Smart Participation in Unequal Contexts: A Theoretical Approach for Smart Urban Governance

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Abstract

This research used investigated citizen participation in a smart urban governance case in Brazil. The chosen case is a digital participatory budget program in a city of high socioeconomic contrast. A theoretical approach for analyzing smart governance cases was constructed, based on the literature, and applied to the case study. After the analysis of the case, the theoretical approach was revisited and improved, as the results revealed a new perspective over the influence of social exclusion in the smart governance theoretical model. The results of the research showed the importance of looking at the vulnerable population in a smart urban governance arrangement, as it revealed a different level of participation from the official narrative.

Keywords

Smart Urban Governance, ICT, Excluded, Participatory Budget

1. Introduction

This research studied citizen participation in a Smart Urban Governance (SUG) program. It started as a study of participation in a case of socioeconomic inequality, as it could present findings on how smart programs could be adapted to integrate the participants. This research contributes to the gap in the literature of few outcomes of smart governance by looking at an empirical cases of a smart program that propose urban development [4],[22]. But more than just "filling a gap", this work adopted the practical question "How participation in smart governance initiatives work in contexts of high social inequalities?". The objective is to understand how participation works in a context that is socioeconomically unequal and how the program and technology were adapted for that context. Furthermore, this work contributes to propositions by [9], of future works in smart

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governance, as it studies not only the smart transformation of a public policy, but also the underlying institutions that impacted the policy.

The literature review conducted by Tomor et al. [22] analyzed the field of smart urban governance based on three main categories: Smart Governance, its Outcomes, and the Situational Context of the governance. But there is a gap in how the digitalization of policies might affect contexts of inequalities, especially vulnerable communities [4] [6], [10]. This research proposes a theoretical approach to analyze SUG cases with a specific attention to excluded communities. The theoretical approach was applied to a case of smart governance police in a context of high social inequality to understand the impacts of the policy. Categories and variables for analyzing a SUG program were created through an abductive approach: initial variables were created based on a literature review and were applied to the case study, being subsequently modified after the field immersion findings.

The theoretical approach was applied to a digital participatory budget program, "Ouvindo Nosso Bairro" (ONB, literally translated as Listening to Our Neighborhood). ONB is a case from the city of Salvador (Brazil), a context of high socioeconomic inequality. It started as an offline program but was later digitalized. The effects of the digitalization were analyzed and after a field immersion, the theoretical approach was reworked to incorporate a new dimension to specifically understand the impacts of SUG on vulnerable population.

The findings from this research showed the importance of analyzing the context and the excluded people in SUG. Reaching out to social excluded people and finding how the program affected them revealed a different narrative from the official, city hall controlled one. Part of the citizens and the local leaderships were not even aware of the program's existence. The "Excluded Perspective" dimension was built on variables related to the different narratives found through the field immersion and was important to understand and to identify the reasons of the shortcomings of the program, one of each was not reaching part of the population that it was meant to reach.

2. Background, Literature Review and Theoretical Approach

Smart urban governance was defined as the relationship between local government and citizens when they are mediated by Information and Communication Technologies (ICTs) to advance sustainability in urban regions [9][15]. This research conducted a literature on smart urban governance to create a theoretical approach for analyzing a SUG case. This review analyzed articles from 2016 up to 2022 to complement Tomor et al. [22], which reviewed articles on SUG from 2006 up to 2016. The same methods, keywords and search criteria were used. The PRISMA method was adopted for this literature review.

Three scientific bases were chosen for this literature review: SCOPUS, Web of Science (WoS) and Scielo. Both SCOPUS and Web of Science reached a high number of articles, and Scielo added a Latin American perspective to the review. The keywords used for the queries were the same for SCOPUS and WoS, with translation and adaptation to Portuguese and Spanish needed for Scielo. The search resulted in 254 articles, among those, 83 articles were pre-selected for reading based on their titles, abstracts, and keywords and among those, 40 articles were selected. The classification consisted of 33 different variables divided into three main categories: Smart Governance, Outcome, and Situational Context.

The most cited dimensions of smart governance, such as "citizen participation" and "cultural change", are aligned in their discussion of a needed organizational change from traditional administrational culture, values and tools to advance citizens participation, collaboration, and co-creation of policies [5] [13] [18] [26]. This is corroborated by another identified dimension, decision making, which argues for changes in traditional top-down planning for more collaborative and open processes. [5,[17], [18] [26]

Actual results of smart governance are scarce and lack deeper analysis by the literature, with most articles only pointing to desired or hypothetical outcomes. A rising trend in the literature is the digital divide. The articles warn that the level of citizens participation is hindered by the lack of knowledge and access to technology. However, the literature focuses on the divide due to lack of technology (first level of digital divide) and skills (second level of digital divide) and does not address the third level of digital divide, defined as the inability to create tangible outcomes from the use of technology [25].

Situational Context is the category with the most absent data. However, some of the conclusions show that Smart Cities, as well as Smart Governance, are contextually dependent. Culture, for instance, could become an obstacle for policy implementation, for institutional changes, or for collaboration [11][13][17][26]. At the same time, projects that adapt to the local culture have better chance to reach a higher number of citizens due to understanding local dynamics and institutions.

A theoretical approach for analyzing SUG cases was created based on the categories of smart urban governance explored at the literature review. It is divided into three domains: Smart Governance, the Outcomes and the Situational Context. Smart Governance is composed of variables related to the governance arrangement. The second domain is related to the outcomes of the governance process, such as the effects it may have on urban development. The third domain deals with contextual factors that influence the governance arrangement and its outcomes. Also, variables were created to specifically analyze the impacts of digitalization in public policies. Those variables are displayed in bold and underscored in the theoretical approach (figure 1). The variables of the Smart Urban Governance dimension are:

Agents: the actors in the arrangement; Organizational Dimensions: organizational characteristics that were important for the case development/implementation, such as a change in the organizational culture, coordination between the actors, specific knowledge, regulation, or open for other alternatives; Governance Ambitions: the personal goals of each actor; Technologies Used: the different technologies used in the arrangement; Citizens Participation: the level of participation/citizen engagement; Tensions in the Arrangement: challenges that difficulted the case, such as contextual hardships due to change, or conflicts related to differing objectives/views of the actors, but open to more alternatives.

The variables of the Outcomes dimension are: *Adverse Outcomes*: unpredicted negative impacts of the program; *Evaluation*: the methods used for the program evaluation; *Affected groups/ environment*: the social groups or urban spaces most affected by the program; *Learning Capacity*: The challenges and preconditions the program faced for its implementation due to the digital divide and knowledge inequality.

The variables of the Situational Context dimension are: *Culture*: local cultural aspects that have influenced the case; *Democratic Tradition*: the political tradition and how it

influenced the program; *Features of the policy domain*: the specificity of the policy domain and how it might have shaped the case study; *Trust*: the importance of trust among the stakeholders for the implementation the program; *Socioeconomic characteristics*: variables that explores the local social characteristics and how it affected the program's planning and implementation; *Citizen's knowledge and interest in the policy domain*: if or how citizen's prior knowledge or interest in the policy domain affected the program and its outcomes; *Demographic characteristics*: the local demographic influence on the program; *Current government*: how specific administration styles influenced the policy; *Spatial characteristics*: the influence of spatial characteristics on the program; *Internet reach*: the spread of internet connection in the municipality and how it influenced the program.

A different set of variables were created to explore the impacts of public policies digitalization, as an analysis of this process might offer insights on how online migration affects the governance: *Citizen engagement (Smart Urban Governance)*: the challenges for engaging citizens in the fully online scenario, considering the digital divide; *Level of participation (Smart Urban Governance)*: the differences in the level of citizen participation due to the online only channel of interaction; *Differences in the results (Outcomes)*: the changes in the outcomes and results brought by the pandemic and the online migration; *Inequality (Situational Context)*: the social inequality and digital divide impacts on the outcomes of the online iterations of the program.



Figure 1: Theoretical Approach for analyzing Smart Urban Governance cases.

3. Methodology

This study uses a qualitative lens to investigate the level of collaboration and participation in smart urban governance. An ongoing smart urban governance program was selected to study the relationship among the actors of the arrangement, while also understanding that smart programs are not dissociated from their context. It was important to select a case study that could encompass the object of this research: a smart governance case applied to a context of socioeconomic inequality [14][20].

3.1. Case Selection

Salvador was the first capital city of Brazil, it was founded on 1549 and is an important tourist destination in the country. It also suffers from high inequality, with incidence of poverty among its population of 33,39% [12], illiteracy rate of 4% among its population of 15 years or older, or 84.204 residents, and Gini index of 0,573 [7][23]. The 2013-2016 administration planned to modernize the city through a series of changes in the administration. It brought a technocratic agenda and, in its second term, created a smart city program for Salvador, Salvador 360. By 2019, the city achieved second place on the Connected Smart Cities Rank for the Northeast Region of Brazil.

The program "Ouvindo Nosso Bairro" is a participatory budget program from the city of Salvador. It was created in 2015 during a new municipal administration that promised the decentralization and modernization of the city. ONB was part of the decentralization agenda of the government, and it's first iteration happened through in-person meetings at every neighborhood of the city. During these meetings, participants were divided into groups that discussed and voted for their neighborhood's needs. The results were transcribed into lists of urban works that were prioritized by the city-hall. Overall, 9519 citizens participated.

The second iteration of ONB happened in 2017 during the reelection of the local government. The format of the program changed to a digitalized version. This new version reduced the number of local meetings to only one per subdistrict of the city. Also, the processes of choosing each neighborhood's intervention (suggestion phase) and voting on them (voting phase) were centralized into a digital platform. The number of participants rose to 70.000 for this new format. ONB also ran a third iteration in 2021, during the Covid-19 pandemic, and engaged 53.882 participants, combining 21.000 votes from the suggestion phase of the program, and 32.000 votes from the voting phase. The Ouvindo Nosso Bairro program was chosen as a case study due to the transformations it faced, which brought multiple methods of engaging citizens and to the context of Salvador [8].

3.2. Data Collection

A triangulation was created to enrich the information gathered with different perspectives. The triangulation was created with the perspectives of policy makers and citizens, through primary data collection, and secondary data from different sources. Primary data were gathered through a field immersion and consisted of semi structured interviews that followed the theoretical approach, and the perception of the field by the author. The questions were open-ended and were related to each of the main dimensions of smart governance, such as "What were the main outcomes of the program?". If necessary, more specific questions were made regarding one of the variables corresponding to that dimension, for instance, "How does the evaluation of the program occurs?". The data was treated and coded. During the analysis, coding was used to derive abstractions from the data, by following content analysis systematization [14][16].

The proposed theoretical approach guided the field work and the data analysis. The field work consisted of primary and secondary information gathering. The data was gathered through documentary research and interviews with governmental officials and the program participants. Also, the "The conversing researcher in everyday life" [19] article was used as a guide for the field immersion. Personal field notes were taken, containing commentaries,

perceptions, and dialogues with different actors of the city. They showed different perspectives of citizens about the program and data contained in them was also analyzed with the same proposed theoretical approach.

The intention of this field research was to reveal how the different actors participating in the program, from policy makers and street-level bureaucrats to citizens, perceived the arrangement, its outcomes, and their own level of participation. A qualitative interviewbased method was chosen for gathering this type of data. The interviews followed the snowball method, from which our primary contacts in the City Hall - Neighborhood Secretariat would appoint the next interviewees. This method creates a chain sampling based on the first interviewees indications [14]. The interviews conducted in this research were submitted and approved by the Ethics Compliance Committee in Research Involving Human Beings. The following three main perspectives compose the triangulation:

• Secondary data collected through official releases and documents, 18 documents from different sources, press archives and other released research on the project, 5 documents from different sources.

• Primary data collected by interviewing city hall planners and workers of the secretariat responsible for the program and from street level bureaucrats responsible for the program implementation, 7 interviewees in total. The snowball method was used for the interviews which were gathered from October 2022 to January 2023.

• Primary data collected by interviewing participants of the program, such as citizens or local leaderships, 14 interviewees in total. The snowball method was employed for the interviews which were gathered from October 2022 to January 2023.

3.3. Data Treatment

The interviews were recorded and stored in a personal cloud. They were anonymized to guarantee the data security and privacy of the interviewees. The interviews were transcribed and catalogued, following the theoretical approach variables, and later codified by using the software ATLAS.ti. This process generated data on the different analyzed variables. Other data gathered by this research, such as official documents and field notes, were transcribed and catalogued into the smart urban governance theoretical approach, which produced codes for the analysis.

The interviews, catalogued into each variable, were codified into smaller first and second degree variables. They were connected into a network which revealed the most addressed characteristics of each variable. The results were compared among the different sources, from the policy makers perspectives, the citizens perspective, the overall literature read and the researcher's perception. This analysis showed the most addressed characteristics of each variable, as each entry in the spreadsheet for the specific variable was classified into a category. Those categories, or codes, allowed the measurement and understanding of the views on the specific variable. And by using a standard set of variables, it was possible to compare the perspectives from the collected sets of data.

4. Results

The main findings from the organizational dimensions revealed that communication is a fundamental part of the arrangement. Communication between government and citizens is crucial for making the arrangement work through participation. But also, inner communication between different governmental branches is important for the coordination of the governance. Leadership was also credited as an important organizational dimension that can drive inner cultural change for the modernization of the government. Also, decentralization of the government was linked to bringing citizens closer to the government which resulted in better informed policies. The change in government in Salvador brought a modernizing and decentralizing discourse that pushed for an inner cultural change of the public bureaucracy. Ouvindo Nosso Bairro was one of the products of this management, as a participatory budget program to bring citizens demands closer to the administration.

The most cited tensions execution of ONB are the hardships to engage citizens due to the digital divide, the citizens mistrust in the municipal government and the information of the program not reaching the residents. Other common problems found in the data are related to the budget of the municipality, which prevents the execution of some of the infrastructure demands of the program. Part of the contextual tensions in Salvador comes from citizen's perceived lack of openness of the government to their demands. There are historical demands that are not attended or acknowledged by the government, such as the creation of Conservation Units in the regions of native Atlantic Forest and of local Quilombolas, which results in conflicts between the residents, the private sector and the administration.

The main impact of the digitalization of ONB was the increased number of participants. The digitalization increased the number of the in-person version from 9519 to around 70000 participants. The city-hall company, COGEL, was responsible for the development of the digital platform. Initially planned to be an application, the project had to undergo changes due to the low memory capacity of citizen's smart phones and due to the digital divide. The interactions within the program are conducted through the program's website, which was made more responsive for users. Also, the program was made hybrid to respond to the digital-divide, with the possibility for voting at city-hall district units ("Prefeituras-Bairro"). But the interaction of the program decreased, as the digitalized version centralized the in-person meetings to one per district, at the Prefeituras-Bairro, and it is not a requirement for the voting. Citizens primarily interact with a screen by choosing and voting.

5. Discussion

The digitalization of Ouvindo Nosso Bairro increased the number of participants but reduced the level of participation. Government interviewees have mentioned the reduction of the face-to-face hearings as positive due to citizens not willing or unable to participate. They argued that the digitalization of the program democratized it, as citizens are now able to make their contribution in a simplified and more straightforward manner, from anywhere and anytime. Other interviewees argued for the importance of face-to-face hearings as the public debates increase citizens democratic and civic awareness, which is confirmed by the literature [1] [18][21]. Furthermore, it is through the creation and

fostering of learning environments in the city, through multiple initiatives such as public debates, that citizens might become interested in the policies and increase their participation [1][5][13].

Despite the results of ONB, there were complaints from the interviewees about the disinterest of citizens in the program. The most cited reason to justify this lack of interest was "trust", with arguments such as "citizens mistrust new policies" or "citizens need to see results before engaging in a new policy". The political tradition of Salvador might explain citizen's mistrust, as part of the population has been historically excluded from political participation. Ouvindo Nosso Bairro was the product of a leadership that had a modernizing agenda. When analyzing the political history of Salvador, such modernizing efforts are commonly associated with the Carlismo movement [3], which sought modernization through an economic liberalism perspective while keeping the unequal power dynamics of the city. The change in format of ONB to a more punctual and controlled participation may hint to a façade of participation [2][5][24].

A field immersion resulted in the creation of variables that showed a different perspective from the government officials. These other perspectives were important for measuring the actual participation of the program and its shortcomings. Four main groups were identified among these variables: Digital Divide, Private Sector Influence, Pressure and Non-Participative. The creation of this last dimension, the Excluded Perspective, changed the theoretical approach. This variable, related to the Context, creates a counterpoint to the government narrative and reveals its deficiencies. Figure 2 shows the rearrangement of the theoretical approach with the Excluded Perspective variable. The Excluded Perspective is connected to the context, as it is a part of it, but it does not fully influence the governance, as it is excluded from it. It influences the results, as part of the barriers faced by the program.



Fig. 2. Smart Urban Governance Theoretical approach for Unequal Contexts

5.1. Digital Divide

The digital divide had been presented as a barrier that was somewhat managed by the cityhall with the creation of hybrid programs and more responsive/accessible online channels. But a different perspective on the digital divide was uncovered during the field immersion. It is a barrier that affects people, particularly the most vulnerable, in accessing their rights. The interviews revealed that the digitalization, during the lockdown, left many uncovered and dependent on others for accessing their basic rights. The third level of digital divide [25] was identified as citizens that had access to technology and knew how to use it but did not know how to extract real life value from it., e.g., being unable to use online services provided by the city-hall due to digital bureaucracy or hard interfaces.

The digital divide had a greater impact on the peripheric and isolated regions of Salvador. During the pandemic period, some of the most vulnerable were left uncovered as they did not know of their rights and of governmental programs, such as the emergency income aid. Worse, some did not have access to internet and depended on in person contact with governmental organs to guarantee assistance.

5.2. Non-Participative/ Participation Façade

Interviewees have described non-participative experiences from the city-hall, despite its agenda of "openness to citizens". The different accounts add a perspective of a government that is hard to reach, that does not respond to citizens demands and uses participative mechanisms to create a façade of participation, but the decisions made collectively are not implemented, similar to some of the cases presented by Cortez & Luciano [2]. Some of the interviewees denied the official information about city-hall programs and denounced the city-hall of creating a participation narrative of works that does not reach them. Such perspectives unravel other shortcomings of the administration, as its agenda of decentralization and participation is not reaching all citizens.

5.3. Private Sector Influence

A closer look at the most vulnerable participants of the governance resulted in findings of their struggle with the private sector backed by the city-hall. This added another dimension to the analysis as the private sector had only been mentioned, until then, as private contractors or as participants of the Ouvindo Nosso Bairro. The private sector in the literature is mentioned as a stakeholder of smart urban governance, but rarely as an actor that has a direct conflict with local communities. Different accounts have shown the private sector influencing the local context. Some of the interviewees relayed their challenges and conflicts with the deforestation pressured by the real estate market of Salvador. In those cases, challenges arrived due to the government siding with the real estate pressuring the administration into denying historical demands from preservationists and local Quilombola communities for revitalization or preservation of areas of native forests.

5.4. Pressure

The last identified 2nd degree variable, Pressure, relates to the mechanisms used by the local population to achieve their demands from the government. Interviewees told about the importance of making their demands public, as it pressures the administration to answer

their causes. Different channels are used, but the prevalent ones are the social networks, through posts, videos and pictures denouncing a situation.

6. Conclusion

This research started with the inquiry on how participation was achieved in smart governance programs located in context of high socioeconomic inequality. A theoretical approach to analyze a case of smart urban governance was developed and applied in a context of socioeconomic inequality. As our research matured, so did the theoretical approach and a new dimension was added to it, one that investigated the perspective of the marginalized population. Through this theoretical approach our analysis of the case found that participation, or the lack of it, was not limited by technology but by the design of the program and the way it was implemented. The dimension created, "Excluded Perspective" is important to reveal the actual participation of a smart urban governance initiative, as its shortcomings will be more evident at the most vulnerable side of the arrangement.

The Excluded Perspective introduced a different layer to the participatory narrative of the program. Through it, other contextual factors that constrain the agency of citizens in the program were identified, such as their mistrust in the government due to past interactions or the impacts of the third level of the digital divide. Also, "excluded citizens" pointed to a governmental bias towards the private sector demands, which also countered the participatory narrative from the city hall. And since these citizens have difficulties in reaching the official channels, they find alternative routes to have their demands heard. Those were identified in the last variable of the domain, "Pressure".

Future studies could focus on the effects that contextual factors have on SUG, to compare their results and create further abstracted concepts from them. The local culture, trust and political agendas of the contextual factors are specific characteristics that could generate important abstractions from their context if further analyzed and compared. Further studies on the excluded perspective are also necessary to validate its importance in understanding smart urban governance. During this research, the theoretical approach changed and improved due to the analysis of different perspectives on the program. More research that applies the theoretical approach to other contexts could reveal different relationships and variables not found in this research.

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