demands, resources, interdependence, and incentives, according to Ansell and Gash (2008).

On the other hand, intraorganizational collaboration environment differs from interorganizational conditions in areas such as the existence of a certain level of trust among organizational members and groups, the possibility and frequency of having face-to-face dialogues, and a shared understanding of organizational mission, goal, culture, and plans. For example, collaboration at the individual and group level is less threatened by conflictual missions/values and lack of commitment but could emphasize more on the planning and communication among participants. Insights from conflict resolution and psychology literature can be more beneficial in this intraorganizational level, while organizational ecology and contingency theory are more meaningful for collaboration at the interorganizational level. Yet limited attention has been paid to the intraorganizational collaboration scenarios.

No matter what level it is, measurement of collaboration performance could be challenging given the conceptual and methodological complexity as well as the normative appeal of using collaboration to solve problems (O’Leary and Vij, 2012). Also, the inconsistency in operationalizing and measuring key aspects and effectiveness of collaboration, the difficulty in observing and evaluating the evolving collaboration performance over time, the biased self-reported perceptions on collaboration performance, and the divergence of perspectives of different collaboration participants and organizations are all challenging collaboration performance measurement (Emerson and Nabatchi, 2015). What’s more, O’Leary and Vij (2012) suggested that collaboration performance research is in no small extent impeded by a lack of an overarching theory and standardized definitions of terms and the inconsistencies in identifying the unit of analysis.

Besides, few collaboration studies measured the relationships between technology use/effectiveness and collaboration process/performance (O’Leary and Vij, 2012; Mitchell,

O’Leary, and Gerard, 2015; Chen and Lee, 2018). A general assumption is that collaborative technology can engage in potential collaborators. It is a means of information communication like sharing, exchanging, and integrating across the boundaries among individuals and organizations (Chiu, 2002). At the same time, it facilitates collaboration interactions by increasing the speed and flow of information communication, synchronously, and asynchronously. On the other side of the coin, collaboration programs call for the use of collaborative technology to meet the inevitable needs to share and integrate information and knowledge. Collaboration managers have the tasks of gathering individuals' and organizations' attention, organizing information flow, and facilitating knowledge exchange through formal and informal communication channels, in addition to the traditional face-to-face dialogues. This becomes an essential impetus for collaborators to adopt collaborative technology, with its benefits in blurring boundaries and speeding information exchanges.

With all the research gaps identified, this study attempts to explore the relationship between the use of collaborative technology and collaboration interaction and performance, in the context of intraorganizational collaboration. After examining the relationship, it further studies the conditions critical to collaborative technology effectiveness.

Methods

The case study method is selected because the purpose is to generate data rich in detail and embedded in context, and because of the limited previous discussion on the interplay of collaborative technology and collaboration occurring within an organization. In this case study, the author collects both quantitative (experiment) and qualitative (interview) data, integrates the two, and then draws interpretations based on the combined strengths of both sets of data. Data

collected and analyzed using this approach is more rigorous and epistemologically sound, thus advances our understanding of the research issue.

The research site of this study is a technology commission that provides and facilitates technological services and innovations in two local governments in Midwest U.S. It is selected because of its innovative organizational culture, committed leadership in technology innovation, and the organizational goal of better serve the community.

Data Collection

This study adopts an intervention mixed methods design that consists of a pretest-posttest quasi-experimental intervention with qualitative data collection both before and after the intervention. Figure 1 displays the detailed research process. Two divisions of the organization were recommended to participate in this study. Under each division, two departments were suggested and randomly assigned to the treatment group and control group by tossing a coin. This procedure ended with four participating departments in total, among which two were treatment groups (11 participants), and two were control groups (9 participants).

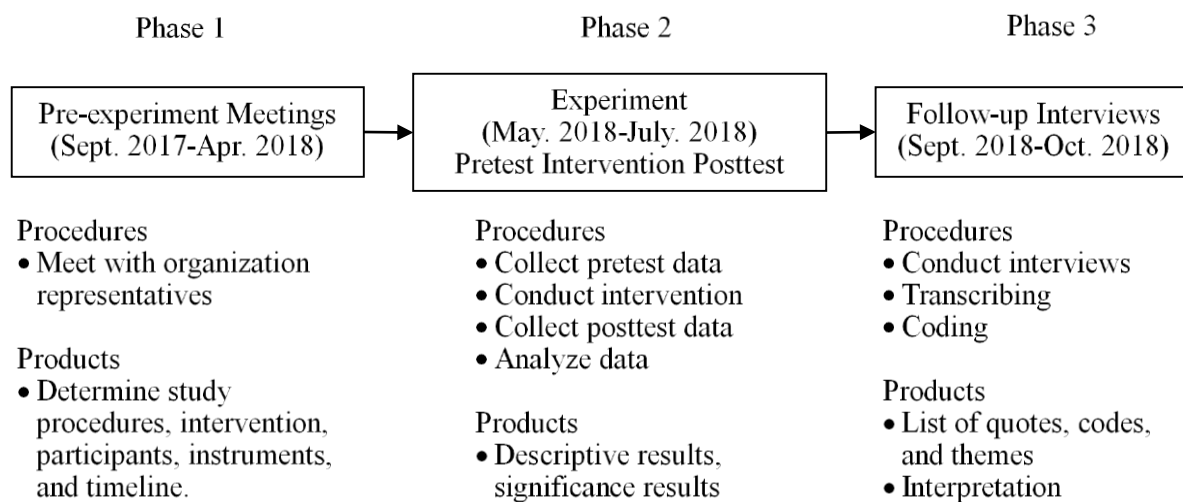


Figure 1 Research Process

All participants were told to do a departmental-level strategic planning task using either a new collaborative technology (treatment groups) or the previous technology they utilized in the past for the same task (control groups). This task has been done at the department level biennially in the organization. There is no need for inter-departmental collaboration in doing this task. Previously it was the responsibility of department heads but starting from this year the organization tries to involve department employees in the planning process. To do it, participants need to work with their colleagues in the same department to develop a strategic planning report to the organization within five weeks.

To make sure what is measured are what intended to measure, before or during the study, participants in treatment groups did not have any training or guidelines about the use of the new collaborative technology. They were only given the new technology and asked to use it in doing the task. This ensures that all participants, either of the treatment or control groups, could have as an identical departmental arrangement as possible. All groups were surveyed via Qualtrics before and after the intervention about their perceptions on the departmental and technological environment, along with the role of technology they used in accomplishing the task.

Findings from the pre and posttest surveys could tell how participants felt about the use of technology in intraorganizational collaboration activity such as the strategic planning task. However, they failed to demonstrate how participants utilized the technology and why they perceived that way. To further explain the “how” and “why” questions, follow-up semi-structured interviews were then conducted with all survey participants. The average interview length is about 24 minutes, with the shortest one takes 17 minutes, and the longest one takes 43 minutes. Results from the interviews contribute to explain the quantitative findings collected in pretest and posttest surveys.

Data Analysis

In analyzing pretest and posttest survey data, the Wilcoxon Signed-rank Test and Paired-samples T Test are conducted to see the overtime trend in treatment groups and control groups. When comparing treatment groups with control groups, the test used is Independent Sample T-test and Mann-Whitney U Test depending on the normality of data.

For interview data, all interview recordings are transcribed and then open coded in MAXQDA12, one of the most popular qualitative data analysis tools. Open coding ensures codes and themes emerge directly from the raw data thus increases the validity of the work.

Findings

Experiment Findings

At the quantitative stage, the focus is to explore *How the new collaborative technology affects collaboration process and performance?* Instruments and measures adopted in the pretest and posttest survey were built on insights from previous collaboration and public information management literature. The level of interactiveness of the collaboration process was measured using communication, common understanding, shared knowledge, and interpersonal relationship. Collaboration performance was evaluated from the angles of trust, accountability, time-saving, and contribute to achieving collaboration goals. The 10-level Likert Scale was used in the above measurement. Survey questions asked participants' perceptions on the overall departmental and technological environment, their experience of doing the invention in the past, the interactions they have this year in accomplishing the assigned intervention, along with the role of technology they used this year in the process.

In the past, department heads from both control and treatment groups used Google Docs to do the strategic planning task. This year, treatment groups were asked to use a new collaborative software calls Quip while control groups continued using Google Docs. Besides, all groups this year were encouraged to fully engaged internally. Figure 2 displays the results before and after the intervention.

When looking at the overtime trend, control groups this year reported an increased level of trust in using Google Docs ($p=0.020$) and a significantly improved feeling of the fitness between Google Docs and task needs ($p=0.030$). Treatment groups, however, had a significantly decreased level of communication ($p=0.019$) and shared knowledge over time ($p=0.041$). The new technology they used this year was reported to be less easy to use ($p=0.027$), incompatible with existing systems ($p=0.033$), and could not fit well task needs ($p=0.037$). It seems to be less needed in doing the assigned task ($p=0.005$), less supported by department leadership ($p=0.009$), and ineffective in saving time ($p=0.012$) and achieving task goals ($p=0.015$).

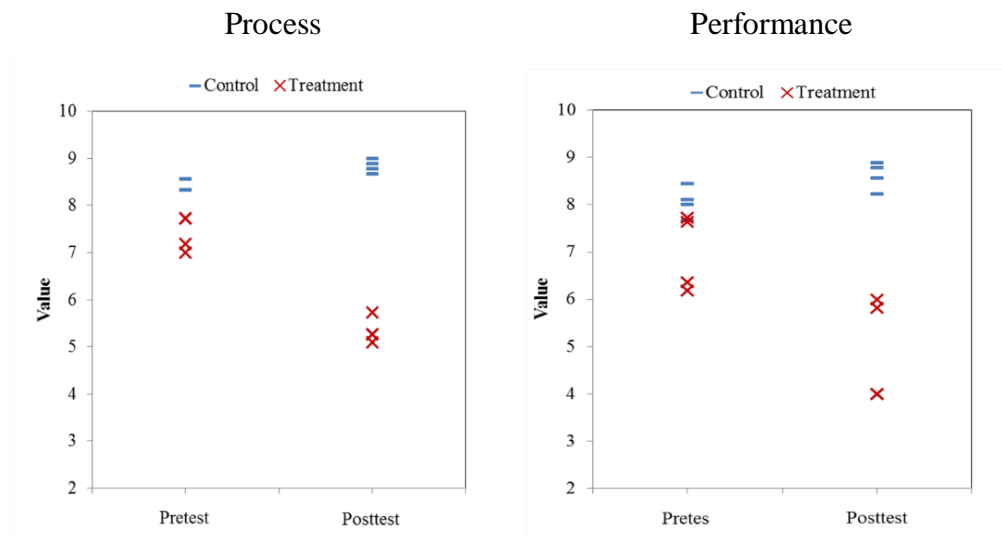


Figure 2 Pretest and Posttest Survey Results

When comparing treatment groups with control groups, even though treatment groups adopted a new collaboration technology, it turned to be less easy to use, incompatible with existing systems, and incapable of fitting well the task needs, compared with Google Docs used by control groups. Considering its effects on collaboration process, it significantly decreased employees' communication ($p=0.006$), common understanding ($p=0.004$), shared knowledge ($p=0.004$), and interpersonal relationship ($p=0.004$). For collaboration performance, it also negatively affected employees' trust in each other ($p=0.019$) and the achievement of goals ($p=0.017$). Besides, it is ineffective in saving time ($p=0.000$). The findings show that new collaborative technology is less needed ($p=0.001$) and supported by department leadership ($p=0.001$). Also, the funding issue is a big concern ($p=0.00$). Overall, compared to emails and Google Docs used by control groups, the use of new collaborative technology was reported to significantly hamper treatment groups' collaboration interactions and performance in doing the task.

Interview Findings

The survey findings inspire the research interest in understanding *why the use of new collaborative technology failed to benefit collaboration process and performance, and how such a result might be affected by organizational and technological factors*. Focusing on knowing the above “why” and “how” questions, the author administered semi-structured interviews with all survey participants in Fall 2018.

Surprisingly, employee participants in treatment groups complained that they did not see any collaboration in doing the task this year. "I don't have an opportunity to really sit down and plan." "I was not involved in the planning of it." This resulted in a limited experience of using Quip, the new collaborative technology. For example, some of them told the author that

“organizationally we just didn’t come together to use it (Quip).” “Never used it.” “For the documents that were in Quip, I reviewed, but I don’t know that I put any edits within the documents themselves.”

In contrast, control group participants were glad to see encouraged engagement and inclusive participation in accomplishing the assigned task. They shared that “we had a meeting, in person first...put it out for everybody and then took feedback.” “We just did it in our normal...team meeting...We reworded a few things and switched a few things around.”

Several factors were identified as roadblocks of the use of the new technology in treatment groups. Some interviewees mentioned that they do not have time to learn it, “I had a difficult time finding time to understand how to use this.” Part of the reason could be they did not see the needs or benefits of using it, “it just wasn’t enough advantage with Quip to make it worth that effort.” Another reason might be a lack of commitment they saw from the department leadership side. “[G]iven our time constraints, our manager was not actively soliciting that information.” Reasons like no time to learn, no need to learn, and lack of leadership support helped explain why they reported limited knowledge about the new technology, “I can learn something, but I don’t know enough now.” Together, these factors brought in a possible misunderstanding of the features and values of the new technology, and some believed that “it didn’t match our business need.”

In fact, participants who did have certain experience with the new collaborative technology spoke highly of it. “Yeah it was pretty easy from what I looked at and saw...it was pretty compatible with what I saw and what they were really using it for...From what I saw and played around with it, it did everything, I would want it to do.” “From a collaboration and

communications standpoint I liked it, if I can recall back when I used it. So, easy to access, easy to functionality... easy functionality to get around, easy to download stuff.”

However, people without much experience with the new technology tended to give a low evaluation regarding its effects. One interviewee told the author that “in my belief it had little impact, just because we didn’t use it. Not that it couldn’t have, but we just didn’t.” Others were less willing to assess as they said: “I don’t know that I’d looked at it in enough detail to really come to and give you a true honest assessment to say I see or did not see a weakness.” “I didn’t use it enough to be able to make a fair judgment.” This finding helped interpret the decreased level of overtime perceptions of treatment groups on the role of technology in the collaboration process and performance. More importantly, it demonstrated a lack of real intraorganizational collaboration within treatment groups. This unexpected condition could impair the interest and incentive of participants in participation; it also discouraged them from spending time on and using the new technology.

Looking forward, interviewees shared thoughts on how to ensure an effective transition from old technology to a new one. Four most commented suggestions are stakeholder engagement, sustained leadership, mechanisms of facilitating learning, and planning. Interviewees were interested in participating, “I think, if anything, getting everybody involved in the initial discussion was a good step.” From the participation, they could get “a little more ownership and a little more accountability, and a little more pride.” Interviewees also expressed strong expectation of sustained and supportive leadership throughout the whole project. “Leadership. Yeah, I think we didn’t have. And that wasn’t defined very well.” “[T]he manager’s insistence...So it’s both the expectation and follow through from management to use the product...sustainable leadership.”

What's more, they emphasized the importance of learning either via departmental training or self-learning by saying “we need additional understanding of the functionality” “[T]rain people...So we would need to identify what are our current needs, and what are our current requirements, and what of those requirements and needs are our current toolset not capable of meeting?” Besides, there is a need for a project plan that defines expectations, goals, roles, process, and timeframe. “It’s just like having a project plan. You say: how are we going to communicate? How often are we going to do it? What’re our goals? What do we need to accomplish? Who’s responsible for what?”

Additionally, interviewees highlighted the significance of having face-to-face conversations, in addition to online communication. “[S]ome internal conversations that could’ve helped encourage a different level of participation. At least give it a shot. I don’t think we took those preparatory steps.” “We still expected to have a personal, just talking in the hallway type conversation...And then he edited within Quip.”

Integrated Results

The use of a mixed methods approach helps achieve more effective inquiry than quantitative or qualitative method alone. As is indicated above, the findings of the experiment show how the use of new technology affects group interactions and performance in accomplishing the intervention. However, they fail to demonstrate how participants utilized technology and why they perceived that way. Follow-up semi-structured interviews focus on addressing the "how" and "why" questions and the findings did help substantively interpret the quantitative findings. Overall, this study indicates that the use of collaborative technology does not guarantee better collaboration process and performance. Good results require supportive organizational and technological environment such as sustained leadership, planning, stakeholder

engagement, and mechanisms of communication and learning. Among them, commitment from all collaboration parties to real collaboration and engagement is the key. These are also critical lessons for a smooth organizational transition from an old technological tool or system to a new one.

Conclusions

A study on technology effectiveness in collaboration is timely and significant, given the amounts of annual public spending on ICT programs and the citizen demands of increasing efficiency and effectiveness at all levels of government. This study aims to explore how and under what conditions the use of new collaborative technology affect the collaboration process and performance. It captures real-world human interaction and reflects collaboration difficulties and the struggle with new technologies in a real organization context. Findings of it display high ecological validity and provide insights into developing contextual hypotheses. They also add to the knowledge gained from existing literature on technology effectiveness and the interplay of technology and collaboration.

Practically, the identified factors influencing successful technology transition could help organizations strategically adjust efforts to produce more interactive collaboration process and better collaboration performance, with the help of collaborative technology. Additionally, public managers can find this study conducive in self-assessing their organizational and technological environment and identifying potential advantages and challenges before investing in new collaborative technology.

This study is one of the first few studies to empirically examine technology effectiveness and influencing conditions using a mixed methods approach. Prior e-government and collaborative governance studies, to some extent, are limited to either case studies or surveys.

More robust mixed methods approach is often underutilized due to its complexity and durability in conduction. In this study, a case study with rich real-world experiment and interview data offers a rigorous examination of the use of new technology in collaboration and the determinants of its effects.

However, a critical limitation of this study is a modest claim to internal validity, due to the participating groups are not purely randomly chosen. Generalizability is also a problem, as the identified influencing factors may not apply to other cases or groups. The sample size of this study is not large enough for testing statistical relationships between variables. Meanwhile, this study is limited to individual level collaboration, which may not apply to the group level collaboration stories. These concerns motivate a substantial sample examination to understand better how and under what conditions the use of collaborative technology affect internal individual and group level collaboration process and performance. The future research may complement this study with a large-scale survey that allows for a hypothesis test as well as a more rigorous result.

References

- Ansell, C., & Gash, A. (2008). Collaborative governance in theory and practice. *Journal of Public Administration Research and Theory*, 18(4), 543-571.
- Bozeman, B. & Bretschneider, S. I. (1986). Public management information systems: Theory and prescription. *Public Administration Review*, 46, 475-487.
- Bretschneider, S. I. (1990). Management information systems in public and private organizations: An empirical test. *Public Administration Review*, 536-545.
- Bretschneider, S. I. & Mergel, I. (2011). Technology and public management information systems: Where we have been and where we are going. In D. C. Menzel & H. L. White (Eds.), *The state of public administration: Issues, challenges, and opportunities* (pp. 187-203). New York: M.E. Sharpe, Inc.
- Chen, Y. C., & Lee, J. (2018). Collaborative data networks for public service: Governance, management, and performance. *Public Management Review*, 20(5), 672-690.
- Chiu, M. L. (2002). An organizational view of design communication in design collaboration. *Design Studies*, 23(2), 187-210.
- Coursey, D., & Norris, D. F. (2008). Models of e-government: Are they correct? An empirical assessment. *Public Administration Review*, 68(3), 523-536.
- Emerson, K., Nabatchi, T., & Balogh, S. (2012). An integrative framework for collaborative governance. *Journal of Public Administration Research and Theory*, 22(1), 1-29.
- Emerson, K., & Nabatchi, T. (2015). *Collaborative governance regimes*. Washington, D.C.: Georgetown University Press.
- Ho, A. (2002). Reinventing local governments and the e-government initiative. *Public Administration Review*, 62(4), 434-444.

- Kraemer, K. L., & Dedrick, J. (1997). Computing and public organizations. *Journal of Public Administration Research and Theory*, 7(1), 89-112.
- Kraemer, K., & King, J. L. (2008). Information technology and administrative reform: Will e-government be different?. In D. Norris (Ed.), *E-government research: Policy and management* (pp. 1-20). Hershey, PA: IGI Publishing.
- Layne, K., & Lee, J. (2001). Developing fully functional e-government: A four stage model. *Government Information Quarterly*, 18(2), 122-136.
- Mergel, I. & Bretschneider, S. I. (2013). A three-stage adoption process for social media use in government. *Public Administration Review*, 73(3), 390-400.
- Mitchell, G. E., O'Leary, R., & Gerard, C. (2015). Collaboration and performance: Perspectives from public managers and NGO leaders. *Public Performance and Management Review*, 38(4), 684-716.
- Moon, M. J. (2002). The evolution of e-government among municipalities: Rhetoric or reality?. *Public Administration Review*, 62(4), 424-433.
- Norris, D. F., & Reddick, C. G. (2013). E-democracy at the American grassroots: Not now... not likely?. *Information Polity*, 18(3), 201-216.
- O'Leary, R., & Vij, N. (2012). Collaborative public management: Where have we been and where are we going?. *The American Review of Public Administration*, 42(5), 507-522.
- Reddick, C. G., & Norris, D. F. (2013). Social media adoption at the American grass roots: Web 2.0 or 1.5? *Government Information Quarterly*, 30(4), 498-507.