AI-driven public consultation platforms: Transforming civic engagement in local governments.

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Abstract. The integration of artificial intelligence (AI) in local governments has gained increasing attention as a means to enhance civic engagement and streamline public participation. This study examines how local governments utilize AI-powered platforms for civic engagement, exploring the perspectives of public servants and developers on the implementation of AI, its benefits, challenges, and ethical considerations. With a qualitative approach, semi-structured interviews were conducted with developers, product designers, public servants, and decision-makers involved in developing and using the AI-powered platform for civic engagement initiatives. Thematic analysis was employed to identify key themes related to AI functionalities, user experiences, and governance challenges. The preliminary results reveal that four distinct types of AI applications have been employed, including AI-powered optical character recognition (OCR), AI-based content moderation, AI sensemaking, and AI-driven translation. These AI tools facilitate efficiency in data processing, enhance accessibility, and support decision-making. However, concerns regarding AI transparency, data privacy, and public trust remain significantly challenging. Additionally, public servants emphasized the need for AI literacy training and the development of ethical guidelines to ensure the responsible use of AI in local governance. This study contributes to the growing discourse on AI in civic engagement by offering insights into the practical and ethical dimensions of AI adoption in local governments. The findings underscore the need for policy frameworks, digital inclusivity measures, and ongoing capacity-building efforts to enhance AI-driven public participation.

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1. Introduction

As public sector organizations worldwide embark on digital transformation initiatives, the integration of Artificial Intelligence (AI) technologies has emerged as a distinctive force. At its core, AI refers to the development of computer systems capable of performing tasks that typically require human intelligence. In today's rapidly evolving technology landscape, AI has increasingly become integral to the functioning of the public sector, playing a pivotal role in optimizing government processes, decision-making, and service delivery (van Noordt & Misuraca, 2022). Such technologies are deployed in the public sector to support the smart allocation of public resources, assist citizens with chatbots, identify patterns, develop predictive analytics models, and enable sensor-based detection and prevention (Medaglia & Tangi, 2022). However, limited research has been conducted in this area compared to the research on AI adoption in the private sector. The public sector's slower pace of AI adoption, combined with the need for regulations and ethical oversight, makes it challenging to implement and study AI technologies on a large scale. Yet, it is critical to learn about AI adoption in a social and organizational context like

the public sector, where the performance value (e.g., reducing the cost and increasing the efficiency) does not always have the priority it has in the private sector; there is also public value (e.g., fairness and accountability) that needs to be considered (Sousa et al., 2019).

Civic engagement, in general, is defined as individual or collective forms of action designed to identify and address matters of public concern (Axelsson et al., 2010). It encompasses a wide range of activities through which individuals or groups seek to influence public policy, improve their communities, and ensure that their voices are heard in the decision-making processes. Examples of civic engagement include voting, attending town hall meetings, participating in local boards or committees, volunteering for community projects, petitioning (Dumas et al., 2015), and engaging in public advocacy (Uslaner & Brown, 2005). Since the last decade, digital participatory platforms have enabled governments to engage citizens more effectively, promote transparency, and foster collaboration in decision-making processes (Falco & Kleinhans, 2018). While digital government research has examined e-participation tools, AI-driven engagement remains underexplored. It is essential to explore how digital participatory platforms harness AI technologies to further advance democratic participation.

To address this gap, this research endeavors to investigate the use of an AI-based platform for civic engagement in local governments when delivering public services. We adopted a socio-technical perspective to examine the intricate interplay between a specific social system (i.e., local governments) and the technological infrastructures (i.e., AI). This approach posits that technological artifacts and social dynamics are mutually constitutive, meaning that technologies are designed, implemented, and used within specific social contexts, and, in turn, they shape social practices, organizational structures, and human behaviors (Kling, 2007). We aim to provide a comprehensive understanding of the socio-technical dynamics surrounding the implementation and use of AI in local governments, facilitating more informed decision-making and promoting responsible AI deployment for the public good.

In this study, the GoVocal platform was selected for its AI features, which are designed for civic engagement in public services. The local governments in the US that are using the GoVocal platform were exhaustively sampled for an interview study. To gather data about practices and perceptions of AI for civic engagement, we talked to 1) the developers, product designers, and customer support specialists from the GoVocal platform on the development side, and 2) the public servants who work with GoVocal's AI features in local governments on the implementation side to triangulate the investigated phenomenon from different perspectives. Compared to prior studies that investigate how citizens as users at the front end respond to digital participatory platforms, this study focuses on public servants who are users of the GoVocal platform at the back end.

The research questions we seek to address in this study are: **RQ1:** What AI features have been developed and used to enhance civic engagement in local governments? **RQ2:** What are the benefits, challenges, risks, and ethical considerations of AI adoption for civic engagement in local governments?

2. Literature review

The adoption and use of AI in governments worldwide are growing rapidly. Governmental agencies at local, regional, and national levels have begun to pay close attention to AI applications being developed in commercial settings and envision utilizing AI to support administrative processes and deliver public services (Ahn & Chen, 2022).

2.1 AI capabilities in governments

AI capability, derived from the concept of IT capabilities, suggests that organizations need to leverage AI, as well as other complementary resources, to realize value rather than solely identifying degrees of AI adoption (Mikalef & Gupta, 2021). AI capability consists of complementary AI-related tangible, human, and intangible resources. Such conceptualizations of an organization's ability to leverage technology provide more accurate representations of the value that can be expected, as they encompass the intangible aspects that enable technological innovations to be implemented (Mikalef et al., 2022). Therefore, AI capability builds on the necessary technical and organizational elements required to effectively deploy AI resources to achieve prioritized objectives. Mikalef and Gupta (2021) define AI capabilities as "the ability of a firm to select, orchestrate, and leverage its AI-specific resources." (p.4) This definition denotes that an AI capability goes beyond just selecting, or else adopting AI, and includes the capacity to bring AI-related projects to fruition.

When investigating AI capabilities in governments, Medaglia and Tangi (2022) found that requirements indicated as important by public managers involved in public service in European AI projects largely overlap with classic drivers known from well-established research in e-government, which include both internal factors, such as middle and top management commitment and external factors, such as the availability of IT resources, government support at different levels, citizen support, and business support. Yigitcanlar et al. (2023) investigated how the adoption of AI would impact local governments' abilities to enhance services and establish user expectations, using semi-structured interviews with city managers from Australia and the United States. On the one hand, the adoption

of AI may lead governments to learn from and cultivate their own AI systems, particularly those governments that are at the forefront of experimenting with AI and have the necessary leadership and funding support. On the other hand, some governments that cannot afford or are unprepared to adopt these systems, prioritize them, and train to use them will be left behind. This suggests that the disruptive impacts of AI adoption are predicted to create a widening knowledge and skill gap between local governments, with those that cannot adopt it likely to lag behind.

Moreover, prior literature has highlighted the importance of having a robust technical infrastructure in place to support the deployment of AI (Zuiderwijk et al., 2021). This technical infrastructure is necessary to obtain, manage, and store the various data required to train AI. AI is typically integrated into existing IT systems and is never used in isolation, which requires organizations to have a basic IT infrastructure with suitable hardware and software. Local governments should, therefore, have access to an infrastructure with high connectivity and enough bandwidth, processing power, server hardware, networks, and database management technologies to facilitate the storage and analysis of the large datasets needed to develop AI. Alternatively, in the case of cooperating with a third party for AI services, local governments should initiate the guidelines and set up the principles before employing external AI services.

Additionally, utilizing AI in local governments requires that public servants and citizens possess a certain level of digital literacy. Hence, local governments in some countries provide training to citizens of all ages and public servants on the basics of computer use, navigating the Internet, and searching for information. Increasingly, some also provide specialized knowledge on AI. These initiatives enhance computer literacy and support individuals' ability to leverage existing work on AI for their own personal and professional purposes. For instance, the French Institute for Public Management and Economic Development (IGPDE), which forms part of the French Ministry of Economy and Finance, offers many different training courses, including short, one-day sessions such as "Digital Transformation of the State and Data" and "Artificial Intelligence, Data Science: New Economic Challenges." These aim to equip public servants with a basic understanding of AI and its opportunities and challenges. One more example is the government of Singapore, which offers AI workshops open to public officers and middle to senior managers. It aims to increase digital literacy and provide foundational knowledge about the potential of AI for public work and public organizations.

2.2 The benefits and challenges of AI in governments

The use of AI in government could bring a range of benefits. Three primary ones can be summarized as **1) Improving internal efficiency:** AI applications have the capabilities to perform specified tasks (e.g., extracting structured data from relevant documents) and consequently free up precious cognitive resources of public workers, which can then be allocated to tasks of higher added value (Loi & Spielkamp, 2021). This reallocation enables the government to concentrate its scarce resources on tasks where human workers excel, such as problem-solving activities that require empathy, creativity, and innovation. **2) Enhancing the capacity of decision-makers:** A natural benefit of applying AI techniques to public decision-making is the ability of AI algorithms to consider a greater number of variables, as well as the increased granularity and accuracy of the actions that AI systems can recommend. In cases where citizens' opinions are important, AI-powered simulations can model policies and their effects, and these simulations can be used to support discussions among citizens (Charles et al., 2022). In addition, the potential benefits could be perceived as impartiality, which decisions delegated to AI-powered algorithms can provide. For instance, AI may be perceived as not having the same biases as humans do. Local-level bureaucrats in public sector organizations face the possibility that various factors, such as corruption, organizational politics, and personal biases of any type (e.g., gender, race, and socio-economic status), may influence their decisions (Alon-Barkat & Busuioc, 2023). **3) Promoting citizen-government interaction:** On the one hand, AI can enhance existing service interfaces or create new ones with more usable and human-centered applications. For example, implementing chatbots to collect citizens' opinions and facilitate deliberative interaction with natural language processing and text analysis (Henk & Nilssen, 2021). On the other hand, AI can potentially increase citizens' trust and participation in public sector activities. For instance, AI functions as a nudging device, prompting humans to consider the value implications of their decisions or to reflect on when to make decisions that are perceived as more equitable, fair, and legitimate, thereby increasing trust (Aoki, 2020). Scholars have also pointed out that the adoption of AI within government institutions supports organizations in becoming more transparent and open to citizens, as well as more participatory with other sectors (van Noordt & Misuraca, 2020).

While the benefits of AI in government are significant, there are also potential risks to consider when seeking to minimize the unintended consequences, which include: **1) Algorithmic bias**: While the ability of AI applications to recognize patterns can be beneficial when segmenting populations, for example, in welfare service provision or when addressing anti-social behavior, it can also amplify discriminatory biases already present in human-led assessments (Gualdi & Cordella, 2021). Predictive algorithms can favor groups that are better represented in the data used to train algorithms. As algorithms can play a role in the propagation of existing social biases across gender, race, sexuality, and ethnicity, AI could thus participate in and potentially increase systematic and unfair treatment of citizens based on social biases (Zuiderwijk et al., 2021)—an outcome that is in direct conflict with the mission of governments to provide unbiased and equitable treatment of citizens under the rule of law. **2)**

Algorithm opacity: The increasing complexity of AI systems, especially deep learning solutions with more and more layers and parameters, reduces the capability of human operators to trace outputs back to specific inputs, making it potentially impossible to account for specific AI-driven outcomes clearly, and to correct actions with unintended consequences (Morley et al., 2020). The broader consequences of this phenomenon have been referred to as creating a "black box society" (Wirtz et al., 2020) and have profound implications for governments, which, by definition, are bound to citizens' expectations of transparency and accountability. On the other hand, AI systems can shift public servants' responsibility for accountability, posing challenges in the legal and political liability dimensions (e.g., who is responsible for damage to a citizen stakeholder if the decision has been outsourced to an AI application?) (Wihlborg et al., 2016). **3) Invasion of privacy:** The harvesting of large volumes of personal data required to fuel AI solutions poses a risk of infringing on the privacy of citizen users (Zhang et al., 2021). Any AI algorithm, regardless of its area of application, can produce relevant outputs only if trained with an appropriate amount of data. Such data might be personal, sensitive, or inappropriately collected or managed. Additionally, the use of AI in governments may entail the risk of extensive surveillance (Valle-Cruz et al., 2019). Addressing these risks requires a comprehensive and ethical approach to the development, deployment, and governance of AI systems in governments.

2.3 Public servants' and developers' perceptions of AI in governments

Public servants play a critical role in governments' adoption and use of new technologies, and their attitude and willingness to utilize them are crucial in creating a sustainable and meaningful digital transformation. Based on survey results from current government employees in the U.S., Ahn and Chen's (2022) analysis reveals that the willingness to implement and use AI technologies in governments is contingent upon a series of positive and negative perceptions about the new technologies, the long-term outlook on the role of AI technologies in society, and their familiarity and experience with using some form of AI applications in the past. Specifically, Ahn and Chen (2022) found that when asked if the government should consider using AI to improve public service, a vast majority (77%) agreed or strongly agreed, while 10% disagreed, and 11% remained neutral. When asked to choose one area of their work that they perceived that AI would improve, the majority of the respondents said that its use would increase the efficiency of their work (55%), improve service quality and effectiveness (21%), and relieve them of mundane and repetitive tasks (19%). The results also indicated that government employees were mildly concerned with AI taking discretionary authority away from their work (55%), while 45% were not concerned or were uncertain about AI's role in their discretionary authority. Also, a correlation was found between exposure to AI and the degree of support for AI in governments, where the employees who had used AI were likely to show a greater degree of support for implementing AI in their agencies.

However, government employees' perceptions of the transformative potential of AI for improving government transparency reduced their willingness to adopt AI in government, reflecting resistance to opening governmental processes to the public. Among the perceived concerns, the concern over AI's ability to make sound ethical and moral judgments had a statistically significant influence on the willingness to use AI in government (Ahn & Chen, 2022). Regarding the perception of the role of AI in society, its ability to surpass human intellectual abilities, its role as a competitor to humans, and the perception of its eventual benefit to humanity had statistically significant impacts on respondents' willingness to use it. Among the types of government work and the demographic characteristics of public servants, party affiliation with the Democratic Party was negatively associated with the willingness to adopt, while working in state government had a positive impact. Middle managers were less willing to support AI technologies in government, while male respondents were more likely to support them than female respondents (Ahn & Chen, 2022).

Henk and Nilssen's (2021) empirical findings on the use of AI in Scandinavian public services showed that implementing AI-based chatbots in day-to-day activities alters rather than completely replaces the existing jobs of frontline service workers. For example, implementing AI results in the need to improve the empathic and intuitive skills of service workers. This may occur because public servants may need to respond to personalized inquiries that require close human interaction, rather than handling routine requests that can be automated. Additionally, the organizational culture has not undergone significant changes due to the implementation of AI. Employees perceived the chatbot as an assisting "new colleague" rather than a breakthrough technology that disrupted everyday activities. The findings suggest that instead of creating a new culture, managers created an understanding of the chatbot's limitations and integrated it into the existing culture. Moreover, the participative leadership style of managers facilitated the uninterrupted implementation of the application by promoting cross-departmental cooperation and fostering a positive attitude toward the change.

Figueras et al. (2022) examined how AI developers perceive ethical issues concerning AI design and how they interpret and put them into practice by conducting interviews with AI practitioners working in or for public organizations in Sweden and found four different kinds of tensions: 1) tensions in respondents' ranking of the ethical principles, which means that practitioners valued ethical principles differently; 2) tensions in the interpretation of ethical principles, which means practitioners interpret ethical principles in different ways; 3) tensions in enacting ethical principles, which means practitioners embedded ethical principles in design in

different ways; 4) tensions between national and professional practice, which means national governance may clash with the AI design practice and ethical principles on certain occasions. Interviews with chatbot designers revealed that they prioritize specific value dimensions for public services (Makasi et al., 2022). The first level comprises six dimensions, which are discussed as high priorities for both basic and advanced chatbots in the public sector: efficiency, effectiveness, user orientation, professionalism, adaptability, and trust in government. The second level consists of five value dimensions cited as critical to public services, particularly in relation to chatbots that retain user profiles, which is typically the advanced type of chatbot. These are privacy, legitimacy, accountability, acceptability, and social license. Finally, the third level consists of four dimensions acknowledged as highly important in the overall performance management of all chatbot initiatives in the public sector: openness, sustainability, fairness, and collaborative intelligence. These value dimensions shed light on the ethical design of AI.

3. Methods

3.1 Research subject

When examining the use of AI in local governments, we identified a specific platform (i.e., GoVocal, see Figure 1) that incorporates AI features adopted by multiple local governments in the US. The investigated phenomenon in this research is the use of this platform, particularly its AI features, in local governments for civic engagement initiatives when delivering public services. GoVocal is a digital platform designed to empower citizens and enhance civic engagement by fostering meaningful dialogue and facilitating constructive interaction. It serves as a digital town hall where residents can voice their opinions and contribute ideas to a wide range of civic projects, including urban planning, environmental sustainability, and social initiatives. With its technological affordances and AI-based features, such as online surveys, idea generation, interactive mapping, and discussion forums, the platform supports diverse forms of citizen participation.
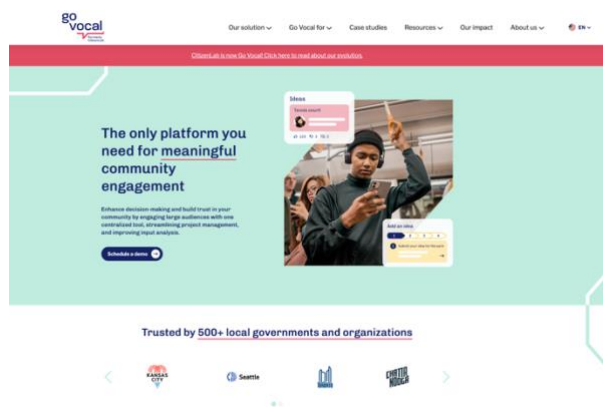

Fig. 1 - Homepage of the GoVocal (formerly CitizenLab) website (https://www.govocal.com/).
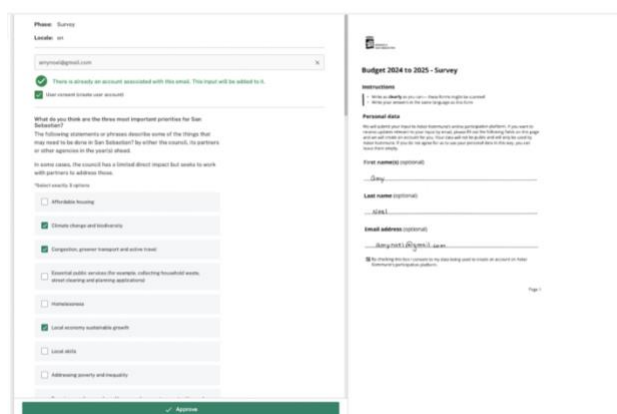
Fig. 2 - The user interface for the AI-powered OCR.

AI features developed and provided by GoVocal include:

1. AI-powered optical character recognition (OCR) is used to scan and digitize the uploaded paper participation at scale by handling a wide variety of document layouts and handwriting with minimal manual intervention (see Figure 2).

2. AI-based content moderation automatically assesses and filters online content by identifying abusive, toxic, harmful, or other inappropriate expressions from user-generated posts, proposals, and comments on the platform.

3. AI sensemaking is an AI-driven tool that analyzes, interprets, and derives meaningful insights more quickly across vast amounts of textual and quantitative data collected during engagement projects, identifying patterns and contextualizing results (see Figure 3).

4. AI-driven translation leverages large datasets and sophisticated algorithms to learn linguistic patterns, content, and nuances across multiple languages, enabling the automatic conversion of text from one language into another.
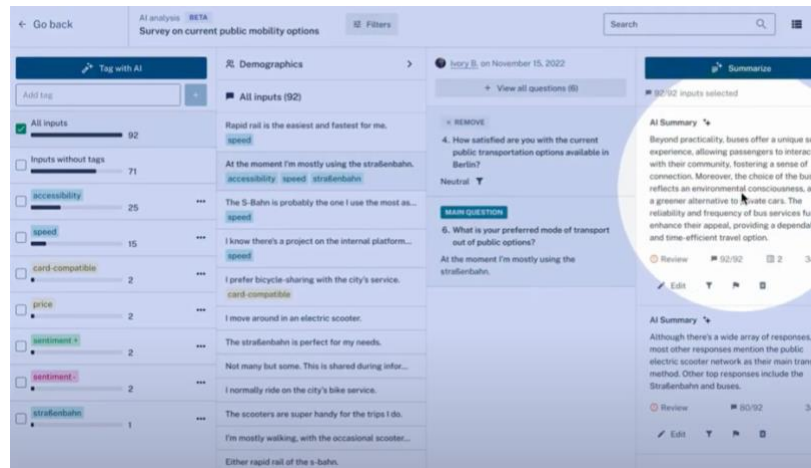
Fig. 3 - The user interface for the AI sensemaking tool.

3.2 Data collection

According to GoVocal's website, the platform has been used in a wide range of countries in Europe and North America. In this study, all the local governments in the US that were using the platform by the time the interview study was conducted have been exhaustively sampled and contacted (see Table 2). Interviews are particularly helpful when aiming to explore the use of AI for civic engagement in local government as a complex yet novel social phenomenon, and to gather in-depth information to understand participants' lived experiences, perspectives, and opinions (Gubrium et al., 2012).

Tab. 1 - Local governments in the US that use the GoVocal platform and their population size based on 2023 census data.

Location	Population size	text
Carlisle, PA	22K	https://carlisle.govocal.com/en/
Lancaster, PA	57K	https://engage.cityoflancasterpa.gov/en/
Norwich, CT	40K	https://envisionnorwich360.com/en/
Seattle, WA	749K	https://engage.oneseattleplan.com/en/
Struthers, OH	44K	https://discover.cityofstruthers.com/en/
Benicia, CA	26K	https://engagebenicia.com/en/
St. Louis, MO	281K	https://stlouis.govocal.com/en/
Allen, TX	111K	https://engage.cityofallen.org/en/
Cincinnati, OH	311K	https://cincinnati.govocal.com/en/
Hyattsville, MD	20K	https://hellohyattsville.com/en/
Kansas, MO	510K	https://speakeasy.kcmo.gov/en/

We conducted a series of semi-structured interviews with two groups of stakeholders: 1) developers, product designers, and customer support specialists from the GoVocal platform, and 2) public servants and decision-makers in local governments who work with the GoVocal platform and its AI features for civic engagement. The interviews aim to gain contextualized information about the actual design and implementation of the AI features provided for civic engagement. Additionally, the perceptions of benefits, challenges, and ethical considerations associated with using AI in local governments will be investigated (please see the interview questions in the Appendix). In this preliminary finding, we report the results of our interviews. We interviewed three GoVocal developers, product designers, and customer support specialists, as well as seven public servants (one to two from each local government, based on their availability).

3.3 Data analysis

The audio-recorded interviews were transcribed, and a thematic analysis was conducted with a grounded theory approach (Glaser & Strauss, 1967). This method involves analyzing patterns or themes by closely examining the data line by line to identify concepts or ideas, which will then be labeled with descriptive codes. The grounded theory approach avoids reliance on preconceived theories or hypotheses, allowing for the exploration of the

complexity and richness of the phenomena under study. The NVivo application was used for the analysis. First, we conducted an open coding guided by the research questions on 10-20% of the corpus to start developing the codebook. After that, each author separately coded the same sample using a well-defined codebook and then calculated the intercoder reliability. The percentage of agreement exceeds 90% when comparing our coding results, and disagreements were resolved through discussions and re-coding. We didn't use Cronbach's alpha because the unit of coding is not consistent, as it is not always on the sentence level, and many codings were conducted on the paragraph level, which made the calculation of Cronbach's alpha a bit difficult. The codebook was ready when one of the authors completed the coding for the rest of the corpus. The identified codes for the thematic analysis are shown in Table 2.

Tab. 2 - Codebook for the thematic analysis of interview transcriptions.

Codes	Descriptions
AI features	The features provided by the platform, designed with AI technologies by developers and utilized by public servants in local governments for civic engagement, include existing ones that have been developed and implemented, as well as future ones that are being envisioned and anticipated.
Civic engagement	The understanding of civic engagement in local governments from the perspectives of developers and public servants, such as the objectives and goals.
Evaluation	The evaluation of AI features' performance from the perspectives of developers or public servants, for example, their effectiveness, usability, and potential public value in creating civic engagement in local governments.
Benefits/Challenges/ Risks	Benefits, challenges, or risks of developing, implementing, and using AI features for civic engagement in local governments.
Ethical consideration	Considerations of ethical issues like fairness, bias, transparency, accountability, data privacy, and security and how they are addressed in the development, implementation, and actual use of AI features for civic engagement in local governments.

4. Findings

4.1 What and how are the features developed and used for enhancing civic engagement?

Platform developers and public servants described how various AI features were designed and utilized to enhance civic engagement in local governments, including AI-powered OCR, AI-based content moderation, AI sensemaking, and AI-driven translation.

First, platform developers explained the motivation for developing AI-powered OCR was that when talking to public servants to learn about their needs for a digital platform enhancing civic engagement, public servants complained that it was quite time-consuming to transcribe all ideas after collecting surveys offline while "*offline consultation is important to engage senior citizens or people who have lower digital literacy and have difficulties with accessing digital surveys online.*" (P5) Hence, the platform provided the AI-powered OCR to help with speeding up the transcription by extracting data from scanned PDF/Excel documents to generate structured input. This feature utilized AI technology to make engagement more inclusive by enabling public servants to efficiently synchronize offline insights and input. While traditional OCR is a rule-based technology suitable for basic text recognition, developers have noted that "*AI-powered OCR leverages advanced machine learning techniques to deliver higher accuracy, contextual understanding, and adaptability in complex scenarios*" (P8). AI-powered OCR can learn and adapt to different fonts, languages, and writing styles. It also handles low-quality or distorted images more effectively and recognizes text from complex layouts, such as tables or multi-column documents.

Second, AI-based content moderation automatically reviews and manages citizens' inputs on the platform by unpublishing content that is non-compliant with established community guidelines. The developers (P7) mentioned that they have built "*profanity blockers that contain lists of offensive words for governments across Europe, the US, and Latin America.*" With AI technologies, content moderation seeks to foster civic engagement by creating a more respectful online environment that encourages public participation. One of the public servants (P1) mentioned, "*What I always tell people is I was amazed at the depth of thought and quality of the answers. It was not like a Facebook forum where everyone just said and argued nasty things. Of course, at the back end, we see email notifications about the red-flagged posts removed by the AI moderation, but at least people who go to the platform for a civilized discussion don't have to build their opinions on that.*"

Third, the AI sensemaking tool automatically extracts useful insights from large volumes of citizens' input and generates summaries for public servants. The developers pointed out that government agencies spend far more time analyzing, communicating, and acting on data than gathering it; however, they often lack sufficient time to analyze the data, which ultimately motivated the platform to develop this AI sensemaking tool. For example, one of the developers (P6) mentioned, "*Our platforms get like thousands of comments and inputs from residents. It's really hard for local administrations to make sense of them. So we even had people saying that 'I just can't process it at all, and sometimes I only process 20% of the input.'*" Another developer (P7) added, "*It's not only sad, but as a city, you have a responsibility towards your constituents, and you are only reading 20% because you don't have time. So that's why we started developing AI sensemaking that helps summarize communities' input topically, sentiment-wise, and controversy-wise.*" When talking to the public servants, one of them (P2) described this time-consuming process for analysis and lack of skills in dealing with vast amounts of qualitative data as "*we are surrounded by data, but too often starved for insights*." The AI sensemaking tool offers functionalities such as auto-tagging keywords, generating summaries, and providing references to original inputs for human validation. Public servants can filter responses based on specific answers and ask follow-up questions to gain a deeper understanding of the data. Moreover, this tool analyzes the most popular keywords or concepts discussed within the community, and then visualizes the most popular keywords on a map relative to their importance, clustering them together with keywords that appear together repeatedly. The visual representation, in addition, helps public servants quickly understand what people are discussing and then "*find out what the trends, changes, and gaps are in the current project and decide whether a detailed analysis is necessary for the next steps*" (P4).

Fourth, like AI-powered OCR helps maintain offline accessibility, a public servant emphasized the importance of language accessibility, particularly in cities serving communities with diverse cultural and linguistic backgrounds. P4 explained, "*As a city, as we communicate with citizens, we don't want to spend extra money to translate everything, so it's not useful for us unless the translations are built into the platform that makes everything accessible to people in different languages.*" The AI-driven translation was very important as the GoVocal platform is a company based in and serving many European countries. One of the developers (P8) said, "*We serve, I think, around 17 different languages on our platform today. We also sometimes have platforms that are using multiple languages. We initially struggled with limited algorithmic resources for translation, but now we are utilizing a combination of ChatGPT 4 and Clouds, which are becoming increasingly proficient in multilingual tasks. So, as developers, we need to make sure that the platform generates their answers in the right language by specific prompt engineering to make it happen.*"

4.2 The benefits and challenges of adopting an AI-based platform for civic engagement in local governments.

While using the AI features embedded in the platform, public servants expressed positive feedback, highlighting the user interface, effectiveness, and interaction design. For example, they noted improvements in efficiency, extended capacity, and the ability to accomplish more with limited resources, which they viewed as key factors in justifying the implementation of AI to government stakeholders. "*Because we are a quasi-governmental organization of two to six people, efficiency is the drive. That's how we convinced the local governments that we need to implement, utilize, and leverage AI tools, as we require greater efficiency and increased capacity for investment. I would simply say the investment is 100% worth it here with this platform. We were able to do more with less.*" P9 from the same institute added, "*In terms of convincing the stakeholders, it's very important for them to see the actual product and understand how it works. It gives them a clear picture of what results this product can bring to the organization.*" (P3)

Furthermore, public servants appreciated the referencing functionality of the AI sensemaking tool, noting that its interaction design saves time, facilitates the verification of information sources, and enhances the reliability of the generated summaries. One of the public servants (P4) mentioned, "*Let's imagine a summary of 2,000 inputs that we've received. We will see a little bubble, sometimes with 20 bubbles or 30 bubbles, and by clicking on each bubble, we can actually see where that little insight or sentence originates from. Then we go back to the original source of the input for human verification.*" (see Figure 4)

Besides its summarization functionality, the AI sensemaking tool enables public servants to pose specific questions regarding residents' input using various prompts. One of the public servants (P10) reflected on this design and said, "*Most people's experience, like at least their greatest exposure to AI, is ChatGPT, so you get used to this chat box and just type in your questions. I'm surprised to see we can also ask questions based on how this AI tool understands the residents' input.*" This chatbot-like design for interaction lowered the entry barrier for individual public servants to effectively leverage AI capabilities. Overall, with the various tools and AI features provided by the platform, public servants feel more empowered when analyzing data, as some may lack the skills or expertise to handle large volumes of qualitative data or interpret survey results. This is especially beneficial for smaller local governments with limited human resources dedicated to civic engagement initiatives. P2 elaborated, "*It's useful when going through all the data because I'm not a statistician, I'm not whatever. It saves time when pulling out keywords and recurring themes, which I previously had to do manually by reading everything. So that kind of thing makes the handling of the data a little easier, especially being a one-person team for all the public engagement stuff.*"
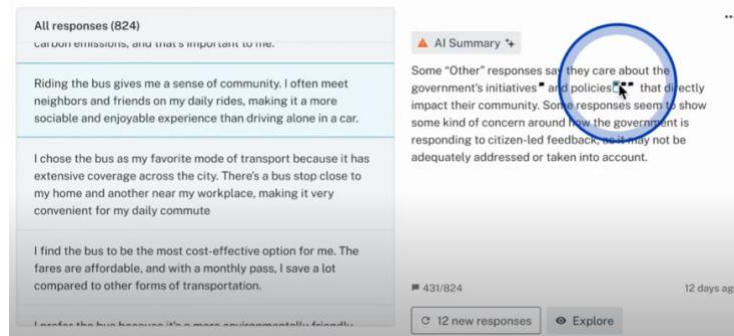
Fig. 4 - AI summarization enables users to verify the source of the input.

The first challenge identified by public servants is the accuracy of AI-generated summaries, which highlights the need for careful consideration of which projects are suitable for analysis using AI tools and which require alternative approaches. According to the interviews, public servants believe that AI performs effectively in projects where its primary role is to extract information and keywords from citizen input. However, they prefer manual analysis for projects that demand deeper contextual understanding or when capturing the sentiment of the input, which is particularly important. For instance, P5 described their strategy utilizing AI summarization, "*What I'm worried about with AI is that they're going to give me the information, but because this is such a contentious issue with people holding polarized opinions, what I really want to understand is the context and people's feeling when they're typing things out. I want to know if they are really against it. Are they pissed off? Do they feel heard?*" P9 also expressed concerns over the quality of data being produced by AI summarizations and emphasized that human verification is essential: "*It's a great tool, but it still needs a human to review it. Make sure that it is, in fact, correct and accurate. And I think people rely too heavily on just saying, 'Oh, well, the tool did it.' That would be my concern that people would forget that it still needs oversight and fix things before it goes out into the world.*"

The second challenge pertains to public servants' AI literacy, which is crucial for ensuring the effective and ethical application of AI features in civic engagement within local governments. One of the public servants (P10) said, "*There were elements about it that were not as user-friendly as it could be.*" In addition, public servants may resist using AI features due to a lack of understanding, as "*AI algorithms function as so-called black boxes,*" according to one of the developers (P8). Therefore, the platform provided onboard training for public servants when they first adopted the AI features and they found it "*very helpful to get a basic idea about what's going on and how to process citizens' input.*" (P4) One of the developers (P6) added that, "*The training sessions don't mean to tell public servants how we developed the platform and how we're using AI models to make everything happen. They only need to learn how to analyze the data with all AI features, and we emphasized many times about human moderation so that they also know how to double-check with original inputs and summaries generated by AI.*"

Challenges related to the digital divide, fairness, and inclusiveness also emerge as significant concerns. Although the platform was designed to enhance civic engagement, public servants noted difficulties in ensuring that it serves all members of the community. Limited access to the internet or digital devices among certain groups restricts their ability to participate, thereby hindering the platform's inclusivity. P1 commented, "*Obviously, the only limitation is if you're going to be in an area where there may be questionable internet access, how do you reach those residents? When you're talking about rural parts of the United States, due to the cost barriers, people might not have access to the internet, or they don't even have the infrastructure.*" Therefore, public servants also adhere to their offline engagement strategies. As P2 stated, "*When we do major projects, we've also had either face-to-face meetings, or mailers, or door hangers, especially targeting those areas that we know are low tech and not okay with online show-ups.*" To further raise public awareness about the online platform for civic engagement, public servants shared their methods of directing people from traditional engagement channels to the platform. For example, P9 said, "*We are simultaneously using old-school posters that point people through a QR code back to that platform. We will issue a press release to the local newspaper. We'll put it on our social media.*"

4.3 The ethical considerations of AI adoption for civic engagement in local governments.

The application of AI for collecting and analyzing civic engagement data introduces potential risks related to the use, storage, and sharing of personal information. When asked about data security and privacy issues, public servants shared different perspectives. For example, one public servant highlighted the importance of data ownership and the ability to export and retain data after the contract expires. As P1 said, "*There were very few platforms that would allow the municipality to keep the data or to export the data when the contract with the platform expired. But this platform allowed us to export all the data and keep it, even if the municipality chooses not to use the platform any longer.*"

Regarding the risk of data breaches, where unauthorized parties may access sensitive or confidential information,

most public servants did not express significant concern. This was primarily because sensitive data were not stored or shared online, or due to the perception that the platform operates similarly to other commonly used platforms. P10 explained, "*Not in the sense that we were asking any questions that would ask for social security numbers, bank account information, or healthcare data. Nothing felt where the residents, at least through the platform, were providing a lot of information that would put them at a data breach type of problem.*" P5 added, "*Since anything online is going to have the possibility for a data breach, we weren't worried about this any more than you'd be worried about residents using any type of platforms that are exposed to hackers. I think it's a fair assessment.*"

Furthermore, developers outlined the measures implemented to safeguard user data on the back end and explained that, when utilizing APIs from large AI models, they establish contractual agreements with the respective companies to ensure the data is not used as training material. P8 said, "*We also have clear data processing agreements where we explicitly make sure that they do not use any of this data from the platform for other purposes. That's how we protect the input from citizens being used as further training material.*" P7 added, "*So today, when a resident on our platform typically posts an idea or submits a survey response or contributes another mechanism that we have, they leave their name, they leave their email address, they leave potentially some demographic information. We don't send those things to the AI. AI is only about summarizing the content that they have written*."

Additionally, transparency and trust are highly voiced as ethical considerations by both developers and public servants. Developers emphasized the importance of referencing functionality in promoting transparency, explaining that it enables public servants to trace the connection between original inputs from residents and the generated summaries. P6 described, "*So we kind of create that transparency to make sure public servants can easily find back what is based on when AI makes a statement. The machine is there, but let's try to use design to make it as easy as possible for humans to understand what the machine does and verify its actions. And that's not as much rocket science AI, but it's a really better user interface that allows for a good user experience.*"

Public servants underscored the necessity of being transparent about AI use and making methodologies accessible to the public to facilitate understanding and encourage further participation. P4 commented, "*There are so many disclaimers and so much information about how we are actively using AI. It's not about not telling people. I feel it is important to be upfront about the use of these tools so people feel empowered to use them as well. Our office employs specialized tools, including maps, Excel, and Python, which are used to understand and produce meaningful insights. However, those tools are not accessible to the general public. So, I think we should be transparent about how these tools helped us to understand things. And our methodology should be accessible to everyone else to encourage a more communal, participatory model of data sharing.*"

5. Discussions

5.1 Embracing AI tools: The cultural transformation has happened.

The findings indicate that public servants have increasingly embraced AI tools as integral components to streamline administrative tasks and enhance efficiency. More importantly, the efficiency gained from AI-powered tools appears to differ from that achieved through traditional IT adoption: AI tools expedite the collection and processing of citizen input data and extract insights of higher added value (Loi & Spielkamp, 2021). It is about *revolutionizing the process of generating insights from citizen input*. In addition, AI-driven tools have enabled small organizations to expand their capacity, allowing them to "*do more with less.*" As a result, AI tools are seen as a potential solution to the resource constraints faced by local governments (Charles et al., 2022).

The integration of these AI technologies reflects a broader cultural transformation within local governments. Traditionally, public service institutions have been characterized by bureaucratic inertia and resistance to change (Savoldelli et al., 2014). However, the current trend of AI adoption suggests a significant departure from these longstanding practices. Public servants are now more inclined to explore and utilize technological innovations that not only enhance operational efficiency but also foster a more participatory form of governance. This shift is indicative of a cultural reorientation toward openness, agility, and a willingness to experiment with novel approaches to citizen engagement (Henk & Nilssen, 2021).

The cultural shift toward embracing AI tools has significant implications for civic engagement initiatives. By automating routine tasks and providing advanced analytical capabilities, these technologies enable public servants to devote more time and resources to strategic decision-making and policy development. This reallocation of efforts has the potential to foster more meaningful and responsive interactions between local governments and their constituents (Androutsopoulou et al., 2019). Furthermore, the adoption of AI tools helps mitigate some of the challenges associated with managing large-scale digital civic engagement, such as information overload and the need for rapid response to public concerns.

5.2 Keep humans in the loop: Human moderation and AI literacy.

The integration of AI tools into civic engagement initiatives within local governments offers remarkable advantages in terms of efficiency, scalability, and data-driven decision-making. However, the findings of this study underscore that the full potential of these technologies can only be realized when human oversight is maintained—a principle encapsulated in the mantra "*keep humans in the loop*" (Alon-Barkat & Busuioc, 2023). This approach not only compensates for the limitations inherent in automated systems but also fosters the development of AI literacy among public servants, ensuring responsible and ethical deployment of technology. According to the interview results, public servants have expressed concerns about the accuracy and accountability of AI tools. While AI sensemaking adeptly analyzes and synthesizes large, complex datasets into actionable insights, the interpretation of these insights within the intricate socio-political landscape of civic engagement requires a depth of contextual understanding that only public servants can provide.

Interview results highlight a concern about a lack of oversight when governments rely on insights created by AI-based tools. Before the development of more recent AI technologies, technical experts still had a greater ability to scrutinize outcomes to some extent (Hagen, 2018). However, the latest AI technology, such as large language models, makes scrutinizing the AI outcomes nearly impossible. Notably, (1) AI outcomes lack logical paths that humans can trace, and (2) AI development involves complex training data and multiple layers of probabilistic sampling—just two of many challenges in evaluating their results (Zhao et al., 2024). Public servants, through their expertise and familiarity with local contexts, can identify potential biases, challenge erroneous conclusions, and ensure that AI-derived insights align with broader governance goals. Thus, keeping humans in the loop transforms AI sensemaking from a purely computational exercise into a collaborative process that enhances both the reliability and relevance of the outcomes (Wang et al., 2020).

Central to this human-AI collaboration is the need for robust AI literacy among public servants. As local governments increasingly adopt sophisticated digital tools, it becomes imperative that those responsible for managing these systems possess a deep understanding of their operational mechanisms and limitations. AI literacy empowers public servants to critically assess the outputs of AI systems, make informed decisions about when and how to intervene, and continuously refine these technologies based on practical, context-specific feedback (Long & Magerko, 2020). This proficiency not only enhances operational efficiency but also promotes a culture of innovation and ethical accountability within local government institutions.

6. Conclusion

This study examined AI features successfully adopted by local governments for civic engagement practice. Those AI features include automatic formatting and summarization, data analysis, and intelligence generation. Our findings suggest that AI tools have enhanced the capacity of small organizations and contributed to cultural shifts in civic engagement by promoting respectful discussion and improving efficiency. However, public servants also highlighted key challenges, such as concerns about the accuracy of AI-generated outcomes, the need for greater AI literacy, and the lack of accountability in AI decision-making.

This study will make several contributions and holds significant potential for advancing both technological innovation and democratic governance. First, exploring the use of AI-enabled civic engagement tools will significantly contribute to the design and improvement of such systems by enhancing AI-driven interactions and addressing ethical concerns. Second, by examining how AI is utilized to deliver public services and engage with citizens and communities, researchers can identify best practices and innovative approaches that enhance the quality, efficiency, and effectiveness of government services. Third, by studying the impact of AI on community participation and decision-making processes, researchers can determine whether these technologies are effectively reaching marginalized populations and amplifying their voices in the policymaking process. Ultimately, investigating the application of AI in local governments for civic engagement can also help identify and mitigate potential risks and challenges associated with these technologies. This includes concerns related to data privacy, algorithmic bias, digital divides, and the erosion of trust in government institutions. In the meantime, by focusing on the organizational level's adoption of AI in delivering public services, this study would make theoretical contributions toward social informatics in terms of social structures, civic engagement, and ethical considerations.

While this interview study served as an exploratory analysis of the understudied phenomenon of AI use in local governments for civic engagement, there are many directions for future work to expand upon the presented findings. For example, future studies can investigate the use of AI in local governments across various regions, countries, or cultural contexts to understand how variations in governance, resources, and public needs influence the adoption of AI. Additionally, it would be beneficial to conduct studies that focus on citizens' experiences and perceptions of AI-based platforms to gain a deeper understanding of trust, accessibility, and usability issues. Based on the ethical considerations in the findings, we suggest that scholars develop ethical frameworks to ensure transparency, trust, and fairness in AI decision-making processes and study the role of policy and governance frameworks in guiding the ethical use of AI in local governments.

The primary limitation of this study is the limited access to relevant and reliable data in local governments. The

interviews were conducted with one or two representatives from each organization due to concerns about low availability and confidentiality. Also, the lack of background information on each organization and the absence of standardized datasets across these local governments make comparative analysis difficult. This study focused on governments that adopted this specific platform, leading to limited generalizability, which may also result in skewed results due to the overrepresentation of more technologically advanced or resource-rich local governments. Moreover, the research only captured a snapshot in time, missing the long-term evolution of AI adoption in local governments and its impacts on civic engagement.

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It is important that all references used in the text are listed in the references list at the end of the paper. Please make sure that the items listed are as accurate and complete as possible. For this conference we will be using the APA referencing style (see: https://apastyle.apa.org/style-grammar-guidelines/references/examples).

Appendix

Interview questions for platform designers

Background information
- Can you tell me a little about your positions and work at GoVocal? How long have you been with the company? What are your main responsibilities?
- What inspired GoVocal to focus on developing an AI-based platform for public service and community engagement? What do you think about the use of technology for public service? What do you think about community engagement?

Design and development
- Could you describe the process of designing an AI-based platform for public service and community engagement? What stages are involved? How do you initiate the project?
- What specific challenges do you encounter when developing these platforms? How do you address issues related to data privacy, user trust, and inclusivity?
- How do you ensure that the AI-based platform is user-friendly and accessible to a diverse range of users? What considerations are taken into account for different user demographics?

Technical aspects
- What technologies and tools do you typically use in developing these AI platforms? Are there any specific programming languages, frameworks, or software that are particularly important?
- How do you train and test the AI models to ensure they perform effectively in real-world public service scenarios?
- How do you evaluate the performance? How do you handle misinformation, trolling, and other kinds of manipulative language in the design?

Civic engagement
- How do you understand civic engagement in public services? What are the objectives of community engagement for local government? How do you design for those goals and objectives?
- How do you involve other stakeholders in the design and development process (e.g., public servants and citizens)? What methods do you use to gather feedback from those stakeholders?
- How do you design for different communities, especially for those who have immigrants from other countries or people with other linguistic and cultural backgrounds?

Impact and outcomes
- Can you provide examples of successful implementations of GoVocal's AI platforms in public service and community engagement? What were the key factors that contributed to their success?
- How do you evaluate the impact of your AI platforms on the communities they serve? What metrics or indicators do you use?

Ethical considerations
- What ethical considerations do you take into account when designing AI platforms for public service? How do you address potential bias and discrimination in the AI models?

- How does GoVocal ensure fairness, explainability, security, transparency, and accountability in its AI platforms?

Future directions
- What are GoVocal's future plans for developing AI platforms for public service and community engagement? Are there any upcoming projects or new features you are excited about?
- What advancements in AI do you believe will most significantly impact public service and community

engagement in the next five years?

Interview questions for public servants

Background information
- Can you tell me a little about your role within the local government? How long have you been in this position? What are your main responsibilities?
- How long has your government been using GoVocal?
- What's the size of your population in the community?

Adoption and implementation
- What are the motivations for your governments to adopt the GoVocal platform? How did you make the decision? What are the things that you considered in the adoption?
- Can you describe how GoVocal's AI features are integrated into your public service and community engagement efforts? What specific services or initiatives are you using GoVocal for?
- What was the process of implementing GoVocal Like? What steps did you take? Were there any challenges during the implementation?
- How do you train your staff to use GoVocal's AI features? What kind of training or support does GoVocal provide?

Impact on public service and community engagement
- What improvements or changes have you observed in public service delivery since implementing GoVocal? How do you measure the effectiveness of GoVocal in enhancing public services? Can you provide specific examples or metrics?
- How do you understand community engagement in public services? What are the objectives of community engagement for local government? How has GoVocal impacted community engagement in your areas? Are there any notable success stories or positive outcomes? Or what metrics or indicators do you use?
- How do you involve other stakeholders in the decision-making process (e.g., public servants and citizens) about the implementation of GoVocal in local governments? What methods do you use to gather feedback from those stakeholders?

Impact on work and public service
- How has the use of GoVocal's AI features transformed your work as a public servant? Can you provide specific examples of how it has changed your daily tasks or responsibilities?
- What improvements or efficiencies have you noticed since using GoVocal? How has it affected the way you deliver public services?
- How has GoVocal impacted your interactions with the community? Are there any specific instances where GoVocal improved community engagement?

Challenges and solutions
- What challenges have you encountered while using GoVocal's AI features? How have you addressed or overcome these challenges?
- Are there any limitations of the GoVocal platform that you have identified? How do you work around these limitations?
- Have you needed to adapt your work processes to accommodate GoVocal? What changes did you make to your workflow?

User experience and feedback
- How do the residents and community members respond to the AI features of GoVocal? What feedback have you received from the public?
- How do you collect and incorporate feedback from the community about GoVocal's features? Can you give examples of how community feedback has led to changes or improvements?

Ethical and privacy considerations
- What measures do you take to ensure the ethical use of AI in your work? How do you address issues related to data privacy and security?
- How transparent are you with the community about the use of AI in public services? What steps do you take to maintain transparency and build trust?

Future directions
- What future plans do you have for using GoVocal and its AI features in your local government? Are there any new projects or expansions you are considering?
- What advancements or features would you like to see in GoVocal to better serve your needs?