

participação
ativista-colaborativa utilizando
cartografias digitais
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activist-collaborative
participation using digital
cartographies

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Abstract:

This article discusses how the use of digital cartography, in the context of ICT, enables collaborative forms of production and sharing of information about cities in collective creation processes. We present theoretical-critical foundations on participation and collaboration in the digital cartography and information production, and discuss examples of platforms, which take advantage of the activism and social media dynamics and use collaborative digital tools to represent spatial data. In the end, one can assume that collective mapping and online collaboration can contribute to foster emergent forms of civil society participation and organization.

Keywords: Digital cartography, Collaboration, Participation, ICT, Activism

1 Introduction

With the digital revolution, we are going through a paradigm shift, from a material-based world to an information-based world (Felice, 2007). The ubiquity of ICT (Information and Communication Technology) is producing urban environments that are completely different from anything experienced so far. It is a new context, in which a much larger group of people can engage (Rocha and Pereira, 2011; Pfeffer, et al., 2013; Martins, et al., 2017).

ICTs are transforming the way people communicate and interact. They foster new forms of socialization, consumption, production of knowledge, citizenship and activism. Nowadays, it is much easier and faster to access and view information on the Internet, and information is power. In today's society, in which the public interacts more easily with one another and even with the government, the expansion of citizen participation channels is undeniable. Digital technologies are also changing the inhabitants' relations with the urban space (Bugs, 2014).

In this sense, digital tools with online mapping services -the digital cartographies-expand the limits of the comprehension of the urban space. Consequently, the inhabitants' interest and the ability to participate in the decisions that affect their urban living space are increasing (Bugs, 2014). The several methodologies through which various types of spatial knowledge are produced, used and exchanged, are being largely influenced by the mass adoption of GIS (Geographic Information System) tools on the Web, the result of the so-called geospatial revolution (Hudson-Smith and Crooks, 2008; Batty, et al., 2010). Many initiatives have been put into practice by providing an interactive online map interface to facilitate the exchange of spatial information or even the creation of such information.

At the same time, large technology companies and non-governmental organizations turn to the creation of localization tools that allow the control and commercial exploitation of digital cartographic bases and information collected by users of these systems (Fisher, 2013). In addition to the commercial use, there are questions related to privacy and strategies of information dissemination (valid or not) that nowadays potentially threaten organized society forms (Lissardy, 2017).

Considering the digital and geospatial revolutions, as well as the new dynamics of the contemporary society resulting from it, one can glimpse the emergence of a new participatory dimension, here called activist-collaborative, which has been considerably supported by the use of ICT and digital cartography. Thus, the article addresses emerging forms of participation and collaboration from initiatives and projects that are contributing to the collective construction of the city and the sharing of information on aspects of urban life in a virtual environment, through the use of digital cartography, in order to broaden the debate on modes of participation and collaboration.

2 Contemporary processes of collective construction and information sharing

2.1 The culture of collaboration

The phenomenon of collective mass production, or crowdsourcing (Howe, 2006), uses the knowledge and voluntary work of Internet users to solve problems, create content or develop new technologies. It is a cooperation and collaboration work between a large number of people with common interests who share knowledge and split tasks to build contents (Rocha and Pereira, 2011).

Howe (2006) explains that crowdsourcing operationalizes the wisdom of crowds and provides a mechanism for harnessing the collective intelligence of online users for productive purposes. The wisdom of crowds is a term from Surowiecki (2004) book on the aggregation of information into groups. In the book, the author examines several cases in which the success of a solution depends on its emergence through a large number of participants. Based on empirical research, he concludes that, under the right circumstances, groups are often smarter than the smartest people in them. The fundamental idea is that the whole is capable of self-correcting, generating more reliable contents than those produced by an individual only (Bugs, 2014).

Perhaps the greatest example of mass collaboration is Wikipedia, one of the most commonly accessed websites today. The open and free encyclopedia is continuously built through a content management system, which creates a repository of information easily updated by its users, the Wiki (Bugs, 2014). The journal *Nature Online* compared the quality of articles found in the *Encyclopedia Britannica* with Wikipedia and concluded that they are similar in terms of scientific accuracy, according to Fischer (2011).

Fischer (2011) states that we are gradually moving away from a world in which few people define rules, create products and make decisions, towards a world in which all people have the means to participate and actively contribute to the resolution of personally significant problems, which he characterizes as a "culture of participation". For the author, this culture of participation offers opportunities to address major societal problems, such as: problems of a magnitude that individuals and large teams cannot solve on their own; problems of a systemic nature that require the collaboration of many different actors; problems that require a high degree of involvement and dedication; and unique modeling problems.

According to the author, people wish to engage when they can decide, and, in the end, they value much more the solutions they make. However, it is inconvenient to force people to be active contributors in irrelevant personal activities. Modern do-it-yourself tools illustrate it, in which people need to perform tasks that were previously performed by skilled workers. While this change provides freedom and control, it also forces people to act as contributors in contexts where they do not have the experience and knowledge to do such tasks. Finally, the author concludes that all people want to be both the consumer – in personally irrelevant activities, and an active contributor – in personally meaningful activities (Fischer, 2011).

Therefore, ICTs enhance human capacity to produce collaboratively. This potential has also been used to change the conduct of the inhabitants in relation to the urban space, fostering civic engagement and online activism.

2.2 Online Activism

Since its early days, ICTs have enhanced popular mobilization and civic engagement (Bugs, 2014). For example, for a long time in history books were copied only in Latin, with religious themes, inaccessible to ordinary people. However, with the invention of the press, commercial print media helped people understand each other as part of a broader collective (Castells, 1983). Today, the Internet is identified as being more associated with civic engagement than the consumption of printed and televised media and face-to-face discussion (Rothberg, 2008).

Activism finds more supporters on the Internet, given the ease of connection between people, the speed of information flow, and the low operating cost. Greenpeace, for example, has been practicing cyber-activism for a long time, and today more than half of its volunteers do it via the Internet. Another example is Avaaz, a global network of activists, available in 15 languages, which in 2010 coordinated the mobilization that reached more than two million signatures in favor of the *Ficha Limpa* Act in Brazil (Bugs, 2014).

However, there are criticisms on the cyber-activism. The most common refers to digital exclusion. Another striking criticism mentions the "lazy activism", a term that refers to situations in which people participate in causes on the Internet only to "relieve their consciousness", liking a Facebook page and signing petitions (Meireles, 2010), but their engagement outside the Internet (charity, voluntary work, political engagement etc.) is almost null. Even so, the adherence of Internet users to online causes only grows (Bugs, 2014).

2.3 Social media

The phenomenon of social media refers to a group of Web applications that allow the creation and exchange of content generated by users (Kaplan and Haenlein, 2010). They are applications designed to allow social interaction through the sharing and collaborative creation of information in the most diverse formats (music, video, photos, etc.). In social media, users share all kinds of information about themselves and interact with other people (Rocha and Pereira, 2011).

Kaplan and Haenlein (2010) classify social media as interactive, expressive and collaborative. Interactive social media are those in which users interact by commenting on the content they find on the websites (currently, almost all applications have this functionality). Expressive social media are those in which the writer is expressing an opinion or explaining some subject (e.g. blogs and Twitter). Collaborative social media, on the other hand, are those in which users collaborate directly with one another by producing new content together (e.g., Wiki).

Also noteworthy is the large number of social media applications that use GPS (Global Positioning System) and online mapping services to indicate the user location and look for contacts that are close to that location, such as Foursquare. According to Pereira, et al. (2013), these applications set in a new way of citizen interaction with the urban space that can profoundly alter the way people read cities, because the place where the citizen is located contextualizes researches, which can attribute new meanings to the physical space in question.

Therefore, to Pereira, et al. (2013, p. 1, our translation), social media can be defined as a "space that favors the establishment of a new sociability", a "privileged environment for the development and sharing of opinions and a place of call to action which reconfigures the urban space". Dynamics such as these reflect new forms of relationship with peers, with urban space, and even with the government.

Nevertheless, the recent scandal known as 'The Cambridge Analytica Files' revealed a dark and disturbing face of social media. Personal data of millions of users were extracted from Facebook and used by Cambridge Analytica company to build psychological profiles, which were then useful to direct political propaganda and fake news to engender online engagement for causes recognized as of the far right political spectrum (Cadwalladr and Graham-Harrison, 2017). The orchestrated actions may have influenced two major events in two established democracies: the referendum that decided Brexit in the UK and the US presidential election that culminated in Donald Trump's victory, both in 2016.

2.4 Emerging forms of participation

Participation can be defined as "a decision-making process open to citizenship involving themes that directly or indirectly affect the lives of groups and individuals in the use and appropriation of a given urban territory" (Pozzobon, 2008, p.20, our translation). This definition allows the distinction between situations of participation and non-participation associated with the traditional governance model, in which those elected are the decision makers (Rowe and Frewer, 2005). However, alternatively, digital technologies support what can be considered a new type of "self-organized" participation, unlike "legalized" participation, which refers to community-initiated, bottom-up activities (Horelli, 2013).

Staffans (2004) identified two strands in participatory discourse: the democratic, which advocates transparency, deliberation and good governance; and the activist, which advocates innovation, the search for better solutions, bottom-up projects and the use of open data, characteristics of the information age, as Figure 1 shows.

On the democratic strand, there is a strong connection between participation and policy formulation and governance. This is also reflected in the theory that, over the years, has emphasized the social and institutional nature of participatory planning (Staffans, et al., 2010). Ideological differences about citizens' participation and debates about their place in government are conceptually related to the centralization and decentralization of administrative authority. Particularly, participation for democratic purposes represents an application of the decentralization principle, which assumes the purpose of delegating decision-making authority to a wider number of people (Milakovich, 2010).

The activist strand, in turn, promotes collaboration and greater interaction among its stakeholders. It includes the idea of citizens' ability to effectively participate in real-time activities through the use of ICT, producing knowledge in online environments. Theoretically, however, there has not been much discussion about whether institutions will be willing to open themselves to this bottom-up public debate (Staffans, et al., 2010). Viewing the citizen as a co-producer is a different but highly relevant conception of participation, which should not be overlooked. This type of active role is an essential ingredient in more contemporary attempts to empower local communities to act in their own interests, according to Milakovich (2010).

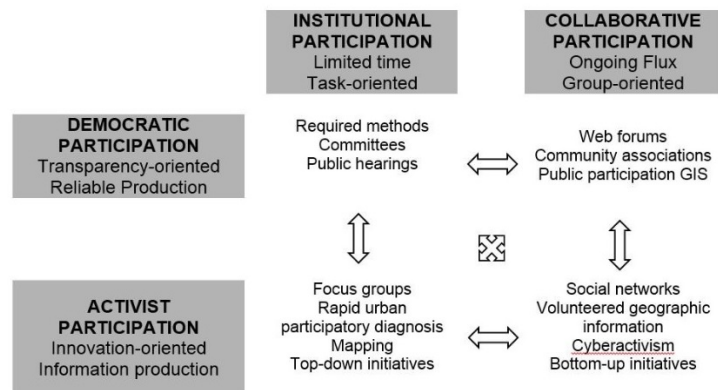


Fig. 1: New types of public participation. Source: Adapted from Staffans, 2004.

Thus, a new spectrum of participation emerges, which, despite having objectives similar to those of traditional participation, such as improving the quality of urban life, takes advantage of other means to achieve the goals and is not orientated by governmental actions (Bugs, 2014), that is, they are bottom-up initiatives. This activist-collaborative participation is directly linked to the use of ICT and the digital cartography.

2.5 Collaborative digital cartographic production

The digital revolution had transformative impacts on the nature of GIS and on the production and use of geographic information. From the so-called geospatial revolution, GIS tools and geographic information have become more open and accessible to the public (Hudson-Smith and Crooks, 2008; Batty, et al., 2010; Bugs and Reis, 2016). A significant amount of web information began to be indexed by its spatial component and displayed in online map services. In other words, the map has become an important part of the information search services on the Web (Batty, et al., 2010) and, in many cases, has become the support of this information.

Digital mapping is also used by a variety of websites to explore voluntary mapping and combine the functionality of one website with another, that is, creating maps mashups (mixing content from more than one source to create a new service) (Hudson-Smith and Crooks, 2008; Bugs and Reis, 2016). The mashups first appeared on the Web in 2004, but the emergence of Google Maps and its open API (Application Programming Interface) in 2005 made this task tremendously easier. It is almost impossible to count the number of map mashups that have been developed on the web lately. To get an idea, in August 2008, there were 1,740, and by February 2010, this number had already risen to 2,153 map mashups, according to Batty, et al. (2010).

Users, in turn, use these services to proactively create and distribute their own geographic information. This work has been designated by terms such as Neogeography (Turner, 2006) and VGI (Volunteered Geographic Information) (Goodchild, 2007), which refers to the use of GIS tools and online maps to voluntarily create and disseminate geographic data (Bugs and Reis, 2011).

Geographic information and tools that were once exclusively used by specialists are now available to anyone who browses the Web. Differently from the past, when institutions were primarily responsible for creating and distributing geospatial information, now anyone can easily produce a map and publish it online (Bugs and Reis, 2016; Martins, et al., 2017).

In this context, open cartographic databases are freely available and constructed collectively in a decentralized, collaborative and voluntary way. Two well-known examples are Wikimapia and OpenStreetMap. Both providers offer their maps under licenses that allow usage as long as the source is credited, and that any

changes/improvements made should be available to the community. Mapbox uses the OpenStreetMaps databases to offer paid global mapping services, for example.

Proprietary databases, in turn, are built by companies and released, at different levels of use, for home users for free, or for companies as a paid service. Google Maps, Nokia, ESRI and TomTom are some of the biggest agents in the industry and cover a lot of that market. Google Maps was one of the first freely accessible base map around 2005, but over time, several of its services have been turned into paid services. One can now use Google Maps bases and their APIs to create maps and their own apps and make them available to end users, but depending on the level of use, it will be paid. In addition, one can collaborate with the Google Maps information production through the MyMaps platform, where a base for own maps production are available; and the Google Places collaborative platform, which uses a gamification strategy to engage users in the production of information, evaluation and documentation of places. Google Places platform has information from 100 million places around the world, receiving 25 million voluntary updates per day from more than 1 billion active users per month (Google Cloud, 2018).

The information provided by Google Maps is, in many aspects, more comprehensive and more accurate than that of governments', and extensive enough to be considered part of the information infrastructure (Fisher, 2013). OpenStreetMap, seen as the main competitor of Google Maps (also thanks to contributions from companies such as Microsoft, Foursquare and Telenav), seeks to prevent digital mapping from becoming a private monopoly. It is certain that the digital bases of cartographic information are already strategic for several economic sectors, and their exclusive control by private companies raises serious questions regarding access and users' privacy.

Even so, collaborative mapping has been used in many ways to record and share information about the city, leveraging the creation of a "virtual city", which helps citizens in their daily tasks or, in extreme cases, avoid dangerous obstacles. Digital collaborative maps, for Ribeiro and Lima (2012, p. 43-44, our translation), "are collectively constructed by the content feeding of their collaborators/users" and "centered on the use-value, that is, the possibility of micro-interpretations, in which the use of the map as mediation between individuals and territory is the substantial issue". The same authors emphasize the potential of these resources to expand the possibilities of subjective reconfiguration and appropriation of places, marked by the experimentation of space.

3 Initiatives

Given this scenario, we present below examples of projects and/or initiatives that take advantage of ICT and digital cartography for knowledge collective construction and sharing of information about cities in collective creation processes.

3.1 Urban violence events

Some collaborative platforms work to record, consolidate information and publicize the occurrence of urban violence events in Brazilian cities. The *Fogo Cruzado* collaborative platform (<http://fogocruzado.org.br>), originally developed and launched by Amnesty International Brazil in 2016, is currently an autonomous project, coordinated by the Update Institute, based in São Paulo. *Fogo Cruzado* offers mobile application (Figure 2) and a reference website. The service is free and uses Google Maps' base to record shootings that are reported by app users through communication channels like WhatsApp, Twitter and Facebook, as well as information collected from the press. Before the publication of information, its veracity is checked with available channels and classified into four categories: fatal shooting, wounded by shooting, victimless shooting and multiple shootings on the spot. Monthly reports are made available, with registration statistics. It currently operates in the cities of Rio de Janeiro and Recife.

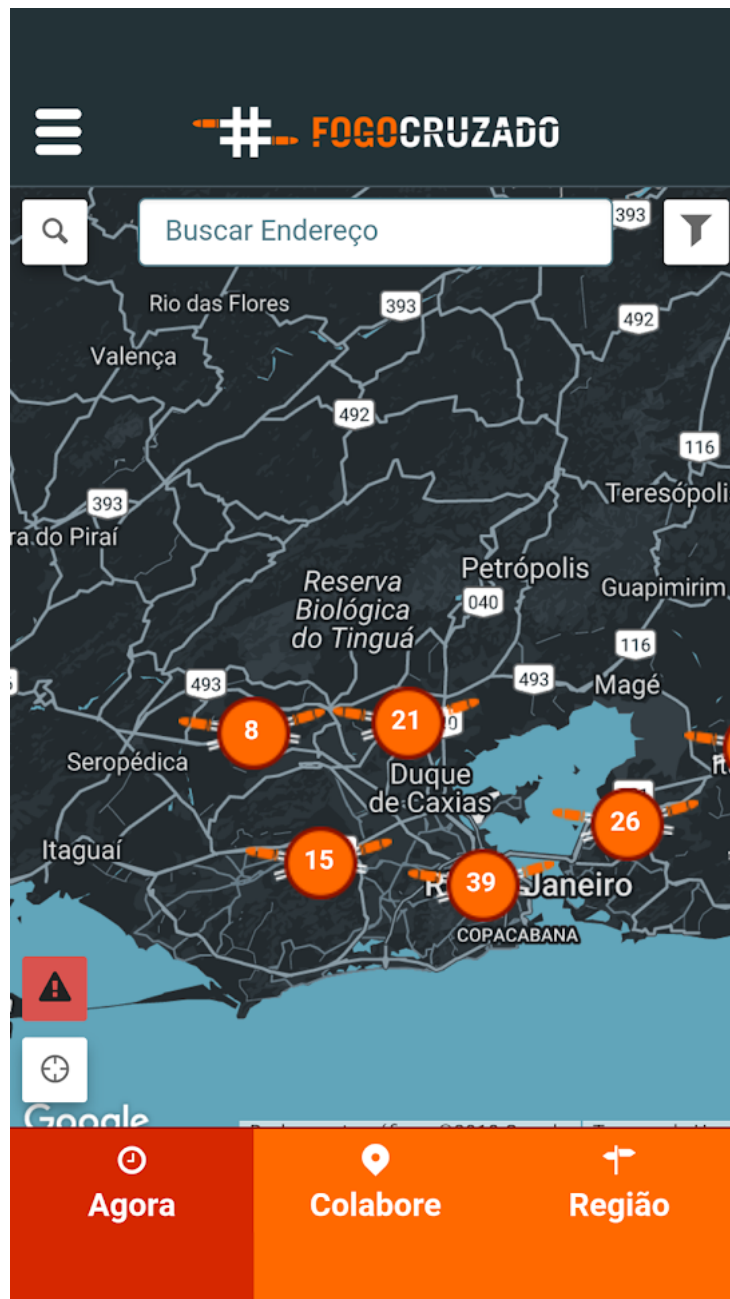
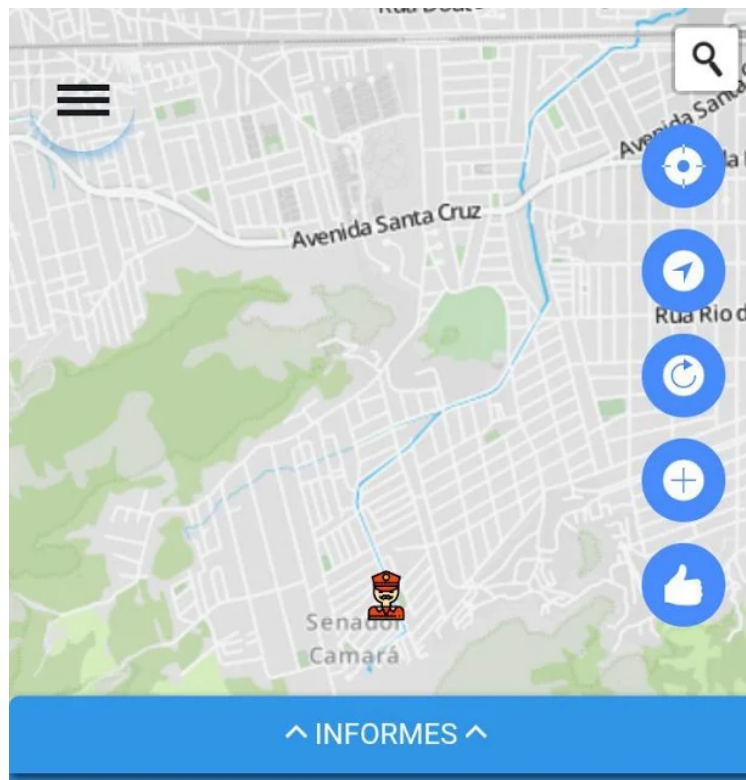


Fig. 2: *Fogo Cruzado* app to map events of urban violence. Source: Fogo Cruzado, 2018. Available at: <https://lh3.googleusercontent.com/cRwtLixBCi8y9NnKjunlOce-y2rrfvC9cnUcfmNnglUEZg5ZzfdBWlQajcSDbraQHxs=w2520-h970-rw> [Accessed 25 October 2018].

Similarly, OTT - *Onde Tem Tiroteio* (<http://ondetemtiroteio.com.br>) receives records through its app and social media, verifies the information with a network of local residents and provides information on shootings in the cities of Rio de Janeiro and São Paulo. It only works on mobile applications that use OpenStreetMap base (Figure 3).

Still on the issue of public security, WikiCrimes (www.wikicrimes.org) allows users to view and search for criminal events on the map (Figure 4). Registered users can insert markers at the crime scene on the map and provide details, as well as classify crimes by categories. The page automatically displays statistics on contributions. The creator's concern was that the victims do not always register occurrences and the police monopolize the data. Thus, with the information created in a collaborative way, it becomes a tool against crime and in favor of transparency. WikiCrimes is an initiative of researchers from Federal University of Pernambuco - UFPE.



Operacao Policial - 23/02/2018 às 06:29

Localidade: Senador Camará - Rio de Janeiro

Operação Policial com auxílio das Forças Armadas em Senador Camará. Tbm foram ouvidos disparos.

Compartilhar

Zoom

Operacao Policial - 23/02/2018 às 06:29

Fig. 3: Onde Tem Tiroteio app to map urban violence events. Source: Onde Tem Tiroteio, 2018. Available at: <<https://lh3.googleusercontent.com/v9InJVf9bGyhoBSvaXJVb9fslN38tB1v0dTnGgnyOqYyLa79Jxcrtg1IfrZ3ZxenXQ=w2520-h970-rw>> [Accessed 25 October 2018].

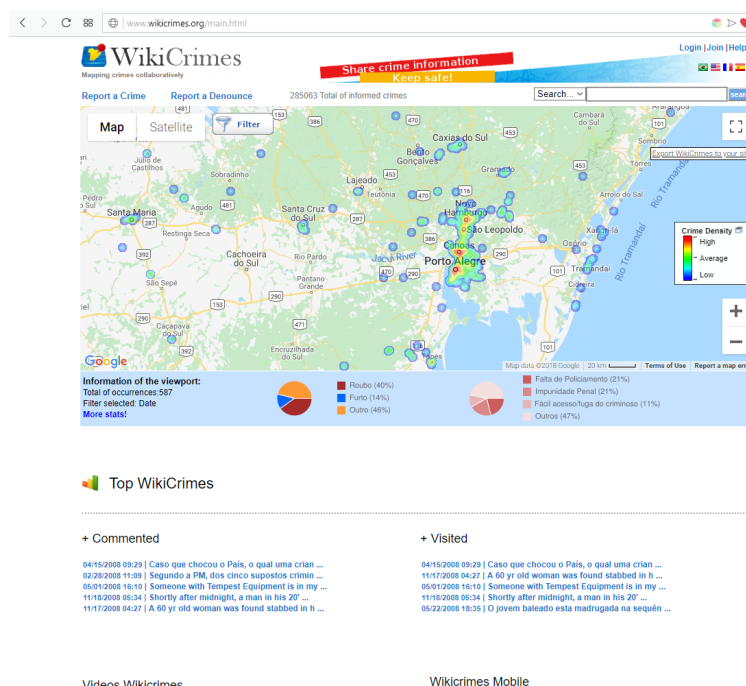


Fig. 4: WikiCrimes website to map urban violence events. Source: WikiCrimes, 2018. Available at: <<http://www.wikicrimes.org/main.html>> [Accessed 23 August 2018].

3.2 Actions of organized civil society

Digital databases also enable organized groups to develop and communicate their spatial arrangements. District C, or Creative District of Porto Alegre (www.districtocriativo.wordpress.com), is entitled as a "Pole of Creative Economy, Knowledge and Experience Economy", formed by approximately 100 artists and entrepreneurs, who are distributed in the northern portion of the city center, in the region known as fourth District. Using the Google Maps base (Figure 5), District C makes explicit its spatial organization logic: here cartography is a congregation and management tool, facilitating its users collaboration for the purpose of the collective goal: "to make from District C a space of participation, experimentation, collective creation and innovation, built by the entrepreneurs themselves" (URBS Nova, 2018, n.p., our translation).

Similarly, the Placemaking Brazil community (placemaking.org.br) uses the Google My Maps (Figure 6) to locate its national representatives in an open database in which users can voluntarily subscribe.

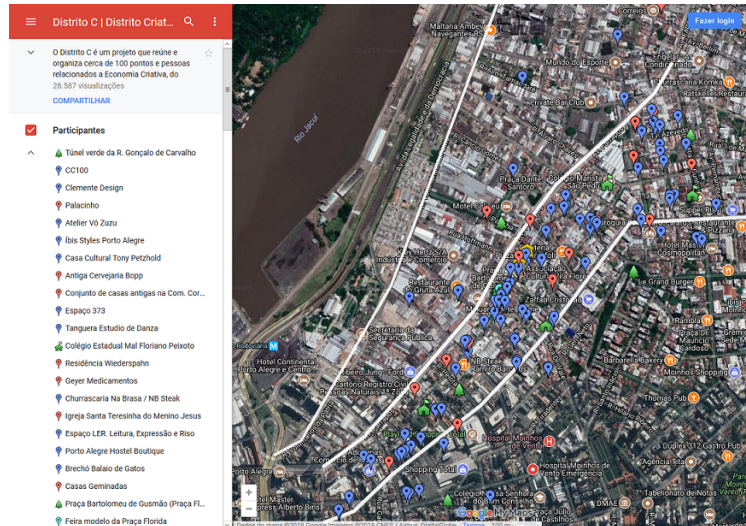


Fig. 5: Mapping of District C of Porto Alegre developed through Google My Maps. Source: URBS Nova, 2018. Available at: <https://www.google.com/maps/d/viewer?mid=1Hfz2GdrHJH8rpoYQZt4QCKnGnHg&ll=-30.021086272012685%2C-51.21127422280506&z=16> [Accessed 13 August 2018].

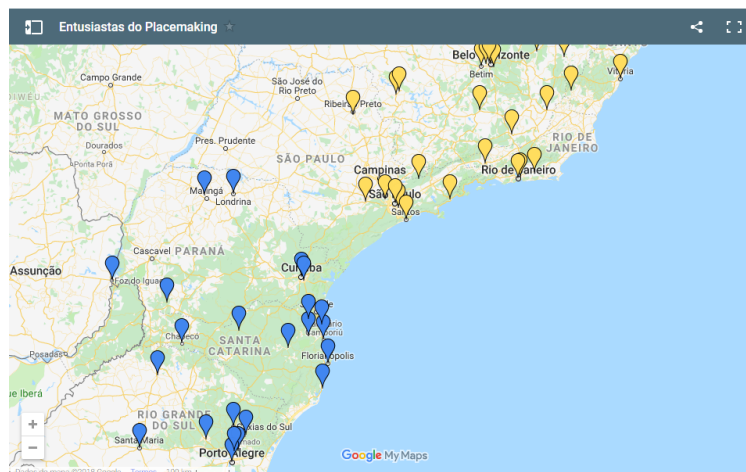


Fig. 6: Placemaking Brazil mapping developed through Google My Maps. Source: Placemaking Brazil, 2018. Available at: <https://www.google.com/maps/d/viewer?mid=1QgPG6E7kCzJ9rVCopnw90mesa4I&ll=-30.07886307404851%2C-51.11523453695145&z=12> [Accessed 16 August 2018].

3.3 Urban infrastructure and services management

User collaboration in online cartographies also enables collective records that give support to the urban management. Colab.re (www.colab.re) is a social network with an app for mobile devices that operates in all Brazilian cities. The app allows the user to locate and record on the map various types of problems in urban infrastructure, such as those related to cleaning, pavement or public transportation (Figure 7). The records are made available to all users of the app, and some city halls, such as the Municipality of Porto Alegre, accompany these users' contributions for the forwarding of solution proposals. Equivalent, the FixMyStreet website (www.fixmystreet.com) receives reports sent through its website and mobile app about various types of urban problems, such as illegal garbage disposal, potholes, lighting and urban furniture problems. The records are publicly disclosed and forwarded to local governments. The platform covers the territory of the United Kingdom, with Ordnance Survey (official agency) and Open Street Map databases.

Another initiative in this direction is the Open Green Map website (www.opengreenmap.org), which offers users "a tool to map the ecological, cultural and civic resources significant located in their communities" (Open Green Map, 2018, n.p., our translation), currently covering 55 countries. The focus is the mapping of sustainable initiatives, healthy eating and solidarity-based economy, which are grouped into three categories: Sustainable Living, Nature, and Culture and Society (Figure 8). The objectives are to map, disseminate and facilitate access to green initiatives, centralizing information and reducing design and production costs. Open Green Map has Google Maps as the primary resource for users to collaborate through its website or mobile app.

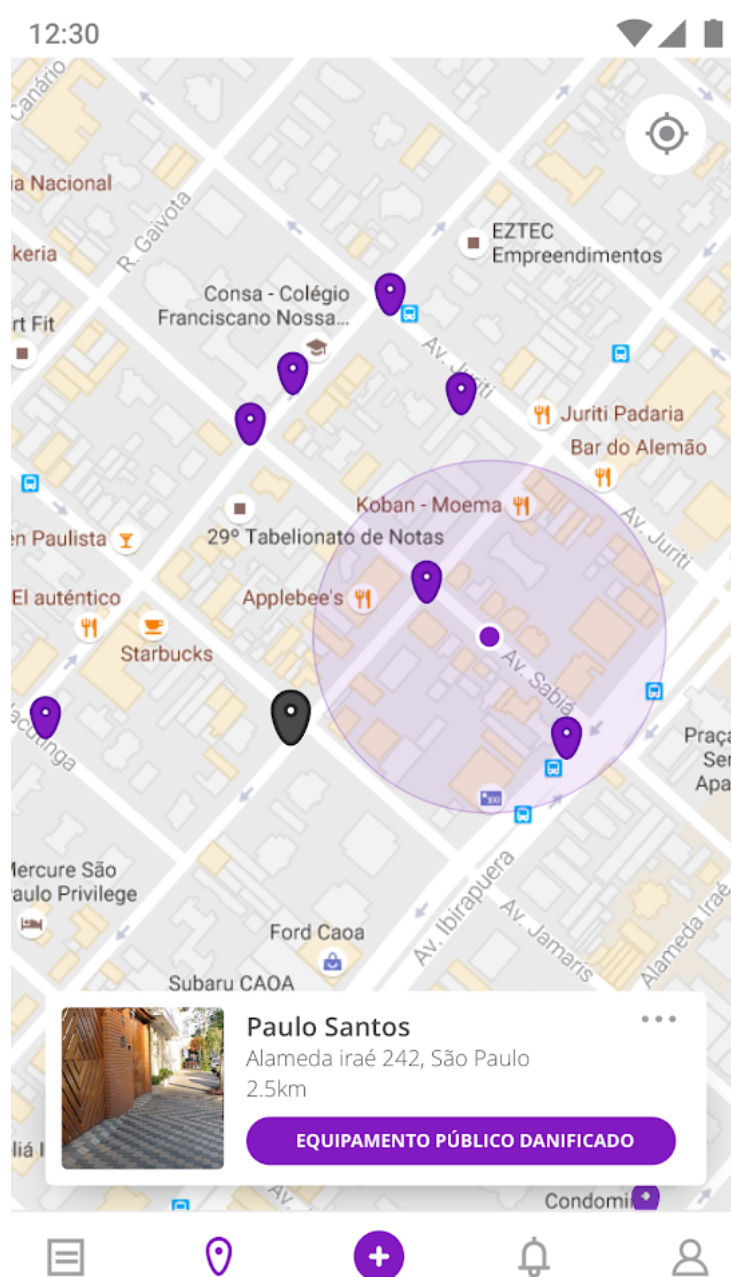


Fig. 7: Application Colab.re to register urban infrastructure problems. Source: Colab.re, 2018. Available at: <https://lh3.googleusercontent.com/hXnMyWaXIsZ19R36v-zNZIgnC1Sj3-reF8hx0ka0CFxyKS3vZcbPLo4FAurbav2iv1k=w2520-h970-rw> [Accessed 25 October 2018].

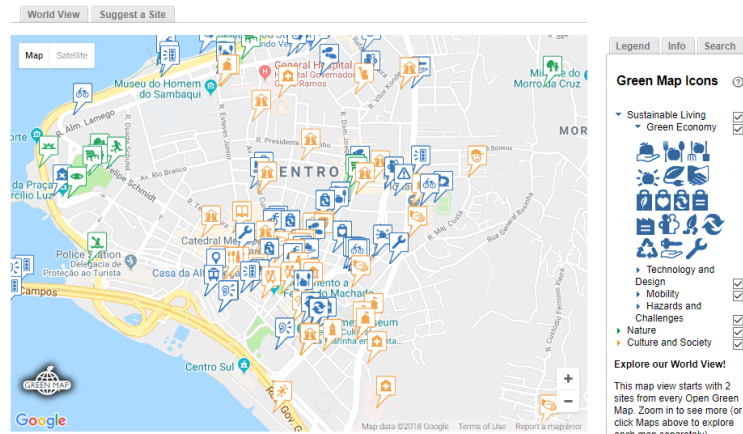


Fig. 8: Site Open Green Map to map ecological, cultural and civic resources. Source: Open Green Map, 2018. Available at: <<https://www.opengreenmap.org/greenmap>> [Accessed 17 August 2018].

3.4 Participative scenarios

Collaborative digital maps can also be used to build and share scenarios and projects. The Visionmaker.nyc (<https://visionmaker.us/>) website, created by the Wildlife Conservation Society, provides statistical-backed tools for the development of land-use scenarios for New York City, which, combined, can simulate natural and man-made ecosystems. Each user can create their own scenery (called a 'Vision') for an area of the city: "Visions are the unique combination of ecosystems and lifestyle and climate scenarios that represent your vision for an area of New York City" (Visionmaker.NYC, 2018, n.p.). A Vision can be shared and altered by other users, allowing interaction and collective research on the reality and future of the city (Figure 9). Visions can be compared through water, carbon, biodiversity, population, and economy indicators, with each indicator providing input, storage, and output estimates.



Fig. 9: Screen of the platform Visionmaker.nyc, which allows the elaboration of urban scenarios for the city of New York. Source: Visionmaker.nyc, 2018. Available at: <<https://visionmaker.us/>> [Accessed 16 August 2018].

4 Final Remarks

The examples presented illustrate cases where people contribute with information about events related to their daily activities in the city or at least produce them spontaneously through the use of ICT and digital cartography. Some of the initiatives are characterized by a collective mobilization that seeks to change aspects of urban reality, such as civil society actions; others seek to give visibility to certain issues, such as urban violence events. Some, even, indicate directions for governmental actions, such as those to support the management of urban infrastructure.

Undoubtedly, recent technological advances are producing new dynamisms in contemporary society, a context characterized by the expansion of public spaces, the emergence of new interfaces with governments, broadening of mobilization and engagement channels, opportunities for people to shape their environment, and expansion of understanding of urban space. These phenomena and tendencies are fostering an emerging discourse, here termed activist-collaborative participation, which is characterized by bottom-up initiatives, collaborative practices, innovation, self-organization, information production in a continuous and collective-oriented way, and the notion that better solutions and ideas arise from the involvement of several people.

One can question the practical relevance of these initiatives. Perhaps, a reshaping of established practices would be necessary to influence decision-making, since the use of information produced by citizens voluntarily and spontaneously is still a matter of debate in institutions. However, many of these initiatives are institutionalized when they become relevant (e.g. Porto Alegre CC), and others achieve their goals without

formality or great publicity. They are, therefore, scattered and atomized spheres of participation, which are not formalized, and one can understand that in this point lies their relevance for broadening public participation.

In time, one need to keep constant concern for the cooptation of the means of participation, collaboration and activism by initiatives that somehow intend to manipulate users. News on the use of social media to influence elections, for example, begin to reveal that much of their potential for engagement and multiplication of ideas can be used to lead public opinion in an unaware way, in processes that are not mediated within the public domain.

Lastly, in approaching activist-collaborative participation using digital cartographies, we hope to contribute to broadening the debate and understanding of forms of participation and collaboration, with special attention to those that are civil society initiatives.

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