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Citizen Participation in and Through AI-Enabled Innovation

Raluca ONUFREICIUC [1]

[1] Phd candidate at Paris-Panthéon-Assas University and Nicolae Titulescu University of Bucharest, Teaching assistant professor, Faculty of Law and Administrative Sciences, "Stefan cel Mare" University of Suceava, Romania, raluca.onufreiciuc@fdsa.usv.ro

Abstract: *As we are witnessing one of the most interesting shifts in technology every day we can find cases where algorithms and data have improved people's lives as well as examples where they have perpetuated bias and abuse. In light of the expanding influence of algorithms within governance structures and the imperative to provide elucidation on the utilization of artificial intelligence (AI) within the public sector, this paper endeavors to scrutinize the potential for reinventing citizen engagement and participation through the integration of AI within online mass participatory platforms.*

Keywords: *Artificial Intelligence tools, Citizen participation, NLP methods, Consul Project, CitizenLab, Online participatory platforms.*

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Introduction

As we are witnessing one of the most interesting shifts in technology every day, we can find cases where algorithms and data have improved people's lives as well as examples where they have perpetuated bias and abuse. Informing civil society on the promise and perils of algorithms systems has not only the potential to enhance public engagement but also to recalibrate public trust and its main "currency", institutional and policy-making transparency. In 2020, the European Commission (EC) stated a definition that was mainly focused on policy characterizing artificial intelligence (AI) as a "collection of technologies that combine data, algorithms and computing power". According to the EC, AI refers to "systems that demonstrate intelligent behavior by understanding their surroundings and executing actions – with some degree of autonomy – to achieve specific goals" (European Commission, 2018, p. 1). From a doctrinal standpoint, AI has been delineated as the capacity of a computer system to execute intricate tasks typically necessitating human intelligence, encompassing visual perception, speech recognition, decision-making, and multilingual translation (Landemore, 2022).

In her book "Open Democracy", Hélène Landemore (2020, p.11) envisioned how a new form of democracy that gave regular people more power might improve inclusivity, responsiveness, and accountability in contemporary societies. In summary, deliberative democracy asserts that legitimacy in laws and policies is conferred solely through a process of public discourse among autonomous and equal citizens. Using the collective intelligence of the citizens can increase the chances of achieving a better solution than one produced by a homogeneous group of experts (Wilsdon 2001, p. 6; Danaher et al. 2017, p. 2).

In this sense, can AI enhance fully inclusive online mass participation and play the role of a facilitator in online participatory platforms? And if the answer is affirmative, can these AI algorithms be neutral and unbiased and in the end be considered a useful tool in what regards regaining trust in public institutions and reinvigorating the bottom-up spirit of public participation? Definitely in the current climate of public distrust and lack of citizens' involvement, governments cannot afford the luxury to miss the chance to employ "new technology and engagement strategies" to encourage citizens to participate in policymaking (Landemore, 2020, p.20).

Democratic innovations such as online participatory platforms empowered by AI can bring together all the similar proposals or evaluations

and still have the ability to provide access to the justificatory arguments that stood behind them. Independently of the number of users, ensuring the data security and privacy of the participants actively involved in these platforms is extremely important and could bring some technological constraints in the case of a high number of participants. Clearly, the ideal of involving large groups of citizens in the decision-making processes needs AI algorithms in automating some procedures which are time and cost-saving.

The promise of AI-based innovative tools in regenerating citizen participation

In a world where social media dominates our lives, it's easy to forget the power of face-to-face interaction. But in order for democracy to truly work, citizens need to be engaged with their government on a regular basis. AI-based tools have the potential to increase citizen participation by making it easier for people to connect with their representatives and provide feedback on issues that matter to them.

The term "citizen participation" has been used in a variety of contexts and there is still no clear definition for it. In general, citizen participation can be defined as the active involvement of citizens in the affairs of their government or community. It can take many forms, such as voting in elections, attending public meetings, serving on boards or commissions, or simply staying informed about what is going on in your community. In recent years, there has been a decline in citizen participation in many democracies around the world. This decline has been attributed to several factors, such as increased cynicism about government and politics, the demands of work and family life, and the proliferation of partisan media sources that make it difficult to find impartial information about issues and candidates.

Following the proclamation of the Open Government Directive by President Barack Obama in 2009, numerous governmental agencies within the United States were compelled to contemplate the integration of transparent methodologies into their operational frameworks (McDermott, 2010, p. 402; Onufreiciuc & Olariu, 2020). This open government framework claimed to build more reliable and transparent organizations by utilizing modern technology (Gillespie, 2014, p.170). Governments must be open and responsible for the laws and decisions that they make, which is one of the most well-known components of the rule of law. Transparency calls for openness on how the government functions and for public access to judicial rulings and administrative actions. According to mechanisms developed by programs like the Open Government Partnership (OGP),

including citizens in policymaking was seen as the next significant step in national and local management (Faria, 2013, p. 10).

A pool of worldwide expertise in carrying out these actions connected to collaborative legislation and policy making has been built up to this point via multiple iterations. The famous instance of Iceland using communal intelligence to design its constitution in 2011 broke down barriers for similar experiments that were previously seen as utopian or impractical and other attempts followed.

However, the majority of them encountered significant difficulties as a result of improper process design. By utilizing crowd intelligence and connecting individuals to public choices, citizen participation in policymaking was aimed at improving the quality of policy decisions and to reduce the likelihood of electoral fraud by powerful interest groups. It was also seen as the finest strategy for bridging the divide between established power institutions and the people they are supposed to represent. But that imposes a different relationship between the two actors, switching from a hierarchical and subordinated model to one based on forms of collaboration, which are more horizontal in character.

The issue is to what extent citizens' participation (Meijer, 2013, p. 430) is ensured when there is a permanent possibility to participate in decision-making forums and use publicly available data. Publicity serves as the pivotal nexus bridging transparency and participation within a straightforward yet efficacious framework, wherein participation is delineated by unhindered entry to decision-making arenas, and transparency denotes unrestricted access to governmental data (Onufreiciuc & Olariu, 2020, p. 980). The Portuguese LabX (Marani & Cotroneo, 2021, p. 12) is an excellent illustration of how to create new public services or restructure old ones while detecting and removing barriers and promoting the use of online services in an easy-to-use manner. It was founded on both the actual demands of users and financial and technological viability, while including principles like transparency and inclusivity. Through the engagement of individuals, organizations, and governmental decision-makers, LabX cultivates an environment conducive to knowledge dissemination and collaborative innovation. It is imperative to underscore that the methodology employed by LabX was predicated on the premise that public administration ought to eschew conjecture regarding citizens' preferences and, instead, ascertain their genuine needs. It was crucial to include both members of the communities and public leaders in this process. The greatest method for public administrations to learn about and work with its stakeholders was to give them a key role in creating the answers to their own issues and difficulties.

A collaborative process or mechanism possesses the capacity to transmute participation from an individualistic pursuit into an opportune endeavor for communal engagement, thereby facilitating the incorporation of diverse perspectives and collective intellect (Innes & Booher, 2003, p. 35; Onufreiciuc & Olariu, 2020). To "fortify people's ability to act upon the available knowledge and information", administrative transparency and active engagement through collaborative decision-making processes may be beneficial. Innovative models of opinion landscapes (Lindstedt & Naurin, 2010, p. 303) that apply AI methodologies can assist citizens, advocacy organizations, and notably the government better understand community feedback, empower decision-makers, and increase democratic participation.

A significant amount of literature indicates that the use of AI-based tools can help to regenerate citizen participation (Vereş-Cătău, 2019, p. 203). Here are a few examples: 1. Online platforms that match volunteers with opportunities based on their skills and interests; 2. Applications that gamify civic engagement, providing incentives for users to take part in activities that benefit their community; 3. Virtual assistants that help citizens navigate government bureaucracy, providing information and assistance when they need it most; 4. Chatbots that engage citizens in conversations about local issues, giving them a voice in the decision-making process; 5. Predictive analytics tools that help identify trends and patterns in data, allowing officials to make more informed decisions about policies and programs. For example, AI-based chatbots can be used to provide information about government services or to answer questions about the political process. AI-based algorithms can also be used to match citizens with opportunities to get involved in their community based on their skills, interests, and availability. For example, the U.S. Department of State's Bureau of Democracy, Human Rights, and Labor has developed an AI-based tool called "Troll Hunter" that was designed to identify and track online trolls who try to disrupt public conversation. In the UK, the Cabinet Office was using an AI tool called "Policy Compass" to help identify patterns in policy submissions from citizens.

Currently more used by the private sector, chatbots demonstrated huge potential in allowing customers to easily buy products or services online without the need for human intervention. Defined as computer programs that can recognize and interpret language, either through text or speech (Androutsopoulou et. al., 2019, p. 359), chatbots are often touted for their ability to help public authorities reduce administrative costs and improve engagement with citizens, especially when it comes to public service delivery (van Noordt & Misuraca, 2019, p.52). For instance, in December

2017, the City of Vienna introduced the WienBot[1] , a free chatbot and a voice assistant with intelligence. With the help of this bot, Vienna has transformed citizen-government contact by including an editorial evaluation process and new digital technologies like AI and natural language assistance. At the start of the pandemic crisis, the bot was employed in the AI against Covid-19 misinformation project to quickly create a "CoronaBot" that could answer queries about closing times, existing regulations, preventative measures, or coronavirus assistance measures. Any citizen could utilize the chatbot to express their concerns and receive a prompt response, regardless of nationality or special requirements.

Natural language processing and Machine learning approaches have shown to be effective in easing access to massive quantities of data in circumstances involving crowd source sense-making (Arana-Catania et al., 2021, p.7). Allowing citizen involvement platforms to overcome the fundamental barrier of information overload will definitely have a greater influence on public institutions and the advancement of deliberative democracy. Crowdlaw platform proved that public authorities or institutions work better if they encourage citizen engagement by "leveraging new technologies" (Feddersen & Santana, 2021, p. 3). Run for more than 15 years by the Chilean Senate, the upper house of the two-chamber Congress, between 2003 and 2018, the digital platform for public involvement, *Senador Virtual* allowed citizens to participate in legislative discussions and voice their opinions before senators vote. All the results of the virtual votes were compiled into a report that the appropriate committee transmitted to Senators in order to enhance the legislative discussions. Although the platform functioned in only a specific nation and political environment, the lessons learned might easily be applied to other institutionally based participatory platforms that focus on identifying and drafting solutions (Feddersen & Santana, 2019, p. 4). Similarly, the City of Amsterdam has launched a project called the Amsterdam Algorithm Register to give a summary of how algorithms were used to offer services in Amsterdam. It not only offered residents the chance to contribute to creating human-centered computational solutions in Amsterdam, but it was also highly educational. To ensure responsible AI in government, this registry not only encouraged openness and transparency, but also public involvement.

Another suitable example on how algorithms could be "manipulated for a noble purpose" was the initiative developed by the United States

[1] For more details about the initiative, see also
https://www.wien.gv.at/english/bot/index.html (last visited August 5, 2022)

Department of Veterans Affairs (Verhulst, 2020). In order to identify which veterans were at danger of suicide, they used ML algorithms examining a range of information, such as demographics, health information, and posts on social media to look for trends that would hint to someone who might be at danger of self-harm. The main objective was to provide an early intervention and support for veterans who most need it in difficult times. Also, an intelligent system that could forecast pipe bursts has been created by the city of Boston. To determine which pipes would be most likely to malfunction in the future, the system examined information on previous pipe failures, weather trends, and present circumstances. By using this data , the city could favor maintenance and repair tasks, saving money and ensuring the safety of its citizens. The City of Amsterdam was also testing other project called "Framework for Responsible AI in Times of Corona," which offered a simple self-assessment tool to gauge the degree of compliance with the fundamental principles of responsible AI. The outcomes of this fast evaluation might then be used to modify the AI's design or implementation in order to verify that it complies with responsible AI standards. Although a structure created cannot be a law, it does involve a number of legal considerations, including adherence to democratic principles and the rule of law, observance of current laws, consideration of human rights, and the level of transparency or comprehensibility. This sensible move by Amsterdam is certainly beneficial in the lack of particular rules regarding the application of AI in government.

Undoubtedly, the recent global pandemic crisis has brought about profound and enduring transformations in our societal landscape, compelling a paradigm shift towards ubiquitous online engagement across diverse platforms and devices, irrespective of geographical constraints. This surge in digital civic involvement holds the promise of extending outreach to a broader and more diverse demographic than previously feasible. Furthermore, the digital realm offers unparalleled advantages in terms of data collection, rendering information analysis and reutilization notably more streamlined and efficient. Moreover, the trajectory of labor relations appears increasingly inclined towards a predominantly digital framework, heralding an imminent transition into an online-exclusive regime. Consequently, conventional modalities of public engagement and participation are poised to experience diminishing relevance in the face of the swiftly evolving technological landscape. The advent of user-friendly platforms and technologies, epitomized by the simplicity of a single "click," presents an unprecedented opportunity for citizens to actively partake in the decision-making processes, thereby augmenting the perceived trustworthiness, transparency, and legitimacy of local, regional, or national governing bodies.

The revival of online participatory platforms with AI: Consul and Citizen Lab case

The ongoing nature of citizen consultation and participation within decision-making processes, particularly within local governance, necessitates a sustained effort to evolve into a best practice, facilitated by the provision of advanced virtual interaction tools. Through the introduction of innovative and refined mechanisms for virtual engagement, the consultation and involvement of citizens in decision-making processes, notably at the local level, are poised to assume a persistent and commendable form. The use of collective intelligence in drafting legislation could be observed globally in many initiatives all over the world such as Iceland's crowd-sourced constitution or legislation derived from off-road traffic in Finland (Aitamurto & Landemore, 2015, p. 5). Regrettably, the majority encountered significant obstacles stemming from inadequate process design. In this sense, could artificial intelligence be the key to unlocking even more the potential of collective intelligence, especially on a large scale?

In analyzing two of the most used online participatory platforms: CitizenLab and the open-source platform Consul and the possibility and impact of using machine learning (ML) and natural language processing (NLP) methods on such participatory platforms, all the conclusions suggested the NLP and ML techniques markedly enhanced the efficacy of citizen engagement and collective intelligence processes.

In comparing these two important projects from Belgium and Spain, one of the first impressions is that the two platforms are in many ways similar. But at a second and closer look, as shown in *Table 1*, there are many aspects that visibly differ.

Table 1. Overview of the two projects[2]

Country	Belgium	Spain
E-Participation Index (2020)	**0.6548** **Rank 77 of 193**	**0.8452** **Rank 36 of 193**
Project	**Citizen Lab**	**Consul Project**
Organization Type	**Private Sector**	**Government**
Level of government	**National/Federal government**	**Local government**
NLP and machine learning techniques	**Yes** **Developed for the project**	**Yes** **Stanford NLP (as an experiment) library[3]**
Number of cities and governments involved	**300**	**135**

For example, the organization type: Consul Project was developed by the local government while CitizenLab was founded as a civic tech company whit the clear mission to "make community engagement and public decision-making more inclusive, participatory and responsive" (CitizenLab Platform). Even though having initial different stakeholders, what is worthy to be underlined is that the two platforms debuted in two countries where the E-Participation Index (EPI)[4] remained rather low taking into consideration the values from 2020. This raises a possible question of whether ML and NLP techniques can have an indirect impact and enable more active involvement and citizen participation. With just these two use cases it is still difficult to predict an answer, but surely it is not tough to conclude that any new functionality or even new participatory platform that is guaranteed by the private sector is more likely to be embraced at the national level or in local communities. As a more reliable intermediary, the private sector solutions are seen as a breath of fresh air in a climate of public mistrust.

[2] Author's contribution based on the two study cases published on Observatory Public Sector Innovation (OPSI)

[3] More details here: https://stanfordnlp.github.io/stanfordnlp/ (last visited 15 April, 2022)

[4] The definition of E-Participation Index used by the United Nations in the E-government Survey is the process of engaging citizens through ICT in policy, decision-making and service design and delivery in order to make it participatory, inclusive and deliberative. More info available at https://www.un.org/esa/desa/papers/2020/wp163_2020.pdf (last visited 15 April, 2022)

In evaluating the adequacy of using AI algorithms as new functionalities in what regards these two representative online participatory platforms, there are still some limitations that need to be underlined: the possibility of AI picking up on terrible viral ideas, like anti-immigration beliefs or anti-minority views and help them spread through the CitizenBook as online communities were portrayed by Landemore (2020). These dangerous views can irreparably affect the capital of public trust invested in their performance on the long-term.

The following years bring a unique opportunity for the public sector to recalibrate citizens' trust by being more open, transparent, and inclusive. Involving and informing citizens from the very beginning and deciding together the best solution for their communities can improve the public experience and usage of any kind of participatory platform. When adopting AI this collaborative approach is even much more important taking into consideration the current privacy risks. Also, there are still remaining normative objections against what could be an inclusive mass participation, and which are the most suitable procedural steps through online mass deliberation.

Besides discovering and implementing new uses for artificial intelligence in the public sector, the national or federal governments should understand that these systems can have problems, which can be addressed with better data sets by being aware of discrimination and by adding explanations to it and remembering they should not be judged by the standard of perfection but by the standard of human beings making decisions.

Possible conclusions

Transparency and openness are two key elements in order to build public accountability and trust, but they cannot be obtained without a real and practical public participation and access to relevant data. Online participatory platforms can play a vital role in creating the framework for a culture of involvement which will transform in time in community ownership. CitizenLab and Consul project were the pioneers and yet succeeded to attract together almost 500 national and local governments. In the bumpy road of meaningful public participation, AI has a lot of potential to ensure it since it can analyse massive data sets, evaluate the needs and maybe point out the aspects which are lacking in order to enhance online mass public participation.

Public trust and subsequently citizens' participation can be facilitated by AI tools as long as these are designed by (or in consultation with) experts in public engagement techniques, these can be modelled at any time during the participation process and they are complementary to other engagement instruments. But there is still a lot of effort needed to assure that methods such

as NLP and ML are accepted and trusted. Before enhancing its functioning, it is of utmost importance for public decision-makers and private actors to inform and consult communities bringing guarantees that they are created with the greatest ethical and legal standards and with "an eye on new forms of potentially harmful political discourse and manipulation taking into consideration the current sensitivity of democratic processes" (Arana-Catania *et al.*, 2021).

Like any new technology, typically a period of ambiguity is needed before social acceptance. As a consequence, it is vital for public decision-makers and public servants to start accumulating as much information as they can about artificial intelligence and automation before being obliged to do it in more pressing circumstances of legal reform.

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