

Opportunities and challenges for digital governance in a world of digital participation

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Abstract. Digital technologies are changing information flows and transforming some of our current social structures. From some perspectives, increased interactions among people on social media platforms are already transforming the role of the free press in modern democracies, with the potential to influence our governance systems. Moreover, government and non-government organizations are promoting digital participation through the development of technology platforms, such as e-Consultation and e-Petitioning systems, to promote social interactions as well as political conversations with the aim to improve the public policy development process. These trends continue to change our democratic governance system by opening opportunities for citizens to directly influence policy issues and democratic participation. However, lack of transparency in how the conversation is initiated and structured in these same platforms provides new opportunities for private interests to influence public conversations.

Keywords: Information policy, governance, e-participation, e-Consultation, e-Petitioning, co-creation, policy informatics

1. Introduction

Information and technology have been important in shaping society's forms of governance during human history. Braman [1], for example, documented the importance of knowledge and information in shaping what she called "tribal information societies", where knowledge was recognized as the most important individual property playing an important role in defining social positions in a group. As she described in her accounting of the history of information policy, control over information creation and flows have been used as important sources of power and control since early ages. Although some researchers suggest that information and information technologies are, in fact, constitutive forces of society [1,2], current research in digital government has been criticized because of its lack of attention to fundamental problems of governance, leaving out questions on the distribution and exercise of power as well as the role of government in such power relations [3]. Other researchers have explored ways in which information technologies are changing the shape of the state [4]. In this essay, I want to discuss the role of information and information technologies, particularly emerging forms of digital participation, in current forms of governance.

Before moving forward with the discussion, it is important to define digital governance in the context of this essay. Governance is commonly defined as "the system of authoritative norms, rules, institutions and practices by means of which any collectivity, from the local to the global, manages its common affairs" [5]. Digital governance refers to the effects of information technologies on these systems of rules and practices [3,4]. Although the current trend emphasizes the importance of understanding governance

in the context of public-private networks of collaboration inside public administrations [6,7], in this essay, I would like to explore governance from the perspective of the State [4]. From this perspective, western democracies have designed three generic forms of governance, Parliamentary, Presidential, and Semi-presidential [8]. The parliamentary system emerged in England as a strategy to limit the powers of the British Crown, as the Parliament holds both executive and legislative powers. The presidential system, on the other hand, was envisioned by the United States of America in the context of the independence from England. Semi-presidential systems, such as the French government, combine elements of both the presidential and the parliamentary systems. In the specific case of the United States, the figure of a strong president was envisioned to guarantee pacific coexistence of the recently emancipated colonies, to ensure a growth of territory, and to better manage diverse interests. The president has usually dual authority, he is the head of the state, representing the country and establishing policy, and he or she is also the head of the government in charge of the bureaucracy and the administrative machinery [8].

The United States Constitution establishes a governance system based on the principle of the division of powers enacted by a system of checks and balances [9]. The system of checks and balances is based on the assumption that the government cannot be considered trustworthy; therefore, the powers of the executive branch must be tightly monitored and kept in check [10]. Information plays an important role in the system of checks and balances. The First Amendment to the U.S. Constitution introduced another important and independent player, the free press, which was envisioned to permanently and independently monitor both the President and the Congress and to inform the public about governmental and congressional action or non-action [11,12]. In the last decades, however, private interests have played an increasingly important role in policy development through lobbying.

New technologies that enable information flows and social connections, such as the Internet, have opened new opportunities for citizens to participate and organize themselves through the creation and distribution of content. Many forms of digital participation have emerged, all capable of covering the full range of expressions as well as diverse interests, values, and imaginations, including the expression of social conflicts [2]. Although some initial explorations of the effect of the Internet on public participation suggested that the Internet would have a limited influence on political activism [13], recent developments suggest that Internet technologies offer opportunities to exercise the rights of Freedom of Speech, providing unique opportunities to transform the current democratic governance systems.

Individuals in society are taking advantage of the innovative technologies to organize themselves through various platforms. In a sense, every citizen can harness – using digital platforms – the power of the free press by voicing his/her needs and opinions. Citizens also group themselves and exchange ideas as in a virtual public square [14]. Moreover, the renewed interest in evidence-based decision-making and the development of computational techniques to analyze the Internet and network data open opportunities to develop additional organizational forms to identify individuals based on common interests and problems. Through these new media, people are finding new forms of participation and influence, with a potential to transform the governance system in a way that was not possible in the past.

These new structures – besides providing new opportunities to voice important concerns and policy alternatives – also create additional challenges and risks that can reinforce the current system and distribution of power. In this essay, I provide evidence of these emerging citizen-centric structures and their potential to transform democratic governance as well as to reinforce the influence of private interests in the conversation.

2. Digital governance and digital participation

Digital participation is an umbrella term that refers to different citizen exchanges using electronic methods to discuss social concerns as well as public policy issues [15]. Although any electronic method can be used, including the telephone system, digital participation, which involves conversations that occur on private social media platforms, such as Facebook, Twitter, YouTube, and other applications; private platforms managed by non-government organizations, such as Change.org; and government platforms specially designed to gather citizen inputs into the policy process, such as e-Petitioning or e-Consultation platforms, is the most common form of communication. Besides these media, tools and platforms, in my discussion, I would like to include applications of open data and data-driven policy-making because, as I will try to point out later, I believe that these applications also require individuals to share information and collaborate in the creation of any given policy.

2.1. Social media

The first set of applications that challenge traditional governance mechanisms and information flows in society are social media private platforms. This century has witnessed the rise of social media, including blogs, microblogs, video blogs, social tagging, picture sharing, and other forms of digital communication. Social network platforms help their users make their social networks tangible by “friending” or “following” family, friends, and other acquaintances. Twitter, Facebook, Snapchat, LinkedIn, WhatsApp, WeChat, and Pinterest are examples of these platforms. Although their popularity varies depending on the context, age groups, or geography, it is difficult to argue against the fact that social media platforms have become an essential element in our daily lives and are changing the forms of interaction among individuals in the society.

The importance of social media to access information and form opinions and perceptions to be informed is a current conversation at the US Supreme Court in the *Packingham v. North Carolina* case. Packingham is a sex offender who, per North Carolina’s State Law, has been prohibited access to commercial social media even after finishing his sentence. The case “challenges a state law that limits individual social media access for violating freedom of speech as guaranteed by the First Amendment of the US Constitution” [16]. The key discussion concerns the importance of social media in exercising freedom of speech to the extent that such access needs to be protected by the constitution. Discussion in the supreme court includes two perspectives, one that questions the actual relevance of social media to the society, “Now, I know there are people who think that life is not possible without Twitter and Facebook and these things and that 2003 was the dark ages,” and the other perspective arguing that the social media offers a public space for conversation and discussion of public affairs, “Well, it seems to me that the sites... and their utility and extent of their coverage are greater than the communication you could ever have, even in the paradigm of public square” [16].

The discussion is valuable, given that social media platforms have proven to be an effective tool for citizens to express themselves and discuss social, economic, and political public problems [17]. For many citizens, especially the youngest, social media has become a substitute for the free press. We learn about main events through conversations carried out within our electronic networks. Moreover, current research suggests that social media becomes an even more important channel to access trustworthy information during conflicts or political uncertainty that may compromise the credibility of the press and other traditional electronic media [17]. Additionally, it is important in small rural communities where the traditional sources of information have been disappearing in the last years [14]. In fact, the research on social media use during the last presidential elections in Mexico showed that voters used

social media as their preferred information channel to gather information about candidates and their platforms. Information exchanges with social media connections not only were perceived to be among the most reliable, but also contributed positively to citizens' self-perception of being politically informed and capable to participate in the political process [17].

Despite the advantages of social media platforms, reliance on social media as a sole source of information involves a risk of obtaining only a partial view of the world. At the end, our digital friends are people who share some of our values. Additionally, social media platforms are also private companies that are actively looking for ways to monetize user activity, mostly through marketing. In this way, all public conversations on these platforms are mediated by algorithms and rules designed to maximize the company's profit rather than benefit the society.

2.2. *E-Deliberation and E-Consultation*

Another type of platform that offers a virtual public space to discuss public policies and programs have been often described as e-Deliberation or e-Consultation system. In contrast to social media platforms, e-Consultation constitutes a top-down approach in which governments ask for citizens' opinions on policy options or pending legislations [15,18]. The processes of e-Consultation aim to increase legitimacy of the policy or legislation as well as improve their design. e-Consultation platforms have become widely adopted world-wide at all government levels. In the European Union, for example, the European Commission has promoted e-Consultation process, making it the key component of the policy-making process [18].

Electronic consultations can take different forms, ranging from highly structured questionnaires to open questions or discussions around an issue. Various platforms and governments use citizens' input differently, and its actual influence on the policy-making process is still an open question. One example of these platforms can be found at <http://www.azleg.gov/active-bills/>, which is the official consultation website of the Arizona State Legislature in the United States. Citizens' comments to pending bills, in this specific case, "are not used for any other purpose than to inform legislators and build an official legislative record" [19]. In the case of the European Union, the ways in which consultations are summarized and used in the policy-making process lack transparency. In a sense, e-Consultation "provides participation opportunities beyond what was offered before" [18]. However, many opportunities exist to improve the process and use it as a two-way avenue to include citizens in policy-making and improve the policy process.

Two main threads of conversation dominate the discussion about e-Consultation platforms. The first area of research is related to the technologies used in the consultation and deliberation processes [18,20]. In general, Internet is the main channel to support electronic consultation and deliberation, and the technology conversation includes mostly research on the ways in which to improve the user interfaces to promote participation and on the use of computational tools to ease information processing. Many technologies have been explored to support the conversation. Albrecht [18], for example, discussed the use of natural language processing and geographic information systems to improve the structure of the conversation. Distilling key topics using these computational methods has been proposed as a way to help citizens and policy makers understand the conversation and its main inputs for the policy process. Additionally, Albrecht also proposed the use of technology to integrate the government-hosted platforms with the private-owned social media. The "Puzzled by Policy" platform consists of a *widget* that pushes policy topics into social media sites to invite citizens to join the conversation in the main deliberation platform.

The second area of research on e-Deliberation is associated with the facilitation processes needed to promote an effective consultation and deliberation process. This area of research usually involves a technology platform, although the emphasis is on the facilitated use of the technology. As the research of Loukis and Wimmer [20] suggests, the facilitation process is as important as the technology platform itself, or even more so. Although some of the facilitation approaches resemble traditional research in group decision support systems (see for example [21]), alternative facilitation techniques take advantage of ontologies and other tagging technologies to automate facilitation [20]. While the facilitation process has been demonstrated to be at least as important as the technology platform development, research efforts have favored the technological side of the platforms; hence, more research on the facilitation is needed to improve the effect of e-Consultation on the policy and legislation development processes [22].

Beyond the facilitation process, who plays the facilitation role may threaten the legitimacy of this type of systems. Arizonavoices.org, an e-Consultation platform designed to capture citizens' input on Arizona bills, started business as AZVoices.gov. The platform was developed and maintained by a private marketing firm, despite having a .gov domain. The firm's mission was to develop "strategic communications to corporate and nonprofit organizations, banking and financial institutions, healthcare, and others... To produce deliberate outcomes, we draw upon our extensive experience in marketing, public affairs, brand strategy, event development, advertising, and execution and other marketing and public relations disciplines" [19]. The facilitating organization, as well as the way in which it presented itself, created enough turmoil among some citizen groups, affecting the trustworthiness and reliability of the platform, which was perceived as a platform to "sell" initiatives instead of conducting a legitimate consultation about them.

2.3. *E-Petitioning*

e-Petitioning systems are the third type of information platforms, which provide evidence of new forms of people's participation and has the potential to influence our democratic governance system. E-petitioning systems are bottom-up applications that provide citizens with a channel to petition their governments for change [15]. The Scottish Parliament implemented the first e-Petitioning system in 1999 [23]. In the United States, petitioning constitutes another constitutional right protected by the first amendment. In fact, during President's Obama Administration, the US government developed its own e-Petitioning platform called We the People [24]. Through We the People, citizens present their petitions to the Federal Government, which is committed to respond to petitions that gather more than 100,000 signatures in less than 30 days. Non-government organizations have also promoted petitioning. The platform Change.org, for example, gathers and promotes petitions to governments, private organizations, and other non-profits. According to their website, Change.org petitions have been effective in promoting change in almost 21,000 cases across 196 countries.

A group of colleagues at the University at Albany has been working in the last years on research projects to increase our understanding of petitioning systems as social mobilization tools [24,25]. The work is innovative and interdisciplinary, combining the strengths of social research theories and computational approaches to investigate trends and structures hidden in the e-Petitioning data. Their research suggests, for example, that participants in the 'We the People' platform have common interests in public policy themes. In fact, using techniques, such as topic modeling, the group identified a set of relevant topics for the people who use the platform [26]. The analysis also suggested connections between social events and petitions in the system. Their research further showed a social structure associated with the petitions in the system [24]. Analyzing the data from 21 petitions triggered by the Sandy Hook shooting

in 2012, they could identify one core community that posted petitions in favor of gun control as well as four communities opposing gun control or in support of alternative policy proposals. Current research of the group focuses on linking petitioning data with data streams from social media sites. This additional analysis will contribute to the understanding of the actual structure of the communities organized around current events and topics.

In terms of the effect of petitioning systems on the policy process, the results are inconclusive. In some documented cases, the petition started by the citizens lead to the change in policy. In the US, for example, a petition in 'We the People' that gathered more than 100,000 signatures triggered the resolution to make unlocking cell phones legal. There are of course other examples that have not been successful in changing policy but that have definitely fueled policy conversations, such as petitions related to firing guns in the same platform [24]. Beyond the direct citizen inputs and petitions, some researchers have suggested that the use of computational methods to mine the petitioning data is a promising way of understanding policy interests and themes among citizens [27].

Research in his field definitively suggests that information flows from events, social media, and petitioning systems contribute to new forms of citizen mobilizations that may affect (or not) our current governance systems. On the other hand, these platforms risk voicing private interests other than citizens' interests, as in a new form of lobbying. For example, popular private platforms define themselves as for-profit petitioning systems, but provide no information about their sources of revenue. In this sense, the actual voices behind some of the petitions in the system, and maybe those that are making the platform a profitable system, are hidden pretending to be the voice of individual citizens.

2.4. Policy informatics and the concept of co-creation

The approaches and conclusions introduced in previous sections suggest one more trend that may be considered as a fourth piece of evidence of how technology is changing governance. Policy informatics consists of the use of computational and statistical methods to find data patterns that contribute to the policy-making process as another form of citizen participation [28]. In a sense, governments would be using the data from public and private platforms to mine for key topics and sentiments of the citizens to be included in the policy discourse, similar to other approaches to data-driven policy and decision-making [27]. The concept of data-driven decision-making in government is not necessarily new. In fact, performance oriented management was introduced in the federal government in 1993, and New York City Police introduced the first data-driven system to track crime in 1994 [29]. However, current approaches to data and computational power offer unique opportunities to improve the policy-making process through combining administrative government data with social media and other statistical data. Given that citizens are the main providers of these data, the approach can be seen as a form of co-creation of government policy [30]. This process of co-creation may be compared to the ways in which the data on search behavior on the Internet help search engine providers offer a better search experience.

The research community has been a key stakeholder in the promotion of data-driven policy and decision-making. For example, Loukis and his colleagues [31] developed and tested a framework to monitor social media as a form of citizen sourcing to develop ideas for open public innovations. Their research shows that computational methods can be used to identify "high level topics" in the interest of citizens. As we describe in previous sections, the use of computational methods applied to petitioning data can be used to accomplish the same purpose [26]. The open data movement offers additional opportunities to improve the policy making process as a process of co-creation [32,33]. The open data movement has been motivated by values, such as citizen collaboration, participation, and innovation. The

basic assumption is that once data is made available in formats that can be easily processed and re-used, citizens, organizations of the civil society, research centers, private companies, social entrepreneurs, and software developers will be able to collaborate with the government to develop innovative ways of looking at the data when designing and evaluating public policies. Although researchers and experts from non-government organizations are already taking advantage of these opportunities, we still have much to learn about the ways in which non-experts and citizens are getting involved in the use of open data. Current research suggests that the involvement of non-profits has been scarce while the direct participation of citizens is almost non-existent [34].

These new opportunities to use citizen produced data along with analytical methods with an aim to influence the policy-making process pose also some challenges. On the one hand, the need to “monitor” citizen activities to identify their interests poses a challenge related to protecting citizens’ privacy. This concern, which has been raised by similar practices in the private sector, is likely to be an issue if government decided to adopt many of the current tools being developed by researchers. Additionally, the more intensive use of statistical and data-driven approaches in policy-making will require a careful consideration of sampling and data gathering techniques to ensure a high-quality input for the policy making process. Finally, as some researchers pointed out, using data analysis to develop better policies – although sometimes considered an objective process – involves also political choices regarding the selection of the questions, collection of the data, and model development [35]. In this sense, the models designed to help produce better policies may promote the development of unfair policies that harm the people that they are trying to help.

3. Concluding remarks

In this essay, I have shown evidence of technological applications in the domain of digital participation that influence social structures. e-Consultation and e-Petitioning platforms, for example, provide an additional channel for citizens to contribute to the policy process. In the case of consultation platforms, citizens react to questions and government proposals. In the case of petitioning platforms, citizens initiate the conversation, proposing new policy and engaging in discussion with other citizens about their proposals. Evidence presented in this essay suggests that citizen participation in these platforms is a form of social mobilization that affords opportunities to create, access, and share information about social issues and public policy problems.

In addition to these specific platforms created with the sole purpose of policy conversation, private social media platforms have evolved into virtual public squares that allow individuals to discuss public issues and social mobilization. The platforms led to the discussion in the US supreme court on the protection of citizens’ access to information and social participation as fundamental constitutional rights of freedom of speech. Data produced by citizens’ digital activity on these platforms has also opened the opportunity of new forms of co-creation of public policies based on policy informatics, that is, the use of mathematical models and data to improve the policy process.

There is still much to understand about these innovative technologies and their actual effects on the policy process. However, undoubtedly, all these new technologies and platforms provide new opportunities for citizens to participate in the political process directly. People are using private social media platforms to access political information and discuss public problems [14,17]. Citizens are organizing themselves around social events to raise their voices and ask their government for policy changes [24]. They are also participating in consultation platforms to raise their voices and influence policy-making [15].

Research presented in this essay consistently suggests the need to use computational and statistical methods to increase the potential effect of most of these applications. Computational and statistical methods are being applied to social media platforms to better understand sentiments and social concerns [24,27]. As we describe in different sections of the paper, the same computational methods can also be applied to e-Deliberation and e-Petitioning platforms to extract a more complete understanding of the issues and concerns under discussion [8,27]. The increased understanding of the key issues has the potential to improve the conversation and process outcomes. Finally, the same methods can be used to develop “data-driven” policies, which can be understood as a co-creation process, given that citizens and other inhabitants of a given region are being the key actors in the creation of the data used for policy purposes.

Unfortunately, another common topic in most of these applications is the lack of transparency in how the conversation is initiated and structured, providing new opportunities for private interests to influence public conversations. The data streams in social media platforms follow rules and algorithms designed to optimize profit rather than to improve political dialogue. E-Consultation platforms rarely disclose the ways in which citizen inputs are being used in the policy process. Private and for-profit petitioning platforms that do not disclose their sources of funding can find a new form of lobbying hidden behind a crowd of petitioners. Computational and data-driven policy methods are also susceptible to political choices of the analyst. There is a need to ensure the highest quality of not only the data for these data-driven policies but also the processes to ensure accountability and fairness in the processes of data gathering, codification, storage, and model development.

Finally, some additional challenges emerge in terms of current policies for access and privacy. As we discussed in the essay, the fundamental question of providing access to the social networks as a constitutional right is still open. If the access to social media and other Internet applications for digital participation were protected by the constitution, we would need to invest as a society in strategies to make sure that all citizens have access to the tools and platforms to ensure fair access to information and provide equal opportunities to participate. Furthermore, privacy protection in all these platforms, both public and private, needs to be revised continuously. Additional efforts have to be taken to improve the regulations associated with privacy policies in social media and the Internet in general.

Although we still have not gained a full understanding of the ways in which social media is modifying the structure of our society, it is difficult to deny that such a change is taking place. The improvements in the technical, social, and policy areas are likely to increase the positive effect of these applications.

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