7. AI and civic tech: Engaging citizens in decision-making processes but not without risks

INTRODUCTION

In particular, we need to examine the democratic implications of networked governance, how the structures and patterns of the new governance affect the balance of bureaucratic and democratic ethos, and how this balance affects, both positively and negatively, the citizenship and democratic deficits. Likewise, we need to examine the role citizens can play in networked government and collaborative governance. (Nabatchi, 2010, p.390)

Collaborative governance describes the institutional arrangements that aim “to empower, enlighten, and engage citizens in the process of self-government” (Sirianni, 2006, p.39). One of its key objectives is to ensure that a broad diversity of stakeholders take part in “collective decision-making process[es] that [are] formal, consensus-oriented, and deliberative and that aim to make or implement public policy or manage public programs or assets” (Ansell & Gash, 2007, p.544). Collective governance highlights indeed “the role of the public in a collaborative management process” (Cooper, Bryer, & Meek, 2008, p.221). In the last decades, “[n]ew forms of organization are appearing that give responsibility to the individuals based on their contributions and participation” (Sidjanksi, 2000, p.203).

Digital technology and citizen participation have become increasingly intertwined in the 21st century (Tolbert & McNeal, 2003). Digital technologies provide technical solutions to increase the number of stakeholders in a policy and decision-making process. Developments in Europe have shown that digital technologies can offer new avenues to re-enchant democracy and overcome some of its most pressing challenges. Pioneering examples of civic tech have burgeoned in both contexts. A series of ad hoc grassroots initiatives and hackathons has blossomed over the past decade into a larger civic tech community of for-profit and nonprofit organizations and investors. Such forms of citizen participation emerge to express populations’ demands for greater equity, solidarity and to denounce the inaction of politicians toward global issues. Street
protests and activism abound, in cities around the world and on the internet and on social media platforms. As Dalton (2008) argues about the decline of conventional forms of citizen participation (e.g. elections) in liberal democracies, “the trends in political activity represent changes in the style of political action, and not just changes in the level of participation” (p. 94). In other words, citizen participation today encompasses a larger range of actions (e.g. street protests, boycotts, and civic tech).

Governments increasingly use artificial intelligence (AI) in their efforts to foster citizen engagement and increase their participation in policy-making processes. This chapter focuses on civic tech, which is the “technology that is explicitly leveraged to increase and deepen democratic participation” (Gilman, 2017, p. 745). This definition distinguishes particularly well between technology used to strengthen citizen participation and technologies used primarily to modernize operations and services (discussed in previous chapter). Civic tech can be developed and managed by different actors, such as technology start-ups, public administrations, and other political groups. In other words, not all civic tech are led by governments. They can be based on open access technology solutions (e.g. dicidim.org) or proprietary ones (the French start-up Cap Collectif managed the citizen consultation “grand débat national” in France in 2019) (Mabi, 2019). This high degree of diversity means that there is no universally accepted definition of civic tech, which creates a degree of vagueness in specifying the boundaries of these technologies and practices, and in particular what is public and what is private. However, all civic tech initiatives pursue one similar purpose: enhancing the participation of a broader range of stakeholders in public affairs. For Microsoft (2014), “Broadly defined, civic tech ranges from engagement between the city government and its population on social platforms, all the way to enterprise solutions that offer deep government IT problem-solving.”

This chapter will explore civic tech and more precisely their use AI. Not all civic tech use of AI. But this technology can be very helpful in this context. For instance, it can help make sense out of thousands and thousands of comments (unstructured text) submitted by citizens in response to an online consultation. However, AI also raises numerous concerns in particular in the context of citizen participation. As discussed in previous chapters, by adopting AI in their relationship with citizens, governments introduce a fuzzy (i.e. conceptual challenges), variable (i.e. ongoing developments and applications), often opaque (i.e. black box phenomenon) agent in the citizen–government relation with various degrees of agency (i.e. capacity to observe its environment, learn from it, and take smart action or propose decisions). Moreover, the technology and the data collected can be in the hands of the private sector. In this context, the impacts of this technology on this relationship remain challenging to foresee and consequently difficult to prepare for. The notions of trust, transparency,
accountability, and equity may well be strongly challenged by the growing use of AI. This is particularly concerning when it comes to efforts to foster citizen engagement.

This chapter first explores the burgeoning field of civic tech and then focuses on the use of AI in this context. It aims to shed light on the asymmetry of power in the design and use of civic tech and AI-based tools and tactics used at different stages of the policy-making process. The choices made by designers and developers of civic tech shape who, when, and how citizens can participate in these platforms. These choices are within the digital infrastructure and not often not visible to the most affected stakeholders.

CIVIC TECH AND PARTICIPATORY POLICY MAKING

In an effort to refocus the actions of governments and public institutions around the beneficiaries, and more specifically the citizens, new reflections are being conducted on the design of their services and technologies offered (Allio, 2014; Brown & Wyatt, 2010), on the strategies and tactics of citizen mobilization mediated by information and communication technologies (ICTs) (Gatautis, 2010; Peixoto & Fox, 2016), and on the offer of new services allowing for new value creation (Denhardt and Denhardt, 2015; Osborne, 2017). It is in this context of redefining the role of the citizen in the policy-making process and more generally the relationship between government and citizens that civic tech has emerged.

Collaborative Methods to Enhance Trust

Since the beginning of this century, the European Union (EU) has funded the development of more than 70 e-governance or e-democracy projects at the local, national and European level (Prieto-Martín, de Marcos, & Martínez, 2011). These efforts are in line with the EU’s strategy to foster citizen participation and social innovations through digital technologies (European Commission, 2021). As mentioned earlier, a growing number of governments and public administrations are leveraging digital technologies to improve the efficiency of their operations and services. Faced with a certain low level of trust among citizens in national and European institutions (Eurobarometer, 2017) and in particular because of their lack of listening to their concerns (Pew Research Center, 2014, governments and European institutions are turning to new forms of governance and more inclusive and innovative co-decision processes to meet this growing demand for participation.

It is indeed well established that the public sector is still lagging behind in digitizing its operations and services and in adopting co-creation methods (Nunes, Galvão, & Cunha, 2014). In their global survey *Digital Government*
Transformation: The Journey to Government’s Digital Transformation. Deloitte found that governments are at very different stages in their digital transformation journey, but the overwhelming majority are in the early or developmental stages of that transformation: nearly 70% of the agencies surveyed said they were lagging behind the private sector. In terms of motivation, cost and budget pressures and citizen demands are by far the top two drivers of digital transformation, accounting for 75% of responses (Eggers & Bellman, 2015).

Civic tech aims to contribute to strengthening democracy and more specifically democratic participation through innovative and collaborative governance (Moore & Hartley, 2008; Sørensen & Torfing, 2011; Ansell & Gash, 2007). The most common narrative associated with civic tech refers indeed to more responsive governance and a more meaningful engagement with other citizens and stakeholders (Mayur, Sotsky, Gourley, & Houghton, 2013). Moreover, it responds to the importance of lifelong civic engagement of learning experiences that cultivate citizens’ perception that they can make change (i.e. political efficacy) and their belief in having responsibilities vis-à-vis the public good (i.e. civic identity). Civic tech can be seen as resting on three main pillars: transparency and accountability to hold governments accountable, citizen–government interaction, and digital tools to make citizens everyday live a little easier daily life (Dietrich, 2015).

This new approach to the institution–citizen relationship differs fundamentally from more traditional approaches to engaging citizens in policy-making processes, which too often limit their participation to the adoption stage. This co-creative approach therefore aims to open up other stages of the policy-making process to citizen participation so that they can contribute to proposing and implementing new solutions, perhaps also more adapted to their actual needs. Many non-governmental organizations (NGOs), citizens, and businesses are developing and managing digital tools to enhance the transparency and responsiveness of governments and improve the lives of their communities (Rumbul, 2016b).

This new approach aims at transforming the role of citizens into collaborative methods and refers to the transformation of citizens and other stakeholders from passive spectators to active contributors (Skaržauskienė & Mačiuliienė, 2020). Hilgers and Ihl (2010) propose three dimensions of citizen collaboration: (i) citizen ideation and innovation, which allows public institutions to benefit from the knowledge and creative potential of citizens (e.g. open innovation platforms), (ii) collaborative administration, allowing for the mobilization of citizens with the aim of improving existing public administrative processes, and finally (iii) collaborative democracy, which includes the emergence of new modes of collaboration in order to improve citizen participation in political processes.
Three types of innovation have contributed to the development of civic tech: a more connected society (citizens and organizations) through ICTs (more online citizen interaction increases innovation capacity and leads to innovative solutions that are more responsive to people’s needs), access to more data thanks to open data policies of public institutions (leading to increased visibility of issues and needs through cross-analysis of newly available data), and a great plurality of digital collaboration modes (various forms of collective intelligence and opinion aggregation) (Maciulienė, 2014).

Typology of Civic Tech

Civic tech encompasses a wide range of technologies and activities aimed at improving the way people interact with government and each other (Knight Foundation & Rita Allen Foundation, 2017). Most research is identifying and mapping existing initiatives in the global north. Verhulst (2015) for instance identifies five overlapping component areas of civic technologies in the USA: (1) responsive and efficient city services, (2) open data portals and open government data, (3) engagement platforms for government entities, (4) community-focused organizing services and (5) geo-based services and open mapping data. Different mapping of civic tech exists at the national (e.g. in France and Switzerland) and international level (e.g. civictechguide and participedia). More recently, mapping efforts extended to the global south (Peixoto & Sifry, 2017). Social and Political Sciences, Computer-Supported Cooperative Work (CSCW) and Human–Computer Interaction (HCI) communities have examined civic data practices (Boehner & DiSalvo, 2016) and software development processes in civic projects (Knutas, Palacin, Maccani, & Helfert, 2019), as well as how digital technologies can support civic engagement (Asad & Le Dantec, 2015) and mobilize communities (Savage, Monroy-Hernandez, & Höllerer, 2016).

It is important to distinguish between initiatives initiated by public institutions (top-down) and those bottom-up initiated by other actors (e.g. citizen movements), since they might face different challenges (Knight Foundation & Rita Allen Foundation, 2017). For instance, e-participation processes initiated by government can be subject to institutional biases and built-in preconceptions about what users need (Rumbul, 2016a).

Top-down initiatives correspond to those participatory platforms either developed internally (e.g. by an IT department of a government) or externally (by companies and universities most often). They foster participation of citizens in some decision-making processes through digital technologies (i.e. e-participation and civic tech). They can also provide access to large datasets, and offer new approaches to service design (e.g. design thinking, co-production of services) (Skaržauskienė & Mačiulienė, 2020). They encompass a variety...
of technologies (Linders, 2012), including artificial intelligence, to respond to a growing demand to digitize public action (de Feraudy, 2019). For instance, a number of local governments have developed an AI-powered social bot to optimize the online interaction with citizens and respond to the most common questions. This digital imperative cumulates with the participatory imperative already weighing on the construction, implementation, and evaluation of public policies (de Feraudy & Saujot, 2017).

There is indeed a growing demand to digitize existing operations, administrative processes, and services. However, these efforts, otherwise known as e-government (Gilman, 2017), and discussed in previous chapters, are to be distinguished from civic technologies, whose main objective is not operational efficiency and effectiveness, but rather to foster participation.

Bottom-up initiatives are based on platforms developed outside the control of the state. As Badger (2012) and Suri (2013) point out, bottom-up initiatives are not necessarily designed to be disruptive of the political system and traditional processes of citizen participation like voting. They are primarily intended to complement existing processes and channels of communication previously monopolized by governmental and intergovernmental institutions. “Bottom-up” community civic tech typically includes some forms of tech activism, community-focused organizing services (Mačiulienė & Skaržauskienė, 2020) and leveraging open data – and sometimes open-source software – to address challenges that may be invisible to or neglected by government in a collaborative, problem-centered way (David, McNutt, & Justice, 2018). In addition, blockchain-based collective tools and intercultural communities, such as the Robin Hood Co-op, enable new forms of financing and the protection of the commons and horizontal project and by doing so mobilize new forms of political subjects (Leander, 2021).

In their paper, Skaržauskienė and Mačiulienė (2020) categorized civic tech according to several dimensions: objective, target audience, and methods employed. The first dimension contains seven categories:

1. Improving government functions: these civic techs respond to the objective of digitizing public services, in order to increase the efficiency of public administration operations and services and improve public decision-making processes.
2. Improving the quality of life: these civic techs aim to improve the daily life of citizens, and include for example health services and education.
3. Solving societal problems: these civic techs aim to raise awareness and contribute to finding solutions to current societal challenges (e.g. gender gap).
4. Strengthening democracy: these civic techs offer tools to improve citizen engagement and voting, as well as various forms of free speech in society.
5. Community building: these civic techs offer tools and tactics to create and mobilize online networks and communities.
6. Sustainable future and environment: these civic techs propose new technological solutions (e.g. applications for mobility sharing or maximizing the circularity of digital devices) to contribute to environmental protection.
7. Transparency and accountability: these civic techs make government data available in an open, accessible and understandable way with the goal of making governance more transparent and accountable.

The civic techs presented in this chapter are not intended to be an exhaustive reflection of the great diversity of these initiatives in terms of both functionality and objectives. However, they have been selected for their representative character of the role of the citizen in co-creation and participation in the policy-making process. These civic techs come from previous studies and databases on citizen mobilization, social and digital innovations, e-participation and civic tech of course. This was also complemented by a consultation of websites of research centers specialized in civic tech (participedia.org, GovTech100, Microsoft Civic graph, digitalsocial.eu, Nominet Trust, Knight Foundation Research) and a web search combining a variety of keywords related to civic tech.

**Civic Tech Challenges**

Although it is now well established that the use of ICTs has many benefits in society (Baack, 2015; McNutt et al., 2016), they are of course not the solution to all the challenges of liberal democracies. Digital technology can improve the dissemination of information (Weber, 2004), enhance understanding and facilitate the coordination of actions among citizens (Kreijveld, 2010). But it should be noted here that technology is not the only factor that increases interactions between citizens (Zappia, 2011). It is crucial not to adopt a determinist and solutionist approach to digital technologies. Civic tech is indeed no panacea and faces several challenges associated either with the platform itself or the users.

Top-down civic tech initiatives can be used as a form of veiled rhetoric or as a political marketing strategy for politicians. The digital instruments were often pursued as an objective in itself, symbolizing modernity more than a desire to really transform participation. Civic tech is also often approached with a certain fetishism of functionalities (e.g. the possibility to “like” contributions) without a clear a priori needs analysis (Albarède, de Feraudy, Marcou, & Saujot, 2018). They can also be vulnerable to institutional biases and rationale, and the resulting tools may be built with inherent assumptions concerning the users’ needs (Skaržauskienė & Mačiulienė, 2020).
Many online governmental initiatives for citizen consultations promise to promote civic participation, but in practice, politicians use closed source code platforms, controlled and monitored by their managers (Santini & Carvalho, 2019). Moreover, government feedback on proposals made by citizens through civic tech is sometimes absent in these co-creation processes (Dahl & Soss, 2014; Sandfort & Quick, 2015).

One of the challenges associated with these initiatives is also the difficulty of quantifying and evaluating their impact on policy processes (Bruns & Swift, 2011). The debates and information exchanges that these platforms facilitate may not lead to any concrete results in terms of public policy and very rarely result in innovative solutions, consensus among stakeholders, or collective action (Cobo, 2012). Regarding co-creation aided by digital technologies, initiatives in the context of public services have either failed (Chadwick, 2011) or yielded limited results (Coleman, 2005; Peart & Diaz, 2007).

Furthermore, behind the alleged participatory processes, other power structures can be hidden (Pickard, 2008) and acting in an authoritarian manner and in the interest of small groups. Moreover, Skaržauskienė and Mačiulienė (2020) show that “civic tech are mostly oriented towards citizens’ communities and governmental organizations” and other stakeholders are rarely involved in platforms’ activities. What is more, “most of the initiatives focus only on the formation of a societal ‘voice’ and do not emphasize the feedback from government and the importance of co-creative synergy” (p.7).

This limitation adds to the fact that many citizens still lack access to the internet and have limited digital skills. Moreover, many citizens may lack the critical awareness regarding the type of technology used, the actors developing and managing the platform, the actors supporting the initiative, the transparency and accountability of data processing, and questions of cybersecurity and data privacy. Civic tech’s digital infrastructures may indeed be opaque to the users. Some civic tech use AI-powered data processing techniques, which function as a black box, and hinder the participation’s transparency and accountability. Data processing may be biased either due to the algorithm itself or the data sample. Additionally, the nature of data collected requires high security and privacy levels, which may be hampered by legacy infrastructure and cybersecurity vulnerabilities.

**AI TO AUGMENT HUMAN DATA PROCESSING CAPACITY IN CIVIC TECH**

AI is used by some civic tech to enhance some functionalities. As discussed by Skaržauskienė and Mačiulienė (2020), most civic tech intend to give a voice to part of the population. In this context, the first use of AI is to augment the human capacity of processing large datasets. In other words, AI is useful when
confronted with a large number of comments: it replaces the need for a human being to read each single comment made by citizens. Instead, AI natural language processing capacity provides the initiators of the civic tech with a first analysis of clusters of opinions. As Daugherty and Wilson (2018) argue, the power of technology lies in its capability to complement and augment humans. Two examples are presented below. First, the online citizen consultations run by the EU Commission at different stages of the EU policy. Second, the “Grand Débat” and the “Vrai Débat” organized by the French government on the one hand and the Gilets Jaunes movement on the other hand.

Citizen Consultation by the EU Commission

The European Commission is the only European institution with the right to initiate the legislative process. The ordinary legislative procedure (previously called co-decision) allows the European Parliament (EP) on an equal footing with the Council of the European Union (thereafter the Council) to vote and make amendments to a policy proposal drawn by the European Commission (thereafter the Commission). The process repeats itself until the Council and the EP finally agree on a version of the text. This procedure aims to put at the same level citizen representations and government representations. Indeed, Members of the EP are elected through universal elections every five years. The Council is constituted of government representatives. The ordinary legislative procedure applies to a large range of topics, such as economic governance, immigration, energy, transport, the environment and consumer protection. In fact, the grand majority of European legislation is adopted through this procedure. This co-decision procedure was first introduced by the Maastricht Treaty on European Union in 1992, and then further developed and made more effective by the Amsterdam Treaty in 1999. Ten years later, the Lisbon Treaty renamed co-decision as ordinary legislative procedure, to reflect the fact that it became the primary legislative decision-making system of the EU.

Saurugger (2010) describes the “participatory turn” of EU institutions, where the necessity to foster the participation of citizens and civil society organizations was progressively acknowledged by EU representatives and became EU language and was included in a large number of policy papers and official communications from the Commission. This is well illustrated by the European Commission’s White Paper on Governance (European Commission, 2001), which suggested to include citizens and civil society organizations in
the policy-making processes. Their involvement was seen as instrumental to the legitimacy of the EU policy process.

The aim should be to create a transnational “space” where citizens from different countries can discuss what they perceive as being the important challenges for the Union. This should help policy makers to stay in touch with European public opinion, and could guide them in identifying European projects which mobilize public support. (European Commission, 2001, p.10)

The 2009 Lisbon Treaty reasserted the primacy of representative democracy principle (Title II, Art. 8A 1 TEU) but included elements of participatory democracy (Lindner et al., 2016) such as:

- The institutions shall, by appropriate means, give citizens and representative associations the opportunity to make known and publicly exchange their views in all areas of Union action.
- The institutions shall maintain an open, transparent and regular dialogue with representative associations and civil society.
- The European Commission shall carry out broad consultations with parties concerned in order to ensure that the Union’s actions are coherent and transparent (Title II, Art. 8B TEU).
- In addition, the 2007 Lisbon Treaty initiated the European Citizens’ Initiative (ECI), which allows citizens to suggest to the Commission legal action (Title II, Art. 8B 4 TEU).
- The Union offers citizens the opportunity to participate in public consultations and provide input throughout the policy cycle through a variety of mechanisms. A dedicated section of the EU Commission website called “Have your say” offers the opportunity to all citizens to have a say in the policy-making process initiated by the Commission. It presents a number of policy initiatives in development for citizens to comment on. A search functionality allows citizens and businesses to look for open and closed consultation initiatives according to several criteria including topic (e.g. climate action), the stage in the policy-making process (e.g. in preparation), and the type of act (e.g. legislative proposal) and document (e.g. impact assessment report). Each initiative is described in a summary and the full document to download.

Another form of consultation at the EU level is the Conference of the Future of Europe, which consists of “citizen-led series of debates and discussions that will enable people from across Europe to share their ideas and help shape our common future” (European Commission, n.d.-a). A dedicated website allows citizens to share their views about the future of Europe. Several topics are available (e.g. climate change and the environment) and for each topic
citizens can organize events, take part in events, and share ideas online (e.g. “The European Union could set up a program for returnable food packaging made from recyclable material.”) Each idea can then be commented on and endorsed. AI is used here to translate automatically content in different languages.

Prior to the Conference, the EU Commission already engaged a direct dialogue with citizens: town hall-style debates called “The Citizens’ Dialogues” took place since 2012. The first one was organized on 27 September 2012 in the Spanish port city of Cadiz with then Vice-President Viviane Reding (European Commission, 2018). The White Paper on the Future of Europe in March 2017 launched a new step in the direct engagement of citizens in the design of the future of Europe (European Commission, 2017). In total, the process gave voice to hundreds of thousands of citizens who took part in some 1,600 citizens’ dialogues in 583 locations throughout EU Member States and through the online consultation launched on 9 May 2018 (European Commission, 2018).

For the online consultation, twelve open and closed questions were proposed in all EU languages. Over 87,000 participants answered. An AI was used to analyze all answers and make sense of them:

To identify the clusters of themes in each of the open-ended questions, Latent Dirichlet allocation was used as a topic-modelling technique. In this approach every contribution is allocated to one or several topics. Topics are identified based on associations of key words in the corpus of text. The allocation of verbatims to topics was reviewed by the research team on a sample of 100 verbatims per topic. Refinements to the allocation of keywords to topics were subsequently proposed. The resulting analysis allocates each response to several topics. (European Commission, 2019a, p.43)

This natural language processing capacity of AI is indeed useful when hundreds of thousands of comments in text format are produced by participants. To read each contribution, and then identify opinion clusters would be highly intensive in human labor. In this case, the AI used to overcome the limited data-processing capacity of human beings support the participation of more citizens. The EU Commission would have to limit the number of participants otherwise.

The EU Commission has expressed early its interest in data and digital technologies for policy making: “data technologies are amongst the valuable tools that policy makers have at hand for informing the policy process, from identifying issues, to designing their intervention and monitoring results” (European Commission, 2019b, para. 1). It commissioned a study conducted in 2015 to explore “the opportunities that innovative data-driven approaches offer for evidence-informed policy making, including the relevant data
sources and technologies” (Poel et al., 2015). Among their conclusions, they identified that most data-driven initiatives are “descriptive statistics and trend analysis, with some experiments using (advanced) sentiment mining, profiling, predictive analytics and other recent tools.” What is more, these data-driven approaches are mainly employed for agenda setting and problem analysis (e.g. opinion mining online), enhance accountability and participation (e.g. civic tech platforms) but very few data-driven initiatives focus on policy evaluation and impact assessment (Poel et al., 2015).

The EU launched a forum for EU citizens to discuss EU policies and digital topics about the future of Europe called “Futurium” (European Commission, n.d.-b). The Futurium platform was originally developed to host and curate policy visions and ideas around the future of Europe. However, it has gradually evolved into a platform for experimenting with new ways of policy making based on scientific evidence and stakeholder participation. Its use of AI is here as well limited to processing a large quantity of text collected randomly on social media platforms. What Accordino (2013) refers to as Policy making 3.0:

The platform hosts an online foresight toolkit to facilitate the joint creation of ideas to help design future policies. It leverages the potential of social networks, open data, semantic and knowledge mining technologies as well as participatory brainstorming techniques to engage stakeholders and harness their views and creativity to better inform policies that matter to them. (Accordino, 2013, p.321)

However, the use of AI also raises questions about the legitimacy of the outcome. In their survey about the use of AI by the EU Commission, Starke and Lünich (2020) showed that respondents perceive independent algorithmic decision-making (ADM) about the European Union (EU) budget to be illegitimate. EU policy makers should exercise caution when incorporating ADM systems in the political decision-making process. ADM systems for far-reaching decisions, such as budgeting, may only be used to assist or inform human decision-makers rather than replacing them. In their study called Data4Policy and commissioned by the European Commission, Rubinstein et al. (2016) highlighted that data collection and data analytics are not necessarily well understood by policy makers and other stakeholders, which presents a high risk for data-driven policy-making approaches. In their discussion about algorithmic decision-making (ADM), Starke and Lünich (2020) identify three types of challenges to the legitimacy of AI-informed policy-making processes:

(a) On the input dimension, citizens may lack insight into or influence over the criteria or data that intelligent algorithms use to make decisions. This may undermine fundamental democratic values such as civic participation or representation. (b) On the throughput dimension, citizens may be unable to comprehend the complex and often inscrutable logic that underpins algorithmic predictions, recommendations, or
decisions. The corresponding opacity of the decision-making process may violate the due process principle, for example, that citizens receive explanations for political decisions and have the opportunity to file complaints or even go to court. (3) On the output dimension, citizens may fundamentally doubt whether ADM systems actually contribute to better and/or more efficient policy. This may conflict with key democratic principles, such as non-discrimination. (p.e16-5)

Moreover, the many consultations conducted by the European institutions on the basis of the Treaties suffer from an “elitist bias,” in so far as “they tend to be monopolized by a minority of actors who are very knowledgeable about European issues” (Costa, 2010, p.128), which may cause a phenomenon of self-selection of participants. Committees and lobby groups are the primary beneficiaries of these processes, which do not correspond to the spirit or primary motivation of these tools (which is to bring the citizen closer to decision-making). A second bias is related to rules and procedures, which can guide discussions and therefore their results (thus undermine the legitimacy based on efficiency) or even lead to a “mock discussion” (Gaudin, 2007, p.88).

Civic Tech in France: Le Vrai et le Grand Débats

In 2019, while the political crisis resulting from the Yellow Vests movement seems to persist, the French President is launching the “Grand Débat National.” This citizen consultation consists of public meetings but also the creation of an online platform called “Grand Débat.”8 To respond to this initiative, representatives of the “Gilets Jaunes” decided to launch their own debate platform called the “Vrai Débat.”9 Very quickly, and particularly in view of the success of these platforms and the importance of the comments collected, the question of the analysis and synthesis of the data collected (the text that citizens have published on each of these platforms as well as the results of the face-to-face debates) arose (Brugidou, Suignard, Escoffier, & Charaudeau, 2020). Both platforms called on the same French start-up (Cap Collectif)10 to benefit from an artificial intelligence-based solution to process these vast datasets (Cointet & Parasie, 2018). AI was used to aggregate, prioritize and rank a very large number of comments and proposals.

However, these two civic tech platforms offer some notable differences. While both platforms offer the possibility to propose ideas, the “Grand Débat” is limited to four themes chosen by the government, while the “real debate” offers eight themes, to which one must add a “free expression” category, where all subjects can be addressed.

Moreover, the participation modalities are different. On the site of the “Grand Débat,” the participants can only answer a precise questionnaire, in a rather dirigiste logic. Participants can answer closed or open questions,
which frame and close the expression. Questions stem proposals present in the program of Macron of 2017. The reason that led the government to opt for a platform stripped of these deliberative functions seems clear: not to make visible, through a hierarchy based on the number of votes and amendments, the most popular proposals (Courant, 2019).

The “Vrai Débat” allows to contribute in a freer way. Each proposal must however have a title, an explanation and specify the theoretical advantages of the proposal. It is also possible to add sources to contextualize the proposal (Rozières, 2019).

The differences do not end there. When the proposal is submitted, there is no possibility to debate on the “Grand Débat” site. It is only possible to consult the thousands of other contributions, sorting them by chronological order. On the contrary, on the platform of the “Vrai Débat,” it is possible to consult other proposals and to vote for or against (or to have a mixed opinion), or to propose arguments for or against. On the “Vrai Débat” platform, proposals are aggregated, which avoids that 50 people have to write 50 times the same idea in isolation. In addition, the contributions with the most favorable votes appear first with graphs showing their scores, which is not the case on the “Grand Débat” platform. On the latter, the only criterion for prioritizing “contributions” is random or by date (Courant, 2019).

These functionalities are precisely those recommended by the National Commission for Public Debate for the platform launched by the government (“Grand Débat”). In its report, published on 14 January, it evoked in particular these kinds of functionalities: “Each contribution is visible to all with the possibility for everyone to support proposals already made and to comment on them” and “The platform serves to inform widely about the holding of the debate, its modalities and to involve the general public via an online vote on proposals expressed by users.”

Courant (2019) argues that the French government made this choice to keep control of the debate. Indeed, the production of such a large mass of data without any prioritization criteria make it almost impossible to process other than by artificial intelligence and algorithms or by a large number of people working full time. It is indeed detrimental, especially for the credibility of the debate, but also in terms of legitimacy. By keeping the data processing completely opaque (i.e. without any possibility for citizens and journalists to see transparently the most popular proposals), citizens can only see the AI-based data processing with suspicious eyes, which is reflected in a poll done in 2019: 58% of French people doubt that the proposals that will emanate from the debates will change the government’s policy and 54% that they will be returned in all transparency and impartiality. This is precisely a risk that Starke and Lünich (2020) among others highlighted: “On the throughput dimension, citizens may be unable to comprehend the complex and often
inscrutable logic that underpins algorithmic predictions, recommendations, or decisions” (p.e16-5).

ADDITIONAL USES OF AI FOR CIVIC TECH

Civic tech encompasses a large variety of initiatives and actors. Some of these actors use AI to process the unstructured text produced by participants as discussed previously. However, it is not the only use of AI in this context. In their report entitled “Mediation and artificial intelligence: Notes on the future of international conflict resolution,” DiploFoundation (Höne, 2021) provide an overview of how AI can be used in the context of mediation. They identify three broad potential applications and uses that are relevant for our discussion about civic tech: knowledge management, identification of specific needs, and enhancing diversity and inclusive participation.

Knowledge Management

AI can help civic tech participants access relevant information so that they can make informed decisions about policy making. Traditional digital search methods are not very useful when data is either too abundant and unstructured. Citizens do not necessarily have the skills and the time to make thorough searches about complex topics. The solution is to use AI to perform a selection of the most relevant information on their behalf. This type of “smart searches” go beyond traditional keyword search to “make information and knowledge already accumulated more readily available and easier to search” (Höne, 2021, p.11).

AI can link data available in unstructured form from different sources, including legal databases, websites, social media, multimedia, scientific publications from think tanks and universities, among others. The ability to sort and aggregate the most relevant content represents a time and efficiency saving for civic tech participants who wish to give their opinion on a new policy for example. This type of advanced search would also reduce the information asymmetry between citizens and initiators. Faced with complex issues, and disinformation campaigns that have become commonplace on social media, this use of AI would be beneficial.

“Smart” or “intelligent” searches offer a number of additional benefits particularly relevant to civic tech users. First, it can understand human language. Since civic tech is used in many different contexts and fields, data can be written in domain-specific terminology. AI and in particularly NLP can increasingly understand the “linguistic nuances, synonyms, and relations found in everyday language and inside complex documents” (IBM, 2021) such as for instance legal and policy documents. Second, AI can develop an
understanding of document structures (e.g. elements such as headers, footers, charts, and tables), which differ from one source to another. This is particularly useful to highlight key arguments and extract content from documents from different fields and locations. Third, machine learning improves its capacity and precision with every new search, which can make this tool increasingly valuable. Last, it allows to organize the results according to a set of criteria relevant to the end user (IBM, 2021). These solutions are often used by large organizations to facilitate the access to information to their employees.

An “out of the shelf” solution increasingly used is the AI-powered news aggregator, which collects data from all over the web and posts it in one location. These solutions are not as elaborate as smart or intelligence search described previously as they focus on published web and social media content. There are pure news aggregators (e.g. News 360 or Feedly), more specialized ones, such as poll aggregator (e.g. FiveThirtyEight), top search results from multiple search engines (e.g. Dogpile), or social media aggregators (e.g. Curator). Moreover, such smart recommender systems and search algorithms could be selectable or configurable by citizens. “Unlike conventional recommender systems driven by a per-click business model, citizens’ recommender systems are run by citizens themselves and serve the society as a whole” (Yang, Sun, Bozzon, Zhang, & Larson, 2017, p.388).

Global-Regulation is a huge database enabled by AI-powered automatic translation, which allows users to find similarities between national legislations in the world. Goltz (2017) argues that this search engine could contribute to enhance democratic practices by enhancing the access to information. Fioriglio (2019) gives an insight about the Digital agora platform where users first have access to relevant information about a specific legislative announcement. Thanks to AI, citizens can then participate in policy and law making by providing well-informed and precise inputs rather than a general and vague opinion.

Bozdag and Van Den Hoven (2015) drew up a list of automated tools to avoid the phenomenon of filter bubbles described in the previous chapter. Munson, Lee, and Resnick (2013) created a browser extension called Balancer “that showed users feedback about the political lean of their weekly and all time reading behaviors” (p.419). This software supports users in accessing a plurality of sources of information, and step out of their “comfort zone” to consult only sources that comfort their existing political views. Social bots can also be used.

A social bot or chat bot is a “software system, which can interact or ‘chat’ with a human user in natural language such as English” (Shawar & Atwell, 2007, p.29). They are increasingly used by governments as a form of e-government service to answer the most common questions of citizens (Androutsopoulou, Karacapilidis, Loukis, & Charalabidis, 2019) via the
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Tavanapour, Poser, and Bittner (2019) experimented with the use of chatbots “to improve, both, the documentation of citizens’ contributions during on-site workshops and the idea generation in web-based e-participation by deploying an automated solution with a conversational agent” (p.2).

However, they offer other possibilities, including to mitigate political polarization. Hwang, Pearce, and Nanis asserted that “swarms of bots could be used to heal broken connections between infighting social groups and bridge existing social gaps. Social bots could be deployed to leverage peer effects to promote more civic engagement and participation in elections” (2012, p.40). Moreover, the study of Graham and Ackland (2017) demonstrated that social bots can be deployed to increase the visibility of opinions and the diversity of citizen views on social media platforms.

However, it also poses many challenges. First of all, the use of NLP has technical limitations, particularly in understanding context, processing extensive and varied vocabularies, handling different meanings, and understanding wordplay and ambiguity (Höne, 2018). Second, here too, the question of human agency in accessing information arises, and conversely, the question of transparency and accountability of AI in the selection of the information made available. In order to ensure the credibility and legitimacy of this type of research, AI must remain transparent and under human oversight as recommended by the EU. The independent High-Level Expert Group on Artificial Intelligence (HLEG) recommends indeed “that the decisions made by an AI system can be understood and traced by human beings” (HLEG, 2019, p.18).

Identification of Specific Needs

One of the most prominent claims of civic tech is to give a voice to citizens and facilitate interaction between a government and citizens. Debates and interactions on civic tech aim to contribute to reveal specific and tangible needs of a local population that may not be yet addressed by a government or local administration. In this context, AI can support this identification process and reveal new needs from discussions on social media platforms, which can then be discussed on civic tech. Liu, Tang, and Chen (2020) characterize artificial intelligence, combined with crowdsourcing intelligence as a possible new “hybrid intelligence.” Enhancing efficiency in public policy making, civil society participation, also transparency and accountability: artificial intelligence has many promises to engage citizens and rule makers in shaping policy and society according to their needs provided that common values are shared.

Sentiment analysis allows to curate subjective information from social media platforms (Batrinca & Treleaven, 2015). Analysis of content published on social media allows to find relevant information that would otherwise be
difficult to access, such as identifying key people, monitoring major societal groups and social movements, discovering commonalities between different discussion streams, identifying questions to ask for citizen consultations and preventing the emergence of conflict situations.

Fernández-Martínez, Lopez-Sanchez, Aguilar, Rubio, and Nemegyei (2018) describe the prototype CoGovern developed to merge citizens’ ideas and preferences about local politics is meant to support participatory decision-making, and to prevent policy makers from “cherry-picking.” Indeed, after participatory processes, sometimes policy makers rearrange, hierarchize citizens’ claims and political preferences without further explication of their choices and selection criteria to consider citizens’ suggestions. CoGovern is then useful to prevent cherry-picking and to foster optimization and gathering of citizens’ political suggestions.

However, here again, this use of AI presents many challenges. On the one hand, the increased surveillance is not without consequences for the privacy of citizens. The collected data could indeed be used for non-democratic purposes, or even to censor certain dissonant voices. On the other hand, since the data collection is done only on social media, it represents only a part of the population. Moreover, conversations on social media platforms are often sensationalist and not necessarily representative of the general opinion. AI can reproduce pre-existing biases, which are particularly numerous online. The AI-powered chatbot “Tay,” developed by Microsoft to engage in casual conversations on Twitter, quickly adopted the sexist and racist positions it detected in Twitter users (Vincent, 2016). As Mijatović (2018) argues:

Machines function on the basis of what humans tell them. If a system is fed with human biases (conscious or unconscious) the result will inevitably be biased. The lack of diversity and inclusion in the design of AI systems is therefore a key concern: instead of making our decisions more objective, they could reinforce discrimination and prejudices by giving them an appearance of objectivity. (Mijatović, 2018)

In that context, sentiment and network analysis on social media can be useful as well as misleading. On the one hand, only a part of the population is active on social media platforms. One must also highlight here the wide variety of social media platforms audiences: from TikTok, Snapchat, to LinkedIn and Twitter, the audience varies greatly in terms of age and interest. On the other hand, content shared on social media platforms may be much more extremist than what people would argue and decide in another context, for instance a civic tech initiative. Hence, this biased data collection needs to be completed by face-to-face or non-digital studies in order to ensure a better representativeness of the results.
Enhancing Diversity and Inclusive Participation

To make their debates and proposals legitimate, civic techs that want to represent the general public must be truly representative. In this context, AI can contribute to give a greater place to stakeholders who are traditionally little represented or heard, such as women or certain minorities. For instance, the UN Department of Political and Peacebuilding Affairs’ (DPPA) Middle East Division (MED) is developing a new instrument to “evaluate the public’s receptivity to an aspect of a peace agreement” thanks to the AI-powered analysis of discussions taking place online (i.e. digital focus groups) in various Arab dialects. Their objective is to allow “thousands of members of a concerned constituency in a country and its diaspora (e.g. refugees) to be consulted in real time” (UNDPPA, 2019). In the context of civic tech, one could envisage a similar instrument to ensure that a broader part of the population has a say when discussing a new policy or urban planning.

However, not all the population is connected to the internet, particularly elderly populations. Hence it is crucial to broaden the sources of data collection, and include other media such as the radio. For instance, UN Global Pulse used AI to analyze radio conversations on public policy and governmental initiatives in Uganda. Their objective was to hear from more than half of the population that uses radio as their primary source of information and to call in to share their views (Rosenthal, 2019). Thanks to text-to-speech AI applications to convert spoken words into text, UN Global Pulse could ensure a better representativity of the population. We could envisage the same approach for civic tech, where an AI can help gather in-person discussions for instance, or offer a phone number where people can record their opinion, which would be then converted into text and added to the rest of the data collected. An illustration is IBM’s Project Debater Speech by Crowd, “an AI cloud technology for collecting free-text arguments from large audiences on debatable topics to generate meaningful narratives that express the participants’ opinions in a concise way” (Ein-Dor, Gretz, & Bilu, 2019).

At the IBM THINK conference in Tel Aviv, which hosts more than 1,000 people, IBM researchers asked each attendee for their opinion on marijuana legalization. Then Speech by Crowd collected the opinions and created several narratives based on the pro and con opinions shared by the participants. It extracted the main arguments, summarized them concisely, and selected the highest quality arguments to support each topic. He then created concrete narratives to illustrate both sides of the debate, including the thinking of many different people. Then the researchers asked the audience again for their opinion on the same issue. The result showed that the majority of participants supported legalization at 76% (Curioni, 2019).
Another project also illustrates the promise of AI for better inclusion of different parts of the population in debates and in particular civic tech. The city of Lugano (Switzerland) called on IBM to better understand the position of citizens on the subject of public funding of autonomous vehicles. For 15 days, IBM and the city of Lugano collected citizens’ opinions. They received more than 2,400 arguments. Speech by Crowd identified arguments for (including accident reduction, helping the elderly, and environmental protection) and against (the technology is immature, it will lead to a regression of the human condition, and the funding should instead be used to improve public transportation and job losses). Speech by Crowd also highlighted some of the arguments submitted by participants but omitted as outliers by the crowd, including reducing traffic. In the end, 68% of citizens voted in favor of funding the development of autonomous vehicles, and 32% voted against (Curioni, 2019).

Similarly, the application Add-up is meant to facilitate public deliberation in the context of face-to-face debates. Plüss et al. (2018) propose this application with the purpose to create and catalyze agreement between users, “The goal of the ADD-up project is to transfer the advantages of deliberation support systems to face-to-face dialogic deliberations” (p.471).

In any civic innovation and civic tech, interaction design is crucial to enable the largest number of citizens to participate. It must be considered with great care. In particular, the choice of technology and the features that this technology allows must be carefully considered in order to avoid reinforcing existing discriminations, such as the digital divide. While research on Human–Technology Interaction (HCI) can adopt a technical or industrial perspective (Teli, Bordin, Blanco, Orabona, & De Angeli, 2015), recent developments focus in particular on the lived experience of people (Bødker, 2006). This research and the knowledge gained in this field can be useful to mobilize citizens in bottom-up creative practices (Schouten, Ferri, de Lange, & Millenaar, 2017; Cohendet, Grandadam, & Simon, 2010) and inclusive civic tech design and overcome barriers to citizen participation. Art is a motivating factor for urban transformation (Zukin, 1995). Mobilizing citizens’ creativity can be an effective approach to reinvigorating civic engagement, especially when the sense of community is fading in rapidly growing cities (McAuliffe, 2012). Research has shown a significant correlation between culture, citizen participation and creativity (Varbanova, 2007).

A creative form of citizen engagement is pursued in the work of Li, Wang, Wang, Greuter, and Mueller (2020) who suggest using artificial intelligence to support citizen engagement through art. By promoting collaborative exchanges between citizens in the public space, street art (augmented by artificial intelligence) aims to reconnect not only citizens but also policy makers and their constituents with their urban environment. Through a joint civic and cultural engagement, Li, Wang, Wang, Greuter, and Mueller (2020) showed
that AI and street art could be promising avenues to foster civic engagement in policy making and urban planning. Other creative forms of citizen engagement include a playful participative installation that Sargeant, Dwyer, and Mueller (2018) have named “The Storytelling Machine.” It transforms the public’s drawings into animated characters moving through different digital worlds. With each new participant, the system builds a collective story. Moreover, Carter, Churchill, Denoue, Helfman, and Nelson (2004) built a digital graffiti system that enables participants to post digital graffiti annotations on a digital community bulletin board located in a public place. Similarly, Hoffman and Weinberg (2010) developed a robot powered by AI that can seamlessly adjust its improvisation and choreography when playing with a human musician concurrently.

The WeMonet tool aims to give creative, collaborative, and participative power to the citizen. First citizens add sketches to an online canvas, which “are synthesized, enhanced to be more vivid through machine learning algorithms, and projected on a screen, forming a participatory artwork” (Li, Wang, Wang, Greuter, & Mueller, 2020, p.1). This form of human–computer interaction promotes citizens’ engagement in collaborative creative practices and enhances the city’s creativity, and consequently makes the city more liveable and vibrant (Landry, 2012; Schaeter, 2014). The concept of creative city explores how citizens think and act creatively, which can be viewed as a new approach to urban planning (Landry, 2012). It focuses also on citizens’ lived experience instead of focusing primarily on infrastructure or the urban architecture (Landry & Bianchini, 1995; Varbanova, 2007). These studies are by far not representative of the breadth of variety of experiments in this field. But they show nevertheless that creativity can be an interesting avenue to explore to raise awareness about AI and develop new skills and literacy, as well as (re)mobilize citizens in projects related to their city or neighborhood.

CONCLUDING REMARKS

As discussed in this chapter, civic tech refers to the technology that aims “to increase and deepen democratic participation” (Gilman, 2017, p.745). As Badger (2012) and Suri (2013) point out, they are primarily intended to complement conventional citizen participation and channels of communication previously monopolized by governmental and intergovernmental institutions, as well as address challenges that may be invisible to or neglected by government in a collaborative, problem-centered way (David, McNutt, & Justice, 2018). AI is used in this context for efficiency purposes: to process a vast number of comments and text published by citizens on some of these platforms. However, civic tech also presents challenges. First, many citizens still lack access to the internet and have limited digital skills, which means that “civic tools may
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increase the divide and further marginalize those already limited in exerting power” (Skaržauskienė & Mačiulienė, 2020, p.11). Moreover, many citizens may lack the critical awareness regarding the type of technology used, the actors developing and managing the platform, the actors supporting the initiative, the transparency and accountability of data processing, and questions of cybersecurity and data privacy. Civic tech’s digital infrastructures may indeed be opaque to the users. In addition, the growing role and influence of tech companies in the context of democratic processes and governance requires a close examination (Duberry, 2020).

When using AI, and because of its black box characteristics, it may be difficult to explain how AI makes its decisions. In other words, it could make the outcome document suspicious, that is, reducing trust in the process and its perceived legitimacy, as well as hinder citizen participation motivation. Data processing may also be biased either due to the algorithm itself or the data sample. In their study, Starke and Lünich (2020) showed that citizens could only perceive an AI-informed policy-making process as legitimate “when such systems operate under the scrutiny of democratically elected institutions (as in the hybrid condition)” (p.e16-13). Keeping human agency and oversight remains a precondition for implementing AI (Goldenfein, 2019), as also recommended in the EU strategy for trustworthy AI.

NOTES

11. Translation of: “Chaque contribution est visible de tous avec la possibilité pour chacun de soutenir des propositions déjà émises et de les commenter.” “La plateforme sert à informer largement de la tenue du débat, de ses modalités


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