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SMART CITIES IN THE CONTEXT OF SOCIAL PRECARIOUSNESS: AN ANALYSIS IN THE LIGHT OF MASLOW'S PYRAMID AND THE EMPIRICAL WORK "QUARTO DE DESPEJO: DIÁRIO DE UMA FAVELADA".

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ABSTRACT

This article analyzes and correlates three strands: Smart Cities, Maslow's Pyramid and the work "Quarto de Despejo: diário de uma favelada. The research explores the relationship between Maslow's Pyramid, which describes human needs at hierarchical levels, and the development of smart cities in Brazil. It also dialogues about the relationship between the concepts of Smart Cities and the work "Quarto de Despejo" by Carolina Maria de Jesus, analyzing the limitations and challenges of social inclusion in the context of Brazilian cities. Through a critical analysis, this study also seeks to analyze the Loss of Quality of Life index in Brazil – IPQV, and understand how smart cities can offer real solutions to structural problems, instead of just promoting technological advances disconnected from social needs.

Keywords: Smart Cities. Quality of Life. Maslow's pyramid. Social Precariousness.

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Revista ARACÊ
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INTRODUCTION

According to projections by the United Nations – UN, the trend is for the urban population increase to grow even more in the coming decades. It is estimated that by 2050 about 70% of the world's population will live in urban areas (CHOURABI et al., 2012; MIÑANO and SANTOS, 2015).

In the midst of these prospects, the concept of Smart Cities - CI - has become a topic of great notoriety in debates on sustainable urban development, since, especially in emerging countries, social inequalities, lack of basic infrastructure and environmental challenges represent significant barriers to the promotion of quality of life in urban areas.

According to Nam & Pardo (2011), there needs to be the integration of infrastructures and services mediated by technology, as well as social learning to strengthen human infrastructure and governance for institutional improvement and citizen involvement.

Maslow's theory of human needs (1943), represented through "Maslow's Pyramid", proposes that the needs of individuals should be met in a hierarchical way, starting from the most basic to the most complex. It is a psychological model that can serve as a guide in structuring smart city development strategies in Brazil, with the premise of aligning humanization, technology and innovation in the vision of sustainable and inclusive growth.

The work "Quarto de Despejo: Diário de uma Favelada" by Carolina Maria de Jesus (1955-160) provides a real perspective on life in the urban peripheries and serves as a warning about the importance of prioritizing social justice in the development of cities. In this sense, it is noted that the work in question brings the narrative of daily life in the favelas of São Paulo, during the years 1955 to 1960, reports the problems such as extreme poverty, marginalization, hunger, social exclusion and the struggle for survival, which are still realities for millions of Brazilians today.

The topics mentioned above are still present today and challenge the concepts of innovation and technology associated with smart cities. While ICs seek to apply technology to improve urban infrastructure, public services and the quality of life of citizens, it is necessary to analyze whether technological solutions promote social inclusion and the reduction of inequalities, especially where socioeconomic disparities are evident, as is the case in Brazil.

This article proposes an analysis of the concepts of smart cities in the light of social precariousness, focusing on the basic needs and rights of the most marginalized. In

Revista ARACÊ
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addition, it envisions the promotion of the development of public policies and technological urban solutions that align technological progress with meeting human needs.

METHODOLOGY

For the development of this research, a qualitative and exploratory approach was adopted, with the analysis of literature, case studies and data on smart cities under development in Brazil. This analysis focuses on identifying technological and urban solutions to meet the needs of the different layers of Maslow's pyramid, especially the primary needs.

To analyze the relationship between the concepts of smart cities and the themes addressed by Carolina Maria de Jesus, in the work "Quarto de Despejo: diário de uma favelada", a qualitative and interpretative analysis was carried out, combining the literature review on smart cities and urbanization in Brazil with the critical reading of the work.

Following these premises, this study is exploratory and descriptive in nature, because according to Yin (2001), an exploratory case can deal with the theme or problem that is under investigation, the methods of investigation, the discoveries made from it and the conclusions for further research.

The methodology adopted seeks to identify the parallels between the problems reported by Carolina and the contemporary challenges faced by Brazilian cities, aiming to understand how technological innovations can contribute to the inclusion of the most vulnerable layers of society.

OF THE CONCEPTS OF SMART CITIES IN BRAZIL

According to the Demographic Census – IBGE (2020), since the 1970s, Brazil has been predominantly urban, that is, about 85% of the country's total inhabitants live in urban centers. From this perspective, the Brazilian urbanization process happened in an accelerated, disorderly and unplanned way. Generally in emerging countries, this disorderly growth results in the worsening of socioeconomic and spatial inequalities in cities.

Meijer, Gil-Garcia, Bolivar (2016) believe that the concept of smart cities still remains vague and state that the main challenges in this context are to analyze the conditions that can make a city smart: specific challenges that cities face today and also to provide new ways of thinking about possible future problems.

Revista ARACÊ
ISSN: 2358-2472

As a way to mitigate the consequences of urban growth, the prospection of Smart Cities emerges, which, from a technological perspective, seeks to optimize the use of resources, to promote the quality of life of citizens. From this perspective, the most diverse axes and services necessary for the maintenance of human life are considered, such as: education, health, safety, mobility, sustainability, economy, entrepreneurship, environment, technology and innovation.

Allam and Newman (2018) understand that in order to become a smart city, specific changes will be necessary, so it will probably require systemic transitions that involve a coevolution of factors, such as technology, culture, and governance. Following the logic of the IC, public management must manage cities in a complete, systemic and dynamic way, as the aforementioned axes are essential to human dignity and are connected to each other.

Considering that Maslow's Pyramid works for human organisms, and the concepts of IC envision the transformation of Cities into more Human Cities, in search of people's quality of life, it can be considered that Maslow's Pyramid also works for the development of cities. In this sense, it is observed that the basic needs of survival sustain the conditions of safety, then the social affective aspects, then self-esteem and, finally, self-realization.

SMART CITIES AND THE CHALLENGES OF URBAN EXCLUSION IN BRAZIL: REFLECTIONS ON MASLOW'S PYRAMID AND THE WORK "QUARTO DE DESPEJO: DIÁRIO DE UMA FAVELADA".

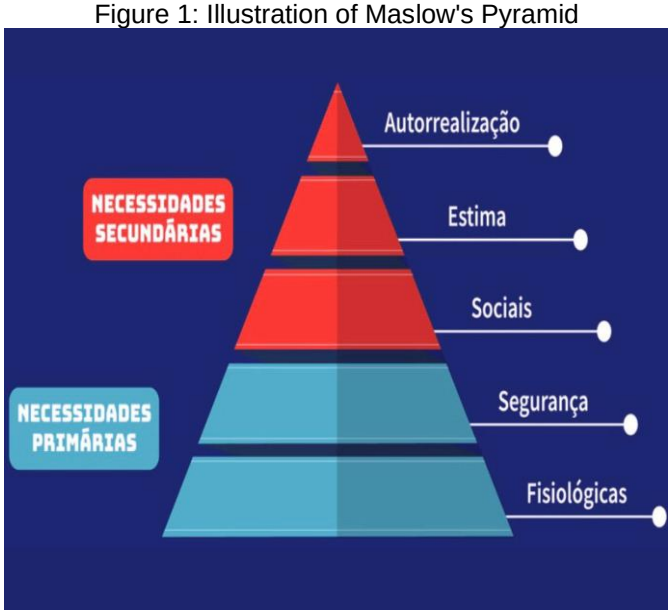
The study by Demirel, Mülazımoğlu (2022) highlights that a smart city must be based on meeting the interests of the citizen and serving them. In this way, it should contribute to making citizen participation inclusive and deliberative, that is, allowing citizens to move towards social, political, and digital rights. Premised on justice, equality, democracy and social justice.

For Weber (1978), social value is created rationally by individuals or groups of individuals, who, in the political and social class spheres, act with some specific purpose for themselves or for others. To this end, this process stems from actions in social structures that promote accessibility to capital resources, which in turn create social and economic value.

Revista ARACÊ
ISSN: 2358-2472

The Theory of Human Needs, created in 1954 by Abraham Maslow, classifies human needs into five (05) different levels of importance. From this theory, Maslow's Pyramid was developed, which illustrates this hierarchy, as can be seen in figure 1.

Figure 1: Illustration of Maslow's Pyramid



Source: Google Images

Physiological Needs: Maslow (1954) shows that at the base level of the pyramid are physiological needs. At this level, the needs related to food, drinking water, sleep, health promotion and other factors that contribute to human well-being are understood. In the context of smart cities, this level requires robust investments in urban infrastructure, basic sanitation, and water and energy distribution systems.

In Brazil, there is the example of Curitiba – PR and São Paulo – SP as cities that sought, through technology, to monitor the use of water and energy, as a way to promote efficient consumption and the preservation of resources. This practice envisions the human need for survival and the availability of essential natural resources.

When considering the base of Maslow's Pyramid, the concept of smart cities must underpin technology and basic infrastructure, in order to ensure basic sanitation, energy efficiency and digital connectivity in an equitable way. However, in the work "Room of Desire", there is an empirical report that reflects the reality that still persists in many Brazilian peripheries, the difficulties of basic infrastructure: lack of access to drinking water and basic sanitation.

Favelas and marginalized communities often do not benefit from innovations, evidencing a "digital divide" that restricts the reach of smart cities. Thus, any smart city

Revista ARACÊ
ISSN: 2358-2472

project that does not consider the expansion of basic infrastructure is at odds with the social reality of many urban areas in Brazil.

Security Needs: the second level of the pyramid can be correlated with the use of technologies that help protect citizens. The high crime rates in Brazil is an aspect that requires circumspection from public managers, from this perspective, an effective smart city integrates surveillance technology, security sensors and rapid response systems in partnerships with public security forces.

The solutions of monitoring cameras and real-time warning systems, adopted in cities such as Belo Horizonte, represent a significant advance, allowing not only the protection of citizens, but also the trust and social stability that Maslow's security concept defends.

With regard to security and decent housing, De Jesus (1955-1960) describes the difficulties in maintaining her housing and ensuring a minimally safe home for her children. In a context of smart cities, it is essential that security and decent housing are included as part of urban design. However, in Brazil, housing expansion and urban innovations often exclude low-income residents, leading to gentrification and forced displacement.

In this sense, for smart cities to be truly inclusive, it is essential to promote affordable housing policies and combat insecurity in vulnerable communities.

Needs for Belonging and Relationship: in the context of Smart Cities, the third level of human needs can be understood as spaces for coexistence, support networks, and connectivity between citizens. Like the "Needs for Belonging and Relationship", Florianópolis – SC has developed initiatives aimed at digital inclusion and the strengthening of cultural spaces to promote belonging, thus encouraging the creation of community support networks. Technology enables, for example, platforms that connect local communities and promote greater civic participation and social engagement, respecting the human need for relationships and affiliation.

Social inclusion and civic participation contemplate the third base of Maslow's Pyramid, in the midst of this theory, it is observed that De Jesus (1955-1960) offers his empirical view on the social exclusion experienced by favela residents. The author describes how, in addition to a lack of resources, marginalized people are often ignored in political and social decisions that impact their lives.

Esteem and Self-Esteem Needs

Revista ARACÊ
ISSN: 2358-2472

Kolotouchkina, Barroso, and Sanchez (2022) emphasize that the essence of participatory governance lies in encouraging policies in which citizens, through their ideas, can add value to cities, and contribute to urban development demands. The concept of smart cities emphasizes citizen participation, promoting digital platforms and engagement tools.

However, for this participation to be truly inclusive, it is necessary to ensure that marginalized citizens have an active voice. Civic participation technologies must prioritize the inclusion of residents of peripheries and favelas, where connectivity and digital access are often limited.

According to Rotta, Sell, Pacheco, Yigitcanlar (2019), smart cities require new governance models, in which public authorities and citizens build sustainable relationships. Thus, in Smart Cities, technological solutions can and should be used to also promote the recognition and appreciation of social contributions. When it comes to Esteem and Self-Esteem Needs, one can mention the city of São Paulo and its digital civic engagement practices, which allow citizens to actively participate in discussions about public policies, increasing self-esteem and civic pride.

Need for Self-Actualization: At the top of Maslow's Pyramid, self-actualization is identified as the highest level of human needs. By relating this theory to the concepts of Smart Cities, it is observed that, in order for citizens to reach their full potential, smart cities must offer access to high-quality education, culture, and leisure, in addition to fostering local economic power.

Following this line, such as the help of technology, educational initiatives such as distance learning platforms and accessible cultural events, help to expand opportunities for learning and personal expression.

The reports of De Jesus (1955-1960) expose the difficulties of breaking the cycle of poverty, due to the lack of economic opportunities, the author cites her struggle to educate her children and the difficulty of improving their living conditions. In the scenario of a smart city, professional training initiatives and employment opportunities must be integrated into urban projects, thus strengthening economic development and inclusive education. These initiatives are central aspects for the most vulnerable populations to be able to develop.

For Silva and Guimarães (2016), a proactive, resolutive and participatory interaction on the technical, scientific, political and socioeconomic factors of society is essential for

Revista ARACÊ
ISSN: 2358-2472

social needs to be effectively met, implying the guarantee of the efficiency of public policies and urban development processes.

LOSS OF QUALITY OF LIFE INDEX IN BRAZIL - IPQV

According to the World Health Organization - UN, quality of life is the individual's perception of his insertion in life, in the context of the culture and value systems in which he lives and in relation to his goals, expectations, standards and concerns.

In this sense, the Brazilian Institute of Geography and Statistics – IBGE, through the Household Budget Survey – POFs, conducts a survey of information on the composition of household budgets and the living conditions of the Brazilian population. Through this survey, it is possible to identify the subjective perception of the population's quality of life, from the perspective of multidimensional loss or deprivation rates.

The Loss of Quality of Life Index – IPQV, measures the losses or non-monetary deprivations experienced by people. The Socioeconomic Performance Index (SDI), on the other hand, evaluates from the perspective of the impact of losses on the development of society as a whole.

Figure 2: Quality Loss Index in Brazil

Source: Developed by the authors, based on IBGE data (2023)

The IPQV is formed from a set of 50 indicators, organized into six categories: housing; public utility services; health and food; education; access to financial services and standard of living; and transportation and leisure. From this perspective, the IPQV and the SDI are experimental statistical investigations that aim to observe the evolution of the

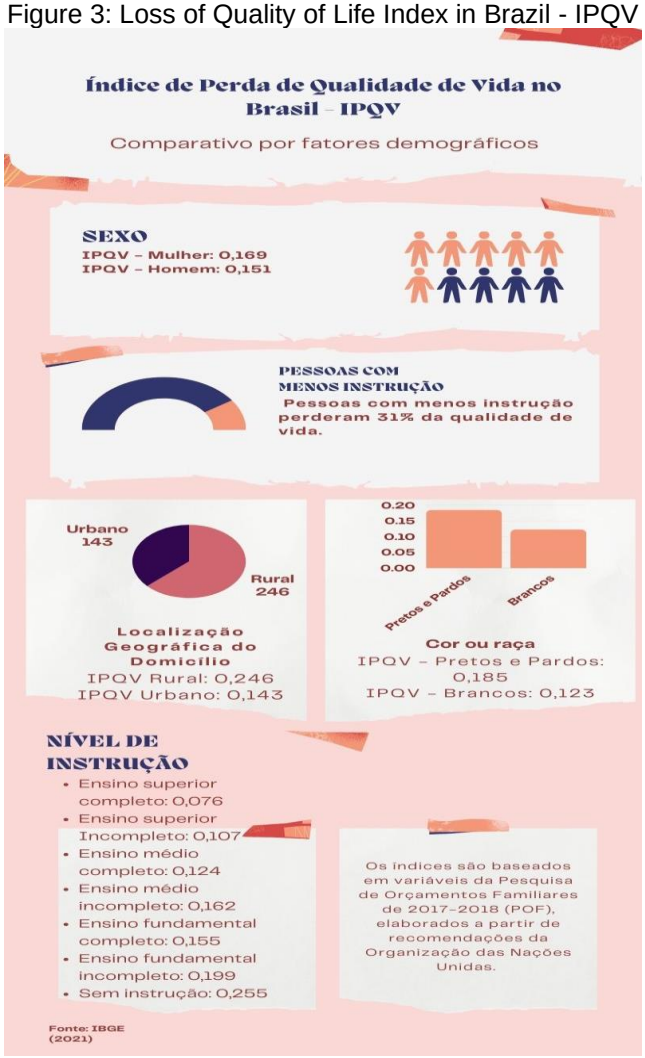
Revista ARACÊ
ISSN: 2358-2472

quality of life of the Brazilian population and reflect the difficulties of families with regard to the transformation of resources and the acquisition of goods and services into quality of life.

According to the IBGE (2023), the IPQV analyzes, through geographic cuts, the variables associated with qualification for social life and entry into economic activity, such as: education and factors that influence insertion in the labor market.

Through the indexes of the latest editions of the POF (2023), there is a 30% reduction in the IPQV, while the country's socioeconomic performance grew 12.8%. In the last 9 years, according to IBGE data (2023), the quality of life of Brazilians has improved, mainly in the areas of housing, health, education, and leisure. To the detriment of this, in figure 3, it is noted that inequality is maintained among minorities: families in which the reference person is black or brown or a woman or who has a lower income or low level of education are the social strata that have less well-being.

Figure 3: Loss of Quality of Life Index in Brazil - IPQV



Source: Developed by the authors, based on IBGE-2023 indexes.

Revista ARACÊ
ISSN: 2358-2472

For the evaluation of the IPQV, the range from 0 to 1 is considered: the lower the indicator, the lower the loss of quality of life. Family income is not included in this assessment, only the dimensions of family well-being are observed in addition to spending on products and services. The IPQV showed that the urban population had a retraction of more than 30%: between 2007 and 2008 it resulted in 0.227 and between 2017 and 2018 it fell to 0.157. On the other hand, the SDI, in the same period, grew 12%, from 5.452 to 6.147.

The progress in the quality of life indices in general can be seen, however, these improvements were not enough to mitigate the various inequalities existing in the country. The evaluation shows that in families in which the reference person is black or brown, the index is 0.185, while in families in which the reference person is white the index is 0.123. In rural areas, the index was 0.246, and in urban areas, 0.143.

In the North regions, the index reached 0.223, in the Northeast, 0.207 and in the Midwest, 0.158. The South and Southeast regions were below the Brazilian average, reaching 0.114 and 0.126, respectively, as shown in Figure 4.

Figure 4: IPQV by Geographic Location

Source: Developed by the authors, based on IBGE data.

It is observed that the analysis of quality of life takes place in a multidimensional way and the various variables that impact the well-being of families are considered. According to the data presented by the IBGE, the least favored dimensions in the IPQV assessment are the areas of education, access to financial services, transportation and leisure. Therefore,

Revista ARACÊ
ISSN: 2358-2472

the research shows what should be recommended to mitigate the losses in quality of life of the Brazilian population.

The IPQV also shows that there is differentiation of impacts, depending on the area of study. For example, among the poorest, aspects related to the structure of households, such as structural inadequacies, presence of humidity in the house, number of bedrooms, neighborhood safety, among other factors, are more important than factors related to the environment. For the richest, the situation is reversed: aspects related to the environment are more relevant than the structure of the household.

Based on IBGE data, the country's socioeconomic performance has reached higher rates in the last 9 years, because there has been an advance in disposable income and a reduction in losses in quality of life. That is, the higher the SDI, the better the ability of a state to transform its resources into quality of life and well-being for the population. However, factors related to education and access to financial services were the areas that most negatively affected the country's socioeconomic performance.

DISCUSSION

The implementation of technologies for smart cities solves several bottlenecks in the dynamics of cities, also brings with it numerous possibilities for improvements and innovations, in addition to generating new opportunities. However, amid the benefits arising from this situation, many challenges remain present, especially in a country like Brazil, where structural inequalities directly impact the way technologies are adopted and accessed.

Given this information, the relationship between Maslow's Pyramid and the concepts of smart cities points to the need for public policies that prioritize meeting primary needs, before expanding to more complex areas. In the meantime, it is essential to ensure that technological innovations do not increase inequalities, but rather promote inclusive development. In addition, the lack of public policies that articulate smart cities with social justice and anti-poverty programs can further generate a socioeconomic dichotomy, in which access to technology and innovations is limited.

In order for smart cities to effectively benefit citizens holistically, the importance of inclusive urban policies that seek to mitigate the risks of unequal and non-inclusive urbanization is highlighted.

Revista ARACÊ
ISSN: 2358-2472

CONCLUSION

From this research, it is noted that Maslow's Pyramid corroborates as a guiding model for the development of intelligent organisms, that is, Intelligent Cities and Citizens. The correlations presented in this research demonstrate, precisely, that basic needs still represent a significant challenge for the development and achievement of smart cities in Brazil.

By analyzing the concepts of smart cities in the light of the work "Quarto de Despejo", the need for an urban development model that prioritizes social inclusion and justice is evidenced. At this point, it can be inferred that an effectively smart city must incorporate, as a priority, the demands of the most vulnerable social strata, offering basic infrastructure, access to decent housing, security, education and economic opportunities.

Carolina Maria de Jesus' reflections still echo in the peripheries of Brazil, and her work serves as a warning and an inspiration for smart city projects to be more humane, inclusive and fair, promoting not only technological but also social development.

Following this perspective, it can be seen that the guidelines presented in Maslow's Pyramid are a source of direction for a more humane, inclusive and sustainable urban growth. In this way, technology becomes a means for cities to meet not only infrastructural demands, but also the aspirations and well-being of their citizens, reinforcing the importance of urban planning that values the realization of human needs in all its dimensions.

Revista ARACÊ
ISSN: 2358-2472

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