

Empowering Communities: Public Libraries, Inclusive Civic Engagement and Artificial Intelligence

Introduction

We are submitting an applied research project proposal titled “Empowering Communities: Public Libraries, Inclusive Civic Engagement and Artificial Intelligence” to the National Leadership Grants for Libraries program. It is submitted by the Center for Technology in Government at the University at Albany (CTG UAlbany) in partnership with the Urban Libraries Council. The project aims to understand the role of public libraries in fostering critical and inclusive civic engagement in Artificial Intelligence (AI) initiatives, including their design, implementation, governance and evaluation. Three research questions guide the study: 1) what role may public libraries play in increasing knowledge about AI in the community?, 2) how may public libraries foster inclusive civic engagement in AI initiatives?, and 3) what are the opportunities, threats, benefits, and challenges of public libraries leading inclusive civic engagement in AI initiatives? The project, with a total budget of \$637,469.95, will start in August of 2023 and continue for three years. Project results will include four case studies, one comprehensive report, and one Practitioners’ Guide. The project will also deliver two dedicated websites and several digital products, which will help disseminate the results and reach a wide and diverse audience.

Our research proposal falls under IMLS Strategic Goal 2 (build the capacity of libraries and archives to lead and contribute to efforts that improve community well-being and strengthen civic engagement) and objective 2.2 (develop or enhance collaborations between libraries and stakeholders, and leverage opportunities to address community needs). We argue that public libraries may play a critical role in leading efforts that pursue inclusive civic engagement in AI initiatives. Participation of different stakeholders, including individuals from marginalized groups, is key to understand and address some of the negative consequences from using AI, such as discrimination, bias, and other related harms and, consequently, the lack of trust in AI. It is also key to leverage potential benefits that allow to better address community needs and improve community well-being.

In the following pages, we present our project narrative. In doing so we explicitly address the comments made by five reviewers to our pre-proposal.

Project Justification

In today’s digitized world, the use of AI has become popular in various industries (from healthcare and education to public safety, finance, and the arts) to assist, or even replace, human actions and decision-making. Although there is no consensus about its definition, AI generally is thought to refer to “a machine-based system that can, for a given set of human-defined objectives, make predictions, recommendations or decisions influencing real or virtual environments” (National Artificial Intelligence Act, 2020). As a scientific discipline, AI includes a range of techniques, including machine learning, machine reasoning, and robotics. However, the aspect of AI generally discussed in the public sphere is machine learning, an algorithmic field that blends ideas from statistics, computer science and several other disciplines to design algorithms that process data, make predictions, and support decision-making (Jordan, 2019).

The literature has broadly addressed the potential benefits of AI. For example, by taking over repetitive tasks, AI can increase their consistency and reliability (Taddeo & Floridi, 2018). By using machine learning and data analytics, AI can also consider different types of data and look for underlying trends, which may help to analyze specific issues and solve complex problems (West & Allen, 2018). Some popular examples of AI applications include intelligence analysis for national defense, diagnostic imaging tools in healthcare, autonomous vehicles, verification of eligibility for social welfare, combating fraud, and predicting the likelihood of crimes in neighborhoods (Campion et al, 2020; Henman, 2020; Wirtz & Muller, 2019; West & Allen, 2018). Further, AI has the potential to bring important benefits to under-served populations, advancing equal access to public services such as health, education, social assistance, or public transportation (Gibbons, 2021).

Despite its potential benefits, the pervasive use of AI systems has also urged discussions on the many different types of risks that they entail, such as data privacy and security concerns (Gravrock, 2022), economic challenges related to costs and investments associated with the use of AI, and particularly AI-related societal and ethical implications (e.g., Champion et al., 2020; Sun & Medaglia, 2019; Dwivedi et al., 2021; Wirtz et al., 2019). Previous research has acknowledged risks based on the impact of AI on moral principles as well as political, legal, and policy challenges,

such as the ones linked to the lack of policy regulations as well as changes in accountability (e.g. Sun & Medaglia, 2019; Dwivedi et al., 2021; Wirtz et al., 2019). The literature has also referred to issues involving existing societal norms and attitudes toward the adoption of AI in different fields, such as unrealistic expectations toward AI, a societal misunderstanding of the capabilities of AI, potential job losses, and increasing inequality (e.g., Sun & Medaglia, 2019; Dwivedi et al., 2021; Wirtz et al., 2019).

Of particular relevance are the serious concerns that AI systems may run the risk of replicating and even amplifying human bias¹, therefore perpetuating structural inequalities and particularly harming marginalized communities² (Lee et al., 2019; Crawford et al., 2016). Bias in AI manifests through design choices and training data used by software programmers (Diakopoulos & Friedler, 2016). If the training data are misrepresentative, incomplete or flawed, they may lead to decisions that can have a collective, disparate impact on certain groups of people (Lee et al., 2019; Roselli et al., 2019), even if the programmer does not have any intention to discriminate or exacerbate inequality. For example, a study on facial recognition software, trained using data of mostly lighter male faces, demonstrates that the AI system performs more accurately on lighter male faces compared to darker male faces (Buolamwini & Gebru, 2018). Such misrepresentation in facial processing technology can give rise to discrimination in a range of services using face detection, such as policing (Završnik, 2020). Dependence on flawed data has also been highlighted in the case of social welfare services where datasets used to develop a scoring system only included people receiving the public benefits, not private services (Eubanks, 2018). The challenges of bias in AI systems are exacerbated due to the technical complexity of algorithms and machine learning, which makes it difficult to understand the inherent decision-making logic (Ada Lovelace Institute et al., 2021; Bleicher, 2017).

The implications of bias in AI systems are important because, in addition to producing negative effects for specific individuals, they may also result in perceptions of unfairness and, therefore, may prevent citizens from trusting AI systems (e.g., Lockey et al., 2021; Silberg & Manyika, 2019; Lee, 2018). Yet, for AI to realize its potential benefits, it needs to be trusted by governments and enterprises as well as citizens directly or indirectly impacted by it (Chintada, 2021). To overcome the risks of AI systems, several ongoing and recent international and US-based efforts have been launched to develop ethical governance standards for the use of AI (e.g., European Commission, 2019; National Artificial Intelligence Initiative, n.d). Among other recommendations, they encourage the participation of individuals and groups across sectors and disciplines to provide opportunities to include the expertise and experience of all stakeholders. Recent research also suggests there is a need to diversify the AI field itself. As Manyika et al. (2019), state: “a more diverse AI community would be better equipped to anticipate, review, and spot bias and engage communities affected” (p. 6). This will require investment in raising awareness, training, and opportunities to engage with AI (Lockey et al., 2021; Manyika et al., 2019).

Although scholars and practitioners prescribe public engagement in AI to better identify potential harms, improve the quality of datasets, and better address community needs (Birhane et al., 2022; Ulnicane et al., 2022; UNESCO 2021; Ada Lovelace Institute et al., 2021), there are no clear strategies to engage communities in AI initiatives (Wilson, 2022)³. The discussions on overcoming AI bias, especially to address the harm to vulnerable populations, have encouraged scholars to explore the possibility of meaningfully engaging citizens in AI-related issues (Brandusescu & Reia, 2022). For example, the direct participation of citizens in ensuring fairness and transparency of AI systems is part of AI frameworks at the national and local level (Wilson, 2022; Gilman, 2022). These engagement activities include soliciting citizen feedback and holding public consultations (Wilson, 2022). Another approach to involve the public includes external algorithmic audits, which involve evaluating the accuracy, interpretability, and unintended consequences of AI systems (Engler, 2021). However, these participatory approaches and engagement activities with residents are often limited to AI-related research settings. In the absence of structured participation, tech workers and activists have organized themselves to ban the discriminatory use of AI systems (Gilman 2022). For instance, Amazon employees, citing violation of human rights, demanded their employer to stop selling facial recognition software to law enforcement (Vincent, 2018).

¹ Following Lee et al. (2019), we define bias broadly “as it relates to outcomes which are systematically less favorable to individuals within a particular group and where there is no relevant difference between groups that justifies such harms” (p. 2).

² Marginalized communities include people of color, immigrants, people with disabilities, and LGBTQ+ groups.

³ We define an AI initiative as any project or strategy that involves the use of AI systems and that may harm or benefit its users. Some examples include, but are not limited to, the use of robots in public spaces, interaction with customer service chatbots, AI-based automated decision-making in social and health services, facial recognition identification, and voice-assisted smart phones. We also define civic engagement as individual and collective actions designed to identify and address issues of public concern (Delli, 2016).

Yet, these efforts have been limited, have faced several challenges, and have often ignored the participation of marginalized populations, who are not well represented in the design, development, and evaluation of AI systems. For example, research on New York City’s Automated Decision System Task Force demonstrates lack of planning in meaningful engagement with the public, including not providing basic information on the AI systems used by city agencies (Richardson, 2019). Limited technical knowledge, combined with proper mechanisms of participation, is also considered an important challenge to involve the public (Ada Lovelace Institute et al., 2021). This is particularly concerning for marginalized communities as they often face multiple barriers such as lack of time, cost of transportation, and limited technical or scientific knowledge (Gilman, 2022).

In addition to a lack of studies that address inclusive engagement in AI initiatives, the literature seems to also be limited in exploring the spaces where this public engagement may take place. So, based on CTG UAlbany’s previous research on the role of public libraries in improving open governments ecosystems (Burke et al., 2014) and in developing smart communities (e.g., Gasco-Hernandez et al., 2022; Mersand et al., 2019; Yerden et al., 2019), we argue that public libraries are trusted learning spaces and community partners that may lead critical and inclusive civic engagement in AI initiatives, including their design, implementation, governance, and evaluation. Over the years, public libraries have evolved to incorporate the needs of the digital age, and are now optimally placed to shape and lead inclusive civic engagement in AI to address the needs of their communities.

Public libraries are at the forefront of ensuring digital equity and inclusion (Public Library Association, 2020). Libraries have historically been instrumental in providing their communities with access to cutting-edge technologies such as the Internet, makerspaces, interactive media, and virtual reality. Scholars and practitioners also recognize the importance of libraries in advancing digital access, digital literacy, and digital inclusion (e.g., Gasco-Hernandez et al., 2022; Yerden et al., 2021; Stover et al., 2020; Andunson et al., 2019; Strover et al., 2019). Many public libraries offer not only access to computers and other equipment, but also classes to learn specific technology tools and software that help individuals improve digital skills. Now, libraries have started to explore their potential role in AI and algorithmic literacy by offering workshops, classes, and events (Ridley & Powlick-Potts, 2021).

Public libraries also provide spaces of collaboration where multiple stakeholders share resources and actively engage with public local issues (Gasco-Hernandez et al., 2022). They serve as a gathering place for individuals to exchange ideas and foster discussions through events and programs and promote diversity by encouraging a comprehensive understanding of various perspectives (Hernández-Pérez, 2022; Scott, 2011). More importantly, public libraries provide a safe space for marginalized communities and assist them in learning new skills and accessing government services, among other important roles (Shen, 2013). For instance, research suggests that public libraries empower immigrants by offering language classes, job skills, and space to make friends (Grossman et al., 2021). In addition, public libraries’ role in the social inclusion of vulnerable communities such as the unhoused population (ALA, n.d) and the LGBTQ community (Winklestein, 2019) is well documented.

Existing features of public libraries can be leveraged to foster inclusive civic engagement in AI initiatives, which could help to address potential harms and realize potential benefits for all. Some public libraries are already offering programs aimed to raise awareness about AI among the public. It is the case of the AI Maker Kits in the Frisco Public Library, the humanoid robots in the Roanoke Public Libraries, and the coding classes in the Berkeley Public Library. However, most of these programs focus on technological aspects instead of on societal implications and ethical considerations (Urban Libraries Council, 2019). In this respect, a different direction has been taken by the Queens Public Library in New York, who in partnership with the New York University, has implemented the “We are AI” series. This five-week course focuses on the societal and ethical dimensions of AI in modern life and has the objective of empowering individuals to engage with AI (Queens Public Library, 2022). The Seattle Public Library also hosts events, such as the Emerging Technology 101, to introduce the public to applications of blockchain and artificial intelligence technologies as well as important related issues, such as digital privacy (Seattle Public Library, n.d). However, the existing programs do not explicitly address how the engagement of citizens and other stakeholders in AI initiatives may take place. Neither do they particularly include marginalized communities or address their specific concerns.

Thus, our proposed research project builds on the idea that public libraries can serve as catalysts that contribute to improving community well-being by strengthening critical and inclusive civic engagement in AI initiatives. Three research questions guide this study:

1. What role may public libraries play in increasing knowledge about AI in the community?
2. How may public libraries foster inclusive civic engagement in AI initiatives?
3. What are the opportunities, threats, benefits, and challenges of public libraries leading inclusive civic engagement in AI initiatives?

Project Work Plan

We propose a three-year applied research project. During this timeframe we will conduct the following four activities. Our study will require Institutional Review Board (IRB) approval. We have been in contact with our University at Albany Office of Regulatory and Research Compliance regarding this proposal and will submit the appropriate human subject research protocol as soon as we learn if IMLS has funded our project.

1. **Mapping exercise** (six months): To effectively identify and assess the role of public libraries in raising awareness about AI and fostering inclusive civic engagement in AI initiatives, we will start reviewing public documents and library websites to map the existing AI-related programs offered by public libraries.
 - a. **Public documents:** AI-related programs and events offered by libraries are available through reports and briefs published by library associations at the national and international levels. We will aim to conduct a review of available documents to identify the libraries offering AI-related programs/services and events.
 - b. **Library websites:** Public libraries are offering ad-hoc classes on AI or organizing events on AI-related topics as part of their technology programs. Such information is often not captured in the published reports. Therefore, we plan to search websites of public libraries to identify AI-related information.

Among others, the following questions will guide our mapping process: 1) What are the main types of AI programs/services offered in public libraries?, 2) what is the purpose of the AI programs/services and who are the intended users?, 3) what are the main components of the AI programs/services?, and 4) do the AI programs/services include individuals from marginalized communities and address the potential negative effects of AI systems?

2. **Case studies** (13 months): One of the most appropriate ways to address innovative and underexplored research questions is through a qualitative case study (Marshall & Rossman, 2011). Qualitative case studies are well suited to respond to ‘what’ (descriptive) and ‘how’ (explanatory) questions and allow for in-depth examination of those questions while leaving room for unexpected interesting findings that can form the basis for concrete hypotheses to be tested in future research (Yin, 2013). Four qualitative case-studies across the United States will be selected according to five criteria: a) size of library, b) geographical diversity, c) current AI programs/services, d) population diversity, and e) research access.
 - a. **Size:** Although focusing on urban areas, we aim at having representation of the different types of public libraries that can be found within the United States as a way to guarantee that the results of our research will benefit and will be useful for a wide range of libraries across the country.
 - a. **Geographic diversity:** We have learned from past projects that context matters. This is particularly important in the case of libraries (e.g. Delrieu & Gibsen, 2017; Buckland, 1999). Studying the role of libraries in fostering inclusive civic engagement in AI initiatives requires understanding the different dynamics of diverse communities and, therefore, considering context/location as a factor to examine. Our case studies will include libraries in different cities across the United States with the aim of also comparing how context may influence the role public libraries may play in promoting critical and inclusive civic engagement in AI initiatives.
 - b. **Current AI programs/services:** Public libraries that are already offering programs/services related to AI are a good starting point to analyze how libraries could foster inclusive civic engagement in AI initiatives. The study of their practices, benefits, and challenges will deepen our understanding of how participation of public libraries in AI initiatives is currently taking place and what opportunities of improvement/development lie ahead.
 - c. **Population diversity:** Cases will be selected in cities with diverse population to ensure access to and participation of marginalized communities in the study. Research shows that important features that

determine AI bias are poverty and race (e.g., Fountain, 2022), which we will particularly take into account.

- d. **Research access:** Access is an important variable in any case selection process. Without the right access it would be impossible to conduct a successful research project and produce useful results. Therefore, we have selected a set of libraries in cities where ULC or CTG UAlbany may have an existing or emerging network of contacts who will grant research access.

Preliminary identification has already been done in partnership with the Urban Libraries Council and four libraries have been initially chosen⁴:

- a. **Frisco Public Library (Texas):** Frisco Public Library in Texas serves a diverse population of 151,030 residents, 3.5 percent of who are in poverty. According to the recent US Census Bureau, the city has a diverse population of 57 percent white, 24 percent Asian, 13 percent Hispanic, and 8 percent Black inhabitants. In terms of AI programs/services, Frisco Public Library has won a national award on their AI program (<https://www.lonestarliterary.com/content/frisco-library-s-ai-program-wins-national-award>). Specifically, the library offers an AI maker kit with a smart speaker that allows patrons to explore Google AIY services at home. The kit includes some instructions and basic step by step directions on how to add a simple skill to the smart speaker using a few lines of Python code. In addition, the library has offered classes that use different platforms to assist patrons to understand how AI is trained to respond to various inputs (for more information see <https://www.urbanlibraries.org/innovations/making-artificial-intelligence-approachable>).
- b. **Queens Public Library (New York).** Queens Public Library, considered one of the busiest public library system, serves over a million people of different ethnicities through its 65 locations in New York City. According to US Census Bureau, Queens County has 47 percent White, 28.1 Hispanic, 27.3 percent Asian, and 20.7 percent Black population. In addition, 13.6 percent of the population is considered to be in poverty. In 2022, the library partnered with New York University to offer a five week “We are AI” course to educate the public about the societal and ethical dimensions of AI. The course covered five modules: What is AI, Learning from Data, Who Lives Who Dies Who Decides, All about that Bias, and We are AI. In addition, the course included short videos to explore such topics as defining AI, learning from data, ethics in AI, and bias in AI. The course was intended to serve as a primer to understand how AI makes decisions, ethics in AI and racism and gender bias in decision making (for more information, see <https://www.queenslibrary.org/about-us/news-media/blog/2482> and <https://dataresponsibly.github.io/we-are-ai/>).
- c. **Roanoke Public Library (Virginia):** Roanoke Public Library in Virginia serves approximately 100,000 residents comprising of 87.2 percent White, 6.7 percent Black, 3.6 percent Hispanic, and 3.8 percent Asian. In addition, 8.10 percent of the population is considered to be in poverty. It was the first library in the US to recruit a humanoid robot to assist in providing library services and introduce AI to the public (<https://www.wsls.com/news/2018/08/30/pepper-the-humanoid-robot-comes-to-roanoke-county-public-library/>). The robots were introduced to answer questions but were quickly used in STEM presentations and coding classes too. Children and adults can program the humanoid robots to perform tasks such as reading a story. In addition, in June 2021, the library also organized an AI for Business event to discuss how businesses are using AI for problem solving and customer service (see <https://roanokecountyva.libcal.com/event/7799643>).
- d. **Palo Alto City Library (California):** Palo Alto City Library serves a diverse population of 69,000 people with 52.5 percent White, 35.1 percent Asian, 7 percent Hispanic, and 2.1 percent Black inhabitants. In addition, 5 percent of the population is considered to be in poverty. Among the innovative approaches to introduce AI-related technology is the Robo Dojo program, which are python coding classes to program its Dewey and Elsie robots (see <https://library.cityofpaloalto.org/program-robotics/>). The program was moved online during the pandemic. In addition, the library collaborated with the local girls scout troop for their Farmbot Project to build a robot (see <https://library.cityofpaloalto.org/blogs/post/farmbot-is-working/>). The library is now taking a more proactive role in introducing AI, such as AI Storytelling program which will allow students to use AI

⁴ This is an initial proposal. However, the mapping exercise might result in the identification of public libraries that might be considered as more appropriate to include in our research. If that is so, our research design is flexible enough to allow for those potential changes.

tools to generate a story, narration of the story, and images of sections of the story (see <https://paloalto.bibliocommons.com/events/63e3f42b321f232ce03b5837>).

Conducting the four qualitative case studies will be carried out in four steps:

- a. **Develop and validate data gathering protocols** (three months). Interview and focus group protocols will be developed and meetings with libraries and other stakeholders will be held to confirm participation and begin scheduling interviews and planning for the focus groups.
 - b. **Conduct interviews** (four months). Approximately, 10 to 15 on-site interviews with public library staff and other community stakeholders, such as patrons, local government staff, and other community partners, will be conducted for each case (between 40 and 60 interviews in total). Conducting interviews on-site will contribute to a more detailed understanding of the context of each public library. Interviews will focus on four main topics: 1) current and potential AI-related programs/services, 2) citizens' reactions to these programs/services, 3) potential civic engagement opportunities in the design, implementation, governance, and evaluation of AI initiatives, and 4) benefits, costs, risks, challenges, and negative unintended consequences for public libraries and the community at large. Interviews will be recorded (upon permission of each subject) and transcribed.
 - c. **Conduct focus groups** (four months): We will hold two focus group discussions in each community with a diverse group of residents to understand: 1) their knowledge about AI, 2) their experience using AI tools in public libraries and other spaces/purposes, 3) their experience and willingness to engage in the design, implementation, governance, and evaluation of AI initiatives, 4) their perceptions on the role public libraries may play in raising awareness about AI and fostering inclusive civic engagement in AI initiatives, and 5) their perceptions on perceived benefits, costs, risks, challenges, and negative unintended consequences for public libraries and the community at large. In addition, we will engage the participants of the focus groups in each community in different activities of the research project, such as the design of our survey instrument (see below), which will help us to identify important topics, but also enhance the quality of the data collected by having relevant and easy to understand questions.
 - d. **Analyze the data** (two months). Given how little literature there is directly on the role of public libraries in fostering inclusive civic engagement in AI initiatives, we will use a mixed inductive/deductive strategy to code the interview and focus group data. This will entail using the existing literature to code data that matched existing concepts on inclusive civic engagement in the design, implementation, governance, and evaluation of AI initiatives, as well as on the role of public libraries in AI initiatives, while also remaining open to new codes (representing new concepts) emerging from the data, following a grounded theory approach (Glaser & Strauss, 2009). Interviews will be coded using a software called Nvivo.
3. **National survey** (eight months): A national survey, aimed at collecting representative data from approximately 2,000 individuals across the United States, will be conducted in partnership with the Urban Libraries Council and using Qualtrics. The mapping exercise and literature review and, more importantly, the findings of the in-depth case studies will inform the survey design and administration, whose goal will be to collect information on 1) their knowledge about AI, 2) their experience using AI tools in public libraries and other spaces/purposes, 3) their experience and willingness to engage in the design, implementation, governance, and evaluation of AI initiatives, 4) their perceptions on the role public libraries may play in raising awareness about AI and fostering inclusive civic engagement in AI initiatives, and 5) their perceptions on benefits, costs, risks, challenges, and negative unintended consequences for public libraries and the community at large. The survey will help us to understand community needs and priorities as well as to identify potential strategies to initiate meaningful engagement. Such survey will be carried out in two steps:
- a. **Initial piloting and testing of the survey instrument** (four months). Initial piloting and testing of the survey instrument to make adjustments regarding vocabulary, question order, and scales, among others elements of the design, will involve key participants identified during the case studies as well as the members of the Advisory Board. The instrument will be revised and refined accordingly.
 - b. **Administering the survey to approximately 2,000 individuals across the United States and analyzing the results** (four months). The survey will be sent to individuals across the country using Qualtrics. We will build a sampling frame considering relevant socio-demographics variables for the United States such as age, race, ethnicity, gender, and income. The survey will be conducted online and will remain open for two months or until we have 2,000 responses. It will include two sections. The first will ask about

respondents' personal and professional characteristics, including current and past experiences and work histories. The second will reflect key issues identified in the case studies. Finally, survey results will be analyzed using factor analysis, logistic and OLS regression, and Structural Equation Modeling (SEM) techniques.

4. **Project Report, Case Studies, and Practitioners' Guide** (eight months): We will produce four case studies, a comprehensive project report and a Practitioners' Guide. Each case study will provide community-specific findings from the data collection activities in public libraries and their communities. The comprehensive report will focus on the current landscape of AI programs/services in public libraries featuring different approaches to increase awareness about AI and discuss the role of libraries in fostering inclusive civic engagement in AI initiatives, including their design, implementation, governance, and evaluation. In addition, we will produce a Practitioners' Guide, titled "Empowering Communities for AI: The role of Public Libraries in the Promotion of Inclusive Civic Engagement", for community stakeholders, and in particular for libraries, government agencies, and community organizations to provide practical support in designing critical and inclusive civic engagement activities. Among others, the Practitioners' Guide will include information on 1) mechanisms of participation, 2) benefits of engaging communities, 3) challenges of civic engagement, and 4) examples of successful practices of inclusive civic engagement in AI initiatives. We will host two **workshops**, one for library staff from across the United States to get feedback on the Practitioners' Guide and revise it accordingly, and a second one with small, rural, and tribal libraries to ensure transferability to various contexts.
5. **Dissemination** (throughout the project and, particularly, in the last four months): Dissemination activities will take place throughout the funding period, through both academic and practitioner-oriented conferences and academic publications with a national and international outreach. In addition, we will use the following specific tools/spaces to disseminate findings and lessons learned:
 - a. National Webinar Series: ULC will lead three one-hour webinars open to all libraries at regular intervals to provide insights from libraries and researchers who participate in the project. The live webinars and their recordings will be available to the broad public libraries community. Links to the webinar recordings will be available on the dedicated webpage for this project. Registration for each webinar session will be promoted by ULC through its partnership with other library associations, including the Association for Rural and Small Libraries (ARSL) and the Public Library Association (PLA), newsletters, social media channels and partnered communications.
 - b. Allied Local Government Awareness: The partners will build awareness with local government associations including proposing two panels at two to three national conferences and co-hosting a culminating online workshop for local government leaders interested in learning more about libraries and the resulting tools and resources. These allied organizations include the National League of Cities, National Association of Counties, International City/County Management Association and US Conference of Mayors.
 - c. Dedicated website resources: In addition to the CTG UAlbany dedicated website, launching along with the project announcement (at the start of the project's second month), ULC will build a dedicated page to provide an overview, key news, announcements, and impact data from this project. The webpage will share links to all media coverage of the project, blog posts created as part of this project, case studies and sources for further reading and information. The webpage will be sustained by ULC after completion of the grant period.
 - d. *This Week at ULC* e-newsletter: Via its popular e-newsletter, which reaches over 2,900 public library leaders every week, ULC will provide four to six project highlights a year and additional updates as new media, findings and research emerge.
 - e. Social media: The ULC communications team will support the researchers by creating regular posts and strategies to use online social media platforms to disseminate findings using videos/graphics and build traffic visits to both the dedicated project website hosted by CTG UAlbany and the dedicated ULC website landing page. Social media posts will also be shared with partner library associations including PLA and ARSL to invite and amplify awareness.
 - f. Media and press: ULC will work in partnership with the researchers to build media awareness of the role of public libraries in fostering inclusive civic engagement in AI initiatives. This will include issuing a press release to highlight the case studies and co-authoring an article for national publication. In the past, ULC press releases have resulted in extensive high-profile media coverage in recent years, including

reporting by the *Wall Street Journal*, *New York Times*, *Forbes*, *Washington Post* and other leading outlets.

The project will end with a half-day public event. The event will be held remotely to maximize involvement of participants, enable broad diffusion of project's results, increase the potential for impact on practice, and invite libraries studied as part of the research to present their experiences.

Regarding the **composition of the research team**, CTG UAlbany has a successful record of funded research project management and a well-established organizational management structure, based on functional and highly efficient teams. For the proposed project, the management structure is designed to provide direction and control tailored to the specific needs. A two-member Senior Research team (SRT) will be formed for overall management, consisting of the PI, Dr. Mila Gasco-Hernandez, and one co-PI, Dr. J. Ramon Gil-Garcia. The PI will direct the team in the overall execution of project deliverables and will have responsibility for administering the day-to-day operation of the research activities, financial and personnel management, record keeping, and report to IMLS, Research Foundation (SUNY), and the University. The co-PI will support the PI in overseeing the team's execution of all project activities and deliverables. In addition, the research staff will include a Project Manager, Dr. Aryamala Prasad, who will report to the PI. The Project Manager will also act as professional staff to the SRT. Under the direction of the SRT, the Project Manager will participate in the collection of data and preparation of the workshops and other research activities. She will also develop detailed activity plans, organize and run regular project meetings, and prepare progress reports and systematic documentation of actions and decisions. These procedures are in place as part of regular CTG UAlbany operations and have been refined over more than twenty five years of successful funded research and strategic consulting projects. CTG UAlbany formal processes are complemented by a high level of informal communication.

The core research team will also include a Subject Matter Expert, Mr. Brooks Rainwater, from the Urban Libraries Council (ULC). The Council provides a forum for library leaders to share best practices and innovative ideas that inspire programs that support learning, a strong economy, and an active democracy. ULC programs are recognized for creating new frameworks that invigorate public libraries and their communities.

All members of the research team have wide experience in research but, also, in addressing practitioners' needs. Further, some of them have specific experience in research on libraries for they were part of the project "The Role of Public Libraries in Improving Local Open Government Ecosystems" funded by the 2013 Laura Bush 21st Century Librarian Program Grant (award number RE-00-13-0087-139; final report downloadable at https://www.ctg.albany.edu/publications/reports/enabling_open_gov_for_all/enabling_open_gov_for_all.pdf) as well as the project "Enabling Smart, Inclusive, and Connected Communities: The Role of Public Libraries" funded by the National Leadership Grants Program for Libraries (award number LG-96-17-0144-17; toolbox available at <https://www.smartcommunitytoolbox.ctg.albany.edu/>). Also, Mr. Rainwater's expertise will be key in addressing the needs of libraries and in the dissemination of the project's results.

In addition, the research team's work will be supported by the expertise of an **Advisory Board (AB)**, who will provide strategic advice for the multiple stages and activities of the project. It will be composed by leading academic and practitioners in the field of library science as well as experts in AI and civic engagement with technologies. The AB will represent different perspectives: the academy, the public sector, the libraries (including small and rural libraries), and the non-profit sector. The Advisory Board will advise and review the project at the request of the SRT, and will do so mainly through email. The main responsibilities of the AB include:

- Providing requirements and feedback to the project objectives.
- Helping ensure from the outset that the focus and design of the research addresses issues which matter to libraries residents, and other stakeholders.
- Monitoring the main milestones of the project, updating their feedback, and providing the necessary inputs for guiding the project towards the achievement of main objectives.
- Promoting dissemination events and written outputs tailored to the needs of libraries and other stakeholders.
- Reinforcing the link between academic research and practice, guaranteeing the practical implications of the research results.
- Receiving regular updates on the progress of the study and providing feedback on emerging issues.
- Providing a final feedback on results evaluation and expectations for future evolution.

The AB will meet online at the beginning and the end of the project. This second meeting will take place before releasing the final products. In addition, teleconferences with the Advisory Board will be organized every six months.

The following experts have already accepted to be part of the Advisory Board for this project:

- Norman Jacknis, former President of the New York Metropolitan Library Council, Senior Fellow at the Intelligent Community Forum, former CIO of Westchester County NY. Mr. Jacknis's interesting profile mixes different perspectives, that of libraries but also city governments and non-profits, that will be specifically valuable given this project's goals.
- Karma Peiro, Co-Founder of Visualization for Transparency Foundation. Ms. Peiro is an international expert on the use of information technology by governments and citizens. Her latest work focuses on ethics and AI as well as citizen empowerment. In this field, she is a co-author of the report "Artificial Intelligence. Automated Decisions in Catalonia" as well as a member of the Advisory Council of the Catalan Observatory for Ethics in AI. In the last two years she has been leading discussions about AI and inclusive civic engagement in AI initiatives in the context of public libraries in Spain.
- Hanna Roseen, NCW Libraries Branch Librarian in East Wenatchee, Washington, and former member of the Board of Directors of the Association for Rural and Small Libraries. Ms. Roseen's focus is on gender studies, which allows her to apply a gender/class/race/ability perspective to her work as a librarian. Her work in a small library and her knowledge of small and rural libraries' needs will be key for the development of this project.
- Nancy Kranich, Teaching Professor at the Rutgers School of Communication and Information. Professor Kranich's work focuses on the role of libraries in democracies. Her knowledge of libraries is vast given that she served as President of ALA in 2000-2001 as well as a member of many committees on innovation in libraries, community engagement, and public's information rights. Regarding the latter, she has been featured as a tireless champion, speaking out against censorship, filtering, privatization, and other attempts to limit public access to vital information.
- Ricardo Baeza-Yates, Director of Research at the Institute for Experiential AI of Northeastern University. Dr. Baeza-Yates is a worldwide acknowledged expert on algorithmic bias, responsible AI, and AI ethics and serves in multiple boards addressing these topics, such as the Global Partnership on Artificial Intelligence, the Global AI Ethics Consortium, the IADB fAIr LAC Initiative, and the Spain's Advisory Council on AI.

Diversity Plan

Marginalized communities are often not represented in the design and implementation of new technology. Also, in many cases, these communities are negatively affected by initiatives that are supposed to help them, since their views and concerns are not considered. This is not different when referring to AI. In fact, AI has been found to have potential negative consequences for many individuals in society, but particularly for people with certain characteristics, such as not being White or being in poverty. That is why our project is focused on finding a trusted space for these communities to voice their concerns and find support to engage in AI initiatives, including their design, implementation, governance, and evaluation. This is important for all community members, but even more so, for members of certain marginalized groups. Therefore, our project will 1) include libraries that serve diverse communities and will place specific emphasis in engaging individuals with diverse socio-economic, racial, and cultural backgrounds, including Black, indigenous, people of color, and/or immigrants, 2) design interview questions that target the issues of inclusive civic engagement, and 3) identify specific civic engagement concerns of marginalized communities. This will ensure a diversity of perspectives and practices in the project.

In addition, as mentioned in the work plan, we will engage the participants of the focus groups in each community in different activities of the research project, such as the design of our survey instrument, which will help us to identify important questions, but also define challenges or opportunities for the project as a whole. In this process, we will make sure that marginalized groups, such as racial and ethnic minorities and people in poverty, are represented and their concerns are fully considered. Finally, by explicitly acknowledge the potential negative consequences of AI for certain marginalized groups, but also proposing ways to include their voices and address their concerns, this project is contributing to strengthen the field's commitment to diversity, equity, and inclusion practices, particularly in the case of civic engagement in AI initiatives.

Project Results

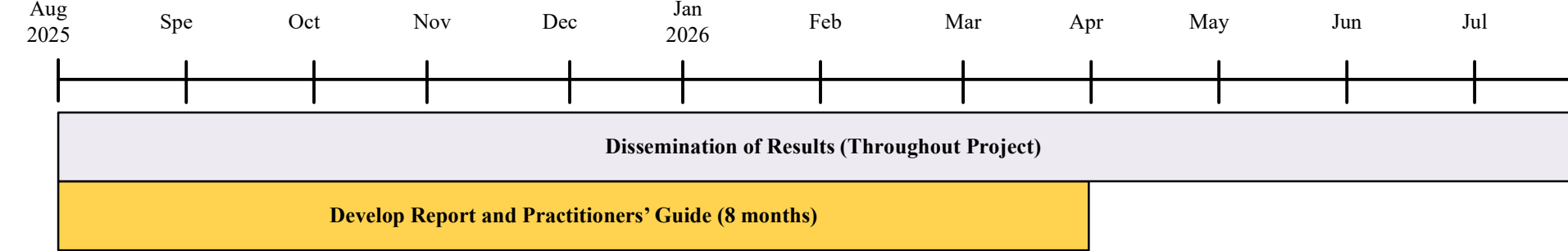
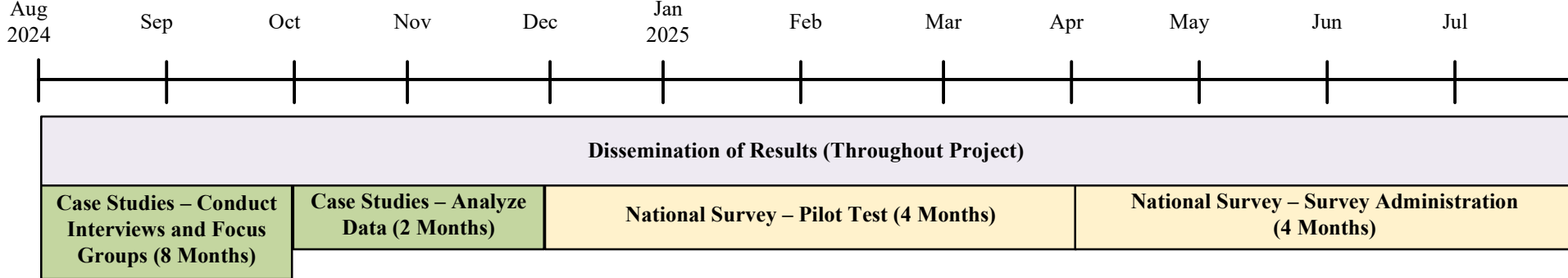
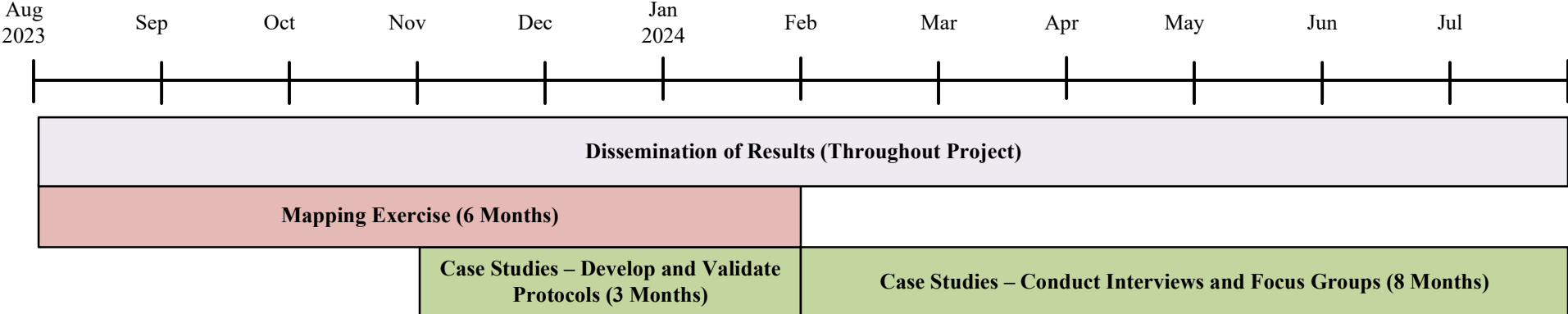
Although public libraries are already playing a significant role in providing access to technology and training, a few successful practical examples are also showing that public libraries may become community catalysts and key facilitators in raising awareness about AI among residents as well as about their potential harms and benefits. The results of this project will expand on these limited experiences and will create **scientific knowledge** on the role of public libraries in fostering inclusive civic engagement in AI initiatives, including their design, implementation, governance, and evaluation. Doing so will require a systematic understanding of public libraries' interests and needs in fostering inclusive civic engagement in AI initiatives as well as an in-depth critical examination of the costs, risks, challenges, and negative unintended consequences for public libraries progressing towards this role.

In addition, our project will also generate **broad impacts and important benefits for society**. First, the project will produce four case studies, a comprehensive report and one Practitioners' Guide, titled "Empowering Communities for AI: The role of Public Libraries in the Promotion of Inclusive Civic Engagement". The four case studies will report the detailed results of our analysis of each of the selected public libraries and their communities, highlighting lessons learned in terms of engaging residents in AI initiatives, including their design, implementation, governance, and evaluation. Similarly, the comprehensive report will include the results of all our proposed activities in this project, including the interviews, focus groups, and the national survey. It will help inform the Practitioner's Guide, which will be a strategic document, providing specific advice. It will provide strategies and practical tools to design and develop a space for communities to voice their concerns on AI and find support to engage with local stakeholders, particularly from marginalized groups. It will include two main sections. The first one will summarize our findings throughout the project, making evident the challenges but, also, the opportunities for public libraries to be proactive and deliberate in evolving the roles they may play in AI initiatives (for an example of a CTG UAlbany Practitioners' Guide, see "Enabling Smart, Inclusive, and Connected Communities: An Opportunity Agenda and Roadmap Report" available at https://www.ctg.albany.edu/media/pubs/pdfs/Policy_Guide-Enabling_Smart_Communities- FINAL.pdf). The second section will include a set of recommendations for public libraries structured along the lines of relevant topics identified over this three-year project, such as mechanisms of participation, benefits of engaging communities, challenges of civic engagement, and examples of successful practices of inclusive civic engagement in AI initiatives.

The products will be previously validated to make them useful to other public libraries and stakeholders. Specifically, as mentioned before, we will host two workshops, one for library staff from across the United States to get feedback on the Practitioners' Guide and revise it accordingly, and a second one with small, rural, and tribal libraries to ensure transferability to various contexts. In addition, we will keep interacting and receiving feedback from our Advisory Board members and research participants in order to constantly improve the products of the project and make them readily adaptable, generalizable, and usable by other libraries and communities nationally. In this respect, our Advisory Board not only includes members with expertise in small and rural libraries, which make up the majority of public library systems in the United States (Swan et al., 2013), and minorities populations, such as Ms. Hanna Roseen, but also members whose work has focused on the bias and inequities brought about by the use of AI, such as Mrs. Karma Peiro and Dr. Baeza-Yates. Further, having Mr. Brooks Rainwater, from the Urban Libraries Council (ULC), as a member of the research team will guarantee national coverage of dissemination of results and, therefore, benefits for other libraries across the United States and society at large.

Finally, in terms of **sustainability** or sustaining the benefits of our project beyond the conclusion of the period of performance, we will follow two paths. First, we believe that having the project's products online will sustain its benefits beyond the funding period. Our goal in this respect is to grow a community of public libraries interested in becoming key partners in fostering inclusive civic engagement in AI initiatives, showing the potential of the project for impact across sizes and complexity of libraries. The two dedicated websites, one hosted by ULC and one hosted by CTG UAlbany, with all the products of this projects will be key in this respect. Second, we expect the results of our project to influence the theoretical fields of emergent technologies, particularly artificial intelligence, and libraries and the areas where these two fields converge (such as information science and library studies, public administration, and computer science). Thus, to sustain the benefits of the project from an academic perspective, we will aim at expanding research on the role of libraries in AI initiatives, for example, by means of international comparative research. We will also explore additional funding opportunities such as the ones offered by several foundations, such as the Ford Foundation, which is particularly interested in the topic of civic engagement. Finally, to sustain the results of the project beyond the funding period, we will also rely on the active community of libraries established through our previous IMLS-funded projects as well as on the Urban Libraries Council's network.

Empowering Communities: Public Libraries, Inclusive Civic Engagement and Artificial Intelligence – Schedule of Completion



Empowering Communities: Public Libraries, Inclusive Civic Engagement and Artificial Intelligence – Digital Products Plan

Type

As described on the narrative, project will result in three digital resources: four case studies, one comprehensive report, and a Practitioners' Guide. The comprehensive report will focus on the current landscape of AI programs/services in public libraries featuring different approaches to increase awareness about AI and discuss the role of libraries in fostering inclusive civic engagement in AI initiatives, including their design, implementation, governance, and evaluation. In addition, we will produce a Practitioners' Guide for community stakeholders, and in particular for government agencies, libraries, and community organizations to provide practical support in designing inclusive civic engagement activities. The three products will be provided in PDF and available on the CTG UAlbany website.

In addition to the three main deliverables, during the project two dedicated websites will be developed, one hosted by CTG UAlbany and the other one hosted by the Urban Libraries Council (ULC). These dedicated webpages will provide an overview, key news, announcements, and impact data from the project. The webpage will share links to all media coverage of the project, blog posts created as part of this project, case studies, and sources for further reading and information.

Finally, during the project we will host three one-hour webinars open to all libraries at regular intervals to provide insights from libraries and researchers who participate in the project. These webinars will be recorded and made available to the broad public libraries community and will also be considered digital products in this project.

Availability

All digital products will be made openly available online via the CTG UAlbany and ULC's dedicated websites. In addition, all products will be disseminated through the *This Week at ULC* e-newsletter, which reaches over 2,900 public library leaders every week. We will also create regular posts and strategies to use online social media platforms to disseminate findings using videos/graphics and build traffic visits to both the dedicated project website hosted by CTG UAlbany and the dedicated ULC website landing page.

Access

The digital products created by the Center for Technology in Government, University at Albany (CTG UAlbany) will be solely owned by owned by The Research Foundation for the State University of New York (FOUNDATION). We intend to offer non-commercial, non-restrictive licenses for copyrights to the digital products created under the project. All of our products will be publicly available via the two dedicated websites and available for download and use. All products will include a FOUNDATION copyright and statement. Here is an example of a past statement with access and use permissions: This project was supported by IMLS Grant No. LG-96-17-0144-17 awarded by the Institute of Museum and Library Services. ©2021 The Research Foundation of State University of New York.

The Urban Libraries Council will copyright products subject to copyright that it creates to support purposes of this grant. Terms and conditions will be linked from the copyright statement which will appear at the bottom of the resources and will include the creative commons license: Attribution-NonCommercial 4.0 International. In addition, IMLS, for Federal Government purposes, will retain a royalty-free, nonexclusive, and irrevocable right to reproduce, publish, or otherwise use the work and authorize others to reproduce, publish, or otherwise use the work.

The Research Foundation for the State University of New York – Center for Technology in Government, University at Albany

Sustainability

All digital products will be kept in the project's two dedicated websites, which will be sustained by CTG UAlbany and ULC respectively after completion of the grant period.

Empowering Communities: Public Libraries, Inclusive Civic Engagement and Artificial Intelligence – Data Management Plan

Types, estimated amount, and purpose of data to be collected

The Center for Technology in Government, University at Albany (CTG UAlbany) will conduct, approximately, between 10 and 15 on-site interviews in each community with library staff and other community stakeholders, such as patrons, local government staff, and other community partners to 1) learn about the AI programs in the library and the community, 2) identify the key issues in deploying AI in the community, and 3) explore civic engagement strategies and processes in all aspects of AI (between 40 and 60 interviews in total). In addition, we will hold two focus group discussions in each community with a representative group of residents to understand: 1) their knowledge about AI, 2) their experience using AI tools in public libraries and other spaces/purposes, 3) their experience and willingness to engage in the design, implementation, governance, and evaluation of AI initiatives, and 4) their perceptions on the role public libraries may play in raising awareness about AI and fostering inclusive civic engagement in AI initiatives. All interviews and focus group sessions will be recorded (upon permission of each subject) and transcribed. This data collection will take approximately 18 months and will commence around the seventh month of the project.

We will also conduct a national survey aimed at collecting representative data from approximately 2,000 individuals across the United States. The survey will include questions about on 1) their knowledge about AI, 2) their experience using AI tools in public libraries and other spaces/purposes, 3) their experience and willingness to engage in the design, implementation, governance, and evaluation of AI initiatives, and 4) their perceptions on the role public libraries may play in raising awareness about AI and fostering inclusive civic engagement in AI initiatives. The survey will help us to understand community needs and priorities as well as to identify potential strategies to initiate meaningful engagement. The survey will be conducted using Qualtrics.

Handling of Sensitive Information

We will collect PII from interviewees and focus groups' participants in the form of name, job title, etc. Our strategy to protect the data and information collected during the project is three-fold. First, we will submit an IRB application and get approval from the IRB Office at the University of Albany. Second, we will store all case study files (i.e. audio, transcripts, and notes) at CTG UAlbany on our secure server and locked facility. Finally, we will not publish any identifiable information in academic articles and papers. In the case that the identification of specific individuals in our project reports and other publications deems necessary, it will only occur with prior approval from the individuals involved in the research.

Technical Requirements

We will use digital audio recorders and field notes to collect qualitative data from interviews and focus groups as well as a software called Nvivo to help code and analyze the data. In addition, we will partner with Qualtrics to conduct the national survey. Data from the survey will be collected and analyzed using Excel spreadsheets.

Documentation

All interviewees and focus groups participants will sign a consent agreement form. In addition, we will develop a codebook to code the data from interviews and focus groups. The documentation will be stored in Word format and stored at CTG UAlbany on our secure server and locked facility. In our database each

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interview and focus group will be assigned a unique identifier, which will help us link any additional documents to a specific interview/focus group. Data from the survey will be stored in Excel spreadsheets.

Data Management

Audio files of interviews and focus groups, interview and focus group notes, and interview and focus groups transcripts as well as quantitative data from the survey will be stored at CTG UAlbany. Electronic files will be stored in CTG UAlbany's secure network and hardcopies of notes and transcripts will be stored in locked drawers. We will keep the research data for at least three years. After three years we will work with the UAlbany Office for Pre-Award & Compliance Services to transfer appropriate research related files to the University Archives with the purpose of allowing broader access to the research data.

Data Availability

Data will permanently available to other users after the end of the project. During the project, we will review our Data Management Plan annually. Implementation will be monitored by the project PI.

Empowering Communities: Public Libraries, Inclusive Civic Engagement and Artificial Intelligence – Organizational Profile

The Center for Technology in Government (CTG UAlbany), University at Albany, State University of New York generates knowledge, develops capabilities, and co-creates technology-enabled innovations with government leaders and organizations to address societal challenges and increase public value. CTG UAlbany was established in 1993 and is a university-wide research center located at the University at Albany, State University of New York and reports to the University at Albany Vice President for Research and Economic Development.

CTG UAlbany is globally recognized as a leader in research in digital government. Our leadership position is based on thirty years of experience and reputation gained through a rigorous academic and applied research program deeply grounded in the practical challenges and capabilities of government and professional and civil society organizations and focused on producing practical and usable knowledge, tools, and techniques for our government partners. Our co-creation approach in projects with government organizations enables their engagement in creative problem-solving processes and the implementation of innovative and customized digital transformation solutions to complex problems.

The unique combination of public administration and public management, computer science, information systems, data science, business, and international relations disciplines, coupled with our highly skilled academic and professional staff, helps CTG UAlbany bridge the gap between research and practice by addressing public problems that are academically significant and practically relevant. CTG UAlbany produces high impact research and, at the same time, is able to make these academic results useful and valuable for practitioners in public organizations.

CTG UAlbany has a long history of building and leading multinational, multi-sector, multi-disciplinary collaborative initiatives. Through dozens of partnership projects at all levels of government and around the world, we have developed a unique set of insights, experiences, practices, guides, and tools support the processes and mitigate the risks of Information and Communications Technology (ICTs) innovation in the public sector. We have worked with governments in the United States, certainly, but also the Middle East, to Europe, Asia, South America and elsewhere to build new capabilities to solve complex technical and social problems. We have been funded by the U.S. National Science Foundation to lead international networks of field researchers studying the benefits, barriers, and results of innovative government service delivery initiatives.

Website: <http://www.ctg.albany.edu/>