A collaborative approach to formulate a public strategy: The experience of the Brazilian Charter for Smart Cities

ABSTRACT

This article describes the experience of elaborating on a Brazilian strategy for smart cities. The elaboration process was innovative as it used co-creation mechanisms to engage a group of institutions and people involved in the topic of digital transformation in cities. Based on a design policy approach, it featured design thinking activities, workshops, working groups, listening, and online public consultation. The result was the Brazilian Charter for Smart Cities, a document that presents an agenda to address digital transformation as an opportunity for sustainable urban development in Brazil. The strategy gives eight strategic goals addressed to different stakeholders. Furthermore, a collaborative network was formed that remains active and implements the strategic goals defined in the Charter. The experience illustrates the importance of establishing collaborative and participatory processes in formulating strategies and public policies. The challenge now is implementing the goals in Brazilian municipalities, which are highly diverse and unequal, and replicating this participatory model to formulate local smart city strategies.

CCS CONCEPTS

• **Applied computing**; • **Computers in other domains**; • **E-government**;

KEYWORDS

Smart city, collaboration, strategy

1 INTRODUCTION

This paper presents the experience of elaborating a Brazilian strategy for smart cities. Cities are economic development centres and have significant responsibility for the population's well-being. Also, they have concentrated offers of employment, education, cultural facilities, and public and private services (Cunha et al., 2016). These characteristics make the world face the challenge of generating and distributing the benefits and opportunities of urbanization. It is understood that cities and local governments have a decisive role in the global mobilization for sustainable development, which must reach all people (Brazilian Charter for Smart Cities, 2022).

At the same time, information and communication technologies (ICT), considered by the United Nations as a means to achieve the 17 Sustainable Development Goals (SDGs), can be valuable allies for the development of cities. To implement policies in the direction of sustainable development is necessary to consider and ensure that its benefits reach the entire population, promoting the right to the city by expanding access to urban goods and services; urban infrastructure, including access to digital technologies (Brazilian Charter for Smart Cities, 2022).

Understanding this context of urbanization and digital transformation, the Ministry of Regional Development of Brazil decided to propose and lead the process of elaborating a smart city strategy. One of the strategic objectives is to integrate the sustainable urban development agenda with digital transformation (Brazilian Charter for Smart Cities, 2022). Until then, Brazil did not have a national strategy for smart cities to conduct this transformation process and, simultaneously, the sustainable development of cities.

A collaborative method supported the strategy formulation (Ansell and Gash, 2008; Bason, 2016). Three workshops were held with society representatives, working groups, and international and national listening. Finally, the draft document was put up for public consultation online. Strategic partners also supported the elaboration of the strategy, notably the Ministry of Science, Technology and Innovation and the Ministry of Communications. Also, the support of the ANDUS Project - Support for the National Agenda for Sustainable Urban Development. The project is Brazil-Germany technical cooperation implemented by Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH.

This collaborative work lasted almost two years, from March 2019 to October 2020, and enabled the elaboration of a document, the Brazilian Charter for Smart Cities, covering multiple visions and consolidating a concept of smart cities in the Brazilian context, considering five principles and six guiding guidelines. It agreed on an agenda with eight strategic goals and 163 recommendations for action. The collaborative process of building the Charter also helped create and strengthen a collaborative network involving multiple stakeholders. The following sections present the Brazilian context and motivation for elaborating the smart city strategy, the collaborative formulation, and the results.

2 THE BRAZILIAN CONTEXT AND THE MOTIVATION TO FORMULATE A SMART CITY STRATEGY

Brazil is a diverse country with continental dimensions. The country's population is around 212 million, and approximately 85% live in urban areas. Brazil is a federation. Its political-administrative division is configured in federation units: the states, the federal district, and the municipalities. There are 26 states and a federal district, which houses the national capital, Brasília, and 5,570 municipalities. In geographic terms, the country is divided into five macro-regions (IBGE, 2022). In addition to territorial diversity, Brazilian cities are

marked by socioeconomic and spatial inequalities. Urbanization occurred quickly and was poorly planned in the country, with social and economic characteristics closely linked to its history. Thus, Brazilian cities face challenges such as the irregular occupation of territories, lack of sanitation, lack of urban infrastructure, lack of housing, inefficient mobility, peripheralization of the poor population, pollution, and growth of the informal economy (Cunha et al., 2016).

Another challenge to deal with is digital inclusion and taking advantage of the benefits of digital transformation (Brazilian Charter for Smart Cities, 2022). About 47 million people have never accessed the internet in Brazil (Cetic.br, 2020). Many factors undermine the full right to connectivity, for example, the lack of infrastructure, high costs, and the lack of capacities to access and interact with digital devices. The lack of full access to and acceptable use of digital technologies increasingly impacts socioeconomic and spatial inequalities (Brazilian Charter for Smart Cities, 2022).

Due to the diversity of social, economic, and urban challenges specific to the context of each locality, the sustainable development of urban areas must involve multisectoral cooperation and different levels of government (Brazilian Charter for Smart Cities 2022; Cetic.br, 2020). Also, the need to develop a smart city strategy that considers Brazilian characteristics and presents guidelines for local governments in a contextualized way. Therefore, it was proposed to elaborate the Charter collaboratively, listening to governments, the private sector, academia, civil society organizations, and other institutions and specialists working on the subject in Brazil.

3 THE COLLABORATIVE PROCESS OF DRAFTING THE CHARTER

The collaboration result was a document expressing a public agenda for digital transformation in Brazilian cities. The Charter brings digital transformation into the urban environment and expands what smart cities mean. It is evident in the smart city definition proposed by the community that prepared the document.

"*Smart cities in Brazil are committed to sustainable urban development and digital transformation in their economic, environmental, and sociocultural aspects that act in a planned, innovative, inclusive, and networked manner, promote digital literacy, governance, and collaborative management, and use technologies to solve real problems, create opportunities, offer services efficiently, reduce inequalities, increase resilience and improve the quality of life of all people, ensuring the safe and responsible use of data and information and communication technologies.*" (Brazilian Charter for Smart Cities, 2022).

This concept helped structure Eight Strategic Goals (Figure 1) and 163 recommendations for action. Each Goal addresses a significant theme for smart cities in Brazil. They must be understood in an integrated way and adapted to the reality of each city. The recommendations are aimed at target audience segments, which involve different levels of government and the cooperation between them, the private sector, teaching and research institutions, and civil society organizations.

In addition to the Charter, forming and strengthening a collaborative network called the Brazilian Charter Community for Smart Cities can be considered a result of the process. The Charter Community is a network open to all people who want to join efforts in

its promotion. It comprises people and institutions with specialized technical knowledge in several areas and civil society organizations. This network continues to work toward implementing the Objectives of the Charter.

4 FINAL CONSIDERATIONS

This paper presented the collaborative experience of developing a Brazilian strategy for smart cities. The document formulation was based on innovative mechanisms of collective creation that were used to engage a group of institutions and people involved in the theme of digital transformation in cities. The result is a document that spans multiple views. The process of formulating the Charter also illustrates how it is possible to develop strategies and policies with the participation of the people. The result of a collaborative approach can go beyond the initial objective and, for instance, as happened here, foster and strengthen collaborative networks with multiple stakeholders. The challenge now is implementing the goals in Brazilian municipalities, which are highly diverse and unequal, and replicating this participatory model to formulate local smart city strategies.

ACKNOWLEDGMENTS

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Figure 1: The Eight Strategic Objectives agreed upon in the Charter's agenda via the Brazilian Charter for Smart Cities, 2022