

Understanding the City Decision Making Process regarding Colonialism and Sociotechnical Imaginary on Smart Cities Initiatives

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Abstract—Smart cities are cities that aim to develop the quality of life of their citizens, with the use of technology. More and more often, projects are built to give more smartness to cities. These projects involve various types of decision making by managers. These decisions may be influenced by factors such as colonialism and the sociotechnical imaginary. This research in progress seeks to answer how do the smart cities of Brazil and Colombia choose to adopt smart city solutions? This study will be developed as a multiple case study on SC initiatives in these countries. In-depth interviews will be conducted with the actors involved in the projects and the documents of the smart cities will be analyzed. By achieving the objectives expected by this research, it is intended to encourage the adoption of assertive solutions and provoke reflection on the choice of best practices for the SCs.

Keywords— Smart cities, Decision-making Process, Colonialism, Sociotechnical Imaginary

I. INTRODUCTION

Smart Cities (SC) are cities that develop, in their spaces, initiatives aimed at achieving sustainability, leveraging economic and social development, technological advances, improvements in people's living conditions, and the optimization of the use of resources. A city is smart when it invests in social and human capital, traditional (transport) and modern (ICT) communication and communication for infrastructure, aiming at sustainability, economic growth, and high quality of life, with wisdom [2]. The term Smart City is in vogue today. Very often, there are projects to give more intelligence to cities. The search for improvements in cities is increasingly common. There are SC initiatives on most of the continents. Even those classified as emerging and/or third world. Brazil already figures in the international SC rankings with cities like Curitiba, São Paulo and Porto Alegre. Colombia has good examples of using technology to improve people's lives as is the case of the cities of Medellín and the capital Bogotá.

For SC initiatives to be successful in promoting quality of life and development, public managers and society need to make various types of decisions. Such decisions can be made through different decision-making models. In the limited rational decision model, the fundamentals and the logical amounts that influence the decision-maker are listed [17]. Besides, political decisions can be made, including efforts to obtain legitimacy from different actors in society. However,

these decisions may be influenced by different variables, such as the individual interest of the decision-maker, culture, time for a decision, and susceptibility to the opinion of others. Therefore, decision-making is not always in the best interests of the citizens. Several factors may be involved in this process. Colonialism and socio-technical imaginaries linked to organizations that sell IT technology solutions are examples of factors that can influence the decision-maker in their choices.

Colonialism can be understood as the exercise of control and power of one nation-state over another territory. It is based mainly on relationships of exploitation of resources that benefits to the colonizer, with the colonizer as the one who practices the exploitation and the colonized as the target of the exploitation. Colombia and Brazil were colonized by European countries from the 15th century. Between the 18th and 19th centuries independence movements emerged in Latin American countries. But despite the political independence of Latin American countries, among other factors, economic and political aspects of Latin America may still be consequences of the colonial period.

From the end of the twentieth century, apart from economic and social factors, approaches to cities began to pay attention to the meanings that are produced about urban centers with the imaginary conceived to them [13]. The socio-technical imaginary is a set of values and beliefs that are produced in society from the union of scientific, technological, and social assumptions [9]. Based on the above, about colonialism and technology, this research seeks to answer the following question: how do the smart cities of Brazil and Colombia choose to adopt smart city solutions? To answer this question, this study seeks to analyze how the decision-making process in SC initiatives in Brazil and Colombia occurs.

It is estimated that by 2050, 70% of the population will live in urban centers [22]. Thinking about ways to make cities more intelligent and sustainable while "decolonizing" societies [3] is relevant for thinking about development from the perspective of the protagonist of emerging countries. Understanding citizens' needs from local perspectives, aspects, and characteristics can lead to more assertive solutions for cities. Many understandings and ambitions about progress are inevitably concealed by the existence of a

single way of acting where technology is seen as the determining factor for the success of any and all fields [20]. It is necessary to use criticality to analyze highly technological solutions. Thus, better decisions, more aligned with what Latin American cities need in order to promote quality of life for citizens [2] can be made. Since, in addition to the neglect of cultural issues and other factors, mostly technological solutions, mainly dictated by technology companies, may not always be the best way forward for cities [15].

In other words, with the advent of technology, highly technological solutions have been adopted as the best ways, often without adjusting to the reality of the cities. It is necessary to understand how decisions in SC initiatives are made. If they are decided based on the real needs of the cities and the population. This study may highlight such aspects, solving the gap for decision-makers. The theoretical foundations of the study are presented below.

II. THE COLONIALISM AND ITS ISSUES

In the 16th century, the world was constituted as a polycentric, capitalism was not present, and many civilizations and empires existed simultaneously throughout the planet. In this context, the nations experienced different moments, namely, processes of formation or ascension [12]. There were numerous "historical social systems" or mini-systems and different world-economies and world-empires where empires aspired both to smaller systems and to other economies (dominating them politically). Even though until the advent of capitalism, a world-economy that had perpetuated itself for so many centuries, had not yet been maintained; Europe and its new mode of production and exploitation called colonialism broke with this logic [23]. The economic growth of Europe occurred from the 16th century onwards had its main element in Colonialism, where production, accumulation and other historical link ages composed of this conjuncture made it possible for capitalism to be developed as a modality of production [5]. In addition to obtaining economic and political advantages, colonialism was considered a worldview, which established the molds for the construction of social frameworks and resulted in the emergence of relations based on hegemonic forces conflicting with the forces that were contradictory to them [21].

The continent of Europe then came to see itself as more advanced and more developed, and therefore modern [14]. With the advent of modernity in medieval Europe, which dates back approximately to 1492, the idea arose that the continent would be in a central position in relation to the other territories [4] and, at the same time, there would be the 'others', the other territories, which could be controlled and exploited by the European nations in the form of the colonization of territories. With the colonial exploitation in America they begin at the same time, in addition to the exploitation of territories, the colonial creation of thought and language [12].

The definitions of the first and third world-with Europe in a prominent position at the center of world attention-emerge from Modernity, where America and Africa would be in a position of margin [4]. When it comes to America, the countries of Latin America would be in a subordinate role. Subalternity is defined by Spivak as "the lower layers of society constituted by the specific modes of exclusion from

markets, of political and legal representation, and of the possibility of becoming full members of the dominant social stratum" [19]. Colonialism presents reflections in the present day thinking it enables the vision of events and historical fact through the eyes of the colonized, their socio-cultural situation in the condition of marginality and periphery [3]. This historical and socio-cultural unfolding has reflexes up to the present day. Therefore, this context also leaves room for the possibility of reconstruction.

III. SOCIOTECHNICAL IMAGINARY

There is a propensity to look at smart cities as if they were global proposals, rational and without the presence of political factors; and that unfold according to the definitions of technology companies, companies that envisage enhancing their gains by developing projects for cities [16]. Nonetheless, politics, science, technology and society permeate the decision-making process and integrate the socio-technical imaginary of cities. The socio-technical imaginary concept (SI), developed by Jasanoff and Kim [8], shows how different visions of future possibilities are linked to social organization and technology.

Socio-technical imaginaries (SI) are institutionally permanent understandings that are aligned with the collective and are the result of shared knowledge; of lifestyles and social ordering, which are possible thanks to scientific and technological foundations [9]. They illustrate the symmetrical relationship between techno-science and society, which results in the co-production of political orders and techno-scientific projects [10]. This concept encompasses elements of society, science and technology such as imagination, artifacts and social behaviors[9]. Beyond nation-states, MIs encompass the visions of any organized group that instills collective imaginations. It is considered the existence of a multiplicity of imaginary within societies [9].

Thence, such imaginaries are not a cohesive phenomenon. They are composed of different beliefs and expectations and various actors are able to use different views to influence specific developments [7] promoting or preventing them. In short, SI stands out in four aspects [9]. Firstly, they are relative to temporal spaces, dealing with values inherited from the past that are linked to the future. They help uncover the differences between social responses. They observe the spaces and the notorious spatial imaginations. And they show the relationship between visual identities and collective formations. Therefore, it is assumed that SCs should not function or be materialized in the same way as the imaginary that technology companies establish. The following are the topics related to methodological procedures proposed for the study.

IV. PROPOSED METHOD

This paper is part of research in progress linked to a master's research. The study will be developed covering the interpretive epistemological paradigm. The research will be qualitative, and the method chosen for the study is the study of multiple cases of initiatives of smart cities in Brazil and Colombia. The research analysis unit will be the decision-making process in the initiatives of cities studied in both countries. Both countries have cities that appear in rankings of intelligent cities. Brazil was also chosen for convenience, standing out in dimensions of smart cities such as mobility and governance. Colombia was highlighted in the use of

technology and in the dimensions of urban mobility and citizenship. In order to collect the data, in-dept interviews will be carried out with actors identified as participants in the initiatives of smart cities to be studied, as well as the analysis of documents of smart cities will be carried out [6]. To analyze the collected data, the discourse analysis technique will be [1].

The study will be carried out in three phases: formulation of the data collection and analysis protocol, execution of their search and analytical phase. At the moment, the research is in its initial phase, with the process of reviewing the relevant literature. The next step will be the construction of a Systematic Review of Literature-SRL on intelligent cities and colonialism. Subsequently, there will be identification and contact with the respondents, SC actors, from the target countries of the study. In decision-making on CS initiatives, in addition to municipal managers, various actors in society may be involved. The cases will be selected from interviews with experts from an international project on smart cities called CAP4CITY ERASMUS+ that involving Latin America and European partners. Afterward, the interviews with the actors involved will be scheduled; the script of interviews will be prepared and translated to be applied to foreign respondents. After the validation of the interview script, the interviews and the analysis of documents will be carried out.

V. INTENDED RESULTS

By achieving the objectives expected by this research, its intended to encourage the adoption of assertive solutions and provoke reflection on the choice of best practices for the SCs. To provide information decision makers with the means to weigh cultural factors and local characteristics in their decisions, in the process of making cities more intelligent and to improve their decisions in terms of assertiveness.

It should also be considered that society and citizens can participate in the decision-making process by sharing knowledge and plural thinking. Multi-stakeholder participation in decisions related to SC initiatives can bring diversity and result in transparency. Provide representativeness to citizens as well. And, with representation, different groups become visible. Concepts and technology, if well employed, can be excellent tools for people's quality of life. For economic growth and sustainability to improve the quality of life in cities.

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