Original article

Towards democratic futures: public spaces in MIL Cities

Rumo a futuros democráticos: o espaço público em Cidades AMI

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Abstract

This study investigates Media Architecture (MA) as an emerging discipline within Media and Information Literacy Cities (MIL Cities), which aim to integrate Information and Communication Technologies (ICTs) into urban environments to promote digital inclusion, access to information, and citizen participation. While smart cities have already explored the use of ICTs for the benefit of citizens, Media Architecture remains underexplored in the Brazilian urban context. This study is justified by the need for a public space open to democratic debate, which is essential to engage a plural and informed society. The study will employ narrative review to explore how Media Architecture can strengthen the bond between city and citizens, enhancing civic participation and enriching urban life.

Keywords: public space; knowledge media; MIL cities; democracy.

Resumo

A pesquisa investiga a Media Architecture (MA) como uma disciplina emergente nas Cidades com Alfabetização Midiática e Informacional (Cidades AMI), que busca integrar Tecnologias de Informação e Comunicação (TICs) ao ambiente urbano na inclusão digital, no acesso à informação e na participação cidadã. Embora as Cidades Inteligentes já tenham explorado o uso das TICs em benefício dos cidadãos, a MA permanece pouco explorada no contexto urbano brasileiro. Este estudo se justifica devido à necessidade de um espaço público aberto ao debate democrático, essencial para engajar uma sociedade plural e informada. A pesquisa utilizará revisão narrativa para explorar como a MA pode fortalecer o vínculo entre cidade e cidadãos, ampliando a participação cívica e enriquecendo a vida urbana.

Palavras-chave: *espaço público; mídia do conhecimento, Cidades AMI; democracia.*

Introduction

The 1988 Constitution (Brasil, 1988) marked the beginning of the decentralization in Brazil, guaranteeing the autonomy of states and municipalities and promoting popular participation in public debates and decision-making. In effect, citizens' rights are debated through mechanisms for monitoring and controlling public management. In this context, the citizen is seen as an individual who is aware of their rights and duties, who actively participates in society's issues and promotes positive transformations where they live (Santos, 1996).

Seeking innovative solutions to strengthen the relationship between public management and citizens, the concept of the smart city emerged at the beginning of this millennium, combining new technologies with humanist ideals such as sustainability, social inclusion and citizen participation (Unesco, 2019a). Definitions of Smart Citie vary widely, from strict technological models to human-centered approaches (Costa and Oliveira, 2017; Reia and Cruz, 2023). In the context of this work, the Smart City is considered as an integration of ICTs into the urban setting aimed at sustainability and efficiency, but the need for more inclusive and humane approaches is recognized.

As a counterpoint to smart cities, Costa and Oliveira (2017) propose the Smart and Sustainable Human City, which places human needs at the core of urban development. The project in Lagoa da Conceição, Florianópolis (Boiani et al., 2020), exemplifies this approach by promoting citizen participation in urban mobility planning and public space regeneration. This case underscores the role of ICTs as enablers in the Smart and Sustainable Human City framework.

Even so, the humanization of technology in the urban space faces the real context, marked by power asymmetries and a “market democracy” (Santos 1996), where results are above the values and the citizen. Such issues are in line with the proposal for Media and Information Literacy Cities (MIL Cities) (Unesco, 2019b), an evolution of Smart Cities, as they advance in the implementation of technologies and add the importance of digital literacy (Ortiz, Suzuki e Castro, 2022).

Considering that by 2050 two-thirds of the world's population will be living in cities (Unesco, 2019a), the need for solutions for collective living becomes even more urgent. The infodemic, the proliferation of false information and growing disinformation still pose challenges (Ortiz, Suzuki and Castro, 2022). The development of digital skills and literacy (traditional and digital) are therefore important in building aware citizens who can navigate the digital world critically (Mendes, Spanhol and Souza, 2018; Spanhol, Cuadrado and Pereira, 2020).

It is assumed that a contemporary citizen is not only a consumer but also a content producer (Unesco, 2019b). For effective democratic participation, it is necessary to develop the ability to use technologies in a reflective and autonomous way, understanding their possibilities and impacts (Spanhol, Cuadrado and Pereira, 2020). By valuing local knowledge, intercultural dialogue and the need for joint actions between management, civil society and government (Ortiz, Suzuki

and Castro, 2022; Unesco, 2019b), MIL Cities become a promising model for tackling urban challenges such as power asymmetry and digital divide.

Media Architecture (MA), in turn, constitutes a fundamental component of MIL Cities, proposing the integration of architectural and technological elements to create interactive and engaging urban experiences that foster civic participation and social inclusion. This study, through a narrative literature review, seeks to integrate this debate by investigating the strategic use of Media Architecture for the development of more inclusive and participatory MIL Cities. Therefore, the central objective of this research is to analyze the more human inclusion of ICTs in public spaces and in a way that encourages dialogue and the development of MIL Cities.

Connected cities: network society

The pervasive presence of ICTs in society has influenced the democratic infrastructure of cities, shaping the complex and multifaceted interplay between urban environments, technology, social networks, and governance. According to Castells (1999), the "network society" has established the internet as the structural foundation of contemporary society, enabling global interconnection, the generation of informational value, and resistance to authoritarian control.

Corroborating Castells (1999), networks can be analyzed from two perspectives: the social, which involves the organization and articulation between people and groups in cooperation, information sharing and social mobilization; and the computerized, in which digital networks facilitate the communication that is mediated by technologies (SOUZA 2016). Therefore, it is understood that social networks are ubiquitous:

> It is no longer the physical public sphere that serves exclusively as a platform for performances and meetings, but now social networks have been added, which are now functioning as complementary platforms on which individuals can exercise their citizenship. (Santaella, 2013, p. 27)

In this way, the social and computerized networks are interdependent and complement each other in various aspects, from human articulation and interaction to providing the necessary infrastructure to expand and strengthen relationships (Souza 2016; 2023). Therefore, social and economic interactions mediated by ICTs result in a more fluid exchange of information (Ferrari & Souza, 2023).

The internet enables global information exchange, fostering communication, cooperation, and innovation. Arendt (2017) compares this online environment to public space as a site of interaction. However, social activities remain tied to physical spaces, countering the notion of full migration to digital realms (Lemos, 2006; Santaella, 2013).

ICTs create a digital layer in the contemporary city, reconfiguring boundaries between online and offline environments (Lemos, 2006). This is based on Castells' theory (2011), in which data and information flow in the digital world, while identities and cultures are formed in the real world. In other words,

the universes overlap, forming a hybrid where borders dissolve (Ferrari & Souza, 2023) and cities acquire a responsive characteristic, allowing bottom-up innovations (Williams, 2016) and data collection for citizen expression (Lazrak, Zahir e Mousannif, 2018).

Nevertheless, networks are not merely virtual communication structures (Santaella, 2013), they also serve as powerful analogies for understanding the complexity of the city. Ortiz, Suzuki e Castro (2022, p. 16) based on theory of complexity of Edgar Morin (1992), state that cities are "like a kind of large network, whose fine threads intertwine and relate its components."

This interweaving reflects the fractal self-similarity (Souza, 2016), present both in the ramification of social networks and in urban spatial organization, suggesting an organizing principle that transcends both the digital and the physical realms. Communities, streets and neighborhoods, at their different scales, replicate the flow of information on networks, connecting people, places and services in a dynamic and constantly changing way

This fractal perspective paves the way for the analysis of the responsive city, which, like the citizen, is part of the information exchange network (Souza, 2023). Thus, new forms of democratic participation and exercise of citizenship expand the traditional public space to include interactions facilitated by digital technologies (Ferrari and Souza, 2023). It is therefore sure to say that the environment that gives voice to the collective, in other words the contemporary public space, is hybrid.

Democracy and knowledge media

In the context of responsive cities and active civic engagement, Sennett (1997) conceptualizes public space as a dynamic arena of multicultural interactions, where human activity is fundamental to urban life (Arendt, 2017). If for Jacobs (2014) diversity goes beyond the simple coexistence of different cultural aspects and public space encompasses the actions of various social actors, the concept can be characterized by the creation of relationships (Souza, 2023).

Thus, citizenship, as defined by Santos (1996), necessitates an understanding of social and cultural differences, rooted in self-awareness and awareness of others. Arendt (2017) and Jacobs (2014) affirm that democracy embraces these differences, called dissensus by Rancière (1996). The dissensus challenge hierarchies and reconfigures what is sensitive and visible in the public sphere, allowing marginalized voices to participate equally in the political debate. Cultural diversity therefore promotes collective thinking and creative solutions in the fight for equality in a democratic society (Siqueira & Marzulo, 2021).

In a strengthened society, it is important to group people around common interests, called fractal self-similarity (Souza, 2016). In the hybrid public space, the integration of ICTs facilitates the formation of fractal self-similarity, highlighting the role of the technologies in the codification and transfer of knowledge, as well as the interaction between the agents involved

(Souza, 2015, 2016). This means that ICTs allow for the horizontal exchange of information and, by enabling rapprochement with governments and institutions, they become a tool for activism. Internet access also facilitates the articulation and self-organization of social media at a global level, as well as becoming a space for dialogue.

Thus, this network is understood as the “Knowledge Media,” as described by Müller & Souza (2020, p. 84) as "a system or network based on Information and Communication Technologies (ICT) that generates, distributes and feeds knowledge through the integration of human and artificial agents". Thus, human creativity, learning and construction of knowledge come from the integration of these agents, as Okada , Wolff e Mikroyannidis (2015) argue when they encourage young citizens to investigate urban problems using blogs, social media and wikis, stimulating an understanding of social and cultural differences and the development of a critical conscience.

In this context, the Knowledge Media is relevant to citizen participation by providing access to information that educates and empowers. They are spaces for dialogue that promote awareness and civic engagement, allowing people to share experiences, build collective knowledge and mobilize for common causes.

Architecture in MIL Cities

Urban Innovation in the MIL Cities

Media Architecture arises as a response to the intricate interplay between social and technological dynamics in MIL Cities. Reflecting on this interconnection, Ortiz, Suzuki e Castro (2022) highlight how technologies transform urban spaces, in addition to catalyzing a new model of democracy that requires not only access to information, but also the critical capacity to interpret and participate actively in urban life.

As a large-scale medium that adds functionality, social purpose, and cultural relevance to urban spaces, MA does not align with some of the concepts discussed in the literature. Such as Responsive Architecture and Hybrid Architecture, associated with BIM technology (Ferrari and Souza, 2023; Carneiro, 2014), or Cyberarchitecture, with an approach centered on improving human well-being (Alavi et al., 2019).

MA also differs from popular concepts such as Architecture of Media, used in marketing to designate structures aimed at communicating brands, or Mediatic Architecture, which designates purely aesthetic spaces for advertising purposes. For this reason,

the choice of terminology is justified by the convergence of the term MA with Knowledge Media studies.

Unesco (2019a) highlights the potential of technologies to drive sustainable solutions in Smart Cities, promoting a more integrated interaction between citizens and institutions. However, as noted by Caldwell et al. (2016), ICTs still lack the richness of face-to-face social interactions in the real environment, an aspect that MA can address by reimagining urban spaces as platforms for encounter and collaboration.

In addition to reinforcing digital inclusion, MA can be a powerful catalyst for institutions to transform digital literacy into a reflective and critical practice. As Mendes, Spanhol e Souza (2018) e Spanhol, Cuadrado e Pereira (2020) argue, this approach goes beyond simple technological mastery, preparing citizens for informed participation in the digital age, as advocated by Souza (2023) when addressing the influence of technology on human perception.

MA stands out for its ability to integrate digital technologies into architecture, transforming buildings into platforms for dialog and public expression, reinforcing its role in MIL Cities. Based on the literature review of studies from the Media Architecture Institute (MAI), the following discussion explores the characteristics of MA and its relationship with the objectives of MIL Cities.

Architecture of interactivity and experiences

Interactivity emerges as an essential pillar of MIL Cities, fostering deep connections between citizens and governments to create fairer and more sustainable communities (Ortiz, Suzuki e Castro, 2022; Unesco, 2019b). In the view of Knowledge Media (Müller and Souza, 2020), this dynamic not only facilitates the exchange of knowledge between humans, mediated by technology, but also strengthens the capacity of communities to debate improvements to their urban environment.

Like the proposal by Okada et al. (2015), which uses online platforms to create and share information about the city, including data, documents and photos. This information is discussed through comments and ratings. This is an example that illustrates the power of ICTs in building collective knowledge, in the same way that "transparency programs and actions, accountability practices and social responsibility, making use of tools and technologies that enable collaboration between governments and citizens." (Borges, Sanchez and Sampaio, 2024, pp. 13-14)

For Santos (1996), interactivity strengthens citizenship by empowering individuals to defend their rights, which in MA involves the confluence of ICTs, the individual and architecture. In this way, it transforms urban spaces into dynamic platforms for communication and collaboration, essential for the development of democratic and participatory communities (Ferrari and Souza, 2023).

Based on the Liquid Light and Chromapollination experiments, Hespanhol and Tomitsch (2012) argue that the interactions in MA are performative and place the individual at the center of public events. The installations use presence sensors, lights and interactive screens to display society's demands. This architecture invites citizens to observe the environment, then participate and connect with other participants, and finally transform public streets into contemplative and functional

spaces. Like the Chromapollination installation which, by synchronizing the lighting with the flow of pedestrians towards the metro station, revealed new dynamics of urban mobility.

In short, playful practices like this are essential for raising awareness and including citizens in urban dialogues. In MIL Cities, interactivity strengthens communities, bringing together technology, architecture and human interaction to enrich experience, promote citizen participation and foster the collective construction of knowledge.

The global dimension of media architecture

in the Liquid Light experiment (Hespanhol and Tomitsch, 2012), when people positioned themselves in the interaction area, their silhouettes appeared on an LED screen, revealing the proposal for a convivial space for an area intended for passing through. This leads to Arendt's (2017) understanding that public space is the place where you can be seen and heard, so Media Architecture's gables are communicators that manifest themselves through light.

Halskov (2021) notes that while traditional architecture stands out when it receives light, MA generally emits light and images. When activated, "the exterior of the building illuminates sending light away from the structure, transforming the building into a broadcast medium with television-like properties." (Scully and Mayze, 2018, p. 2). Unlike modern architecture which dilutes the image of the city, suppressing the significance of monuments and landmarks (Virilio, 1993), MA functions as a lighthouse, transforming the urban environment into a communicative landmark (Fredericks, Hespanhol e Tomitsch, 2016).

Schielke (2023) argues that some solutions are simple, cheap, quick and practical, such as colored lighting on facades, projections and illuminated drones. One example is the illuminations in 2022 in support of Ukraine, where colors and images of the Ukrainian flag quickly multiplied around the world, including Brazil. In fact, the image of solidarity spread more quickly in the press than large traditional demonstrations against the war.

By connecting the architecture to the web, information expands into hyperspace, adding multiple communication channels and a diversity of synchronous discourses to the building (Ferrari and Souza, 2023). Just like the projections of the Viva JK Collective (Figure 1), which gave visibility to the building and renewed its residents' sense of belonging. The images were shared on virtual social networks, allowing for an online debate about the citizens' demands for the building's historic listing (VIVA JK, [n.d.]).

Digital media create forms of social organization and collective mobilization, allowing groups with common interests to connect and exchange information more quickly and efficiently, regardless of geographical boundaries (Souza, 2015). This urban experience, produced and consumed in a unique combination of online and offline activities, is referred to by Colangelo (2014) as “relational space”.

Figure 1 – Viva JK Project facade in pandemic (2021), art listing (2021), historic listing (2022)

Source: authors, in 2024, based on https://www.instagram.com/vivajk/.

In this sense, MA transcends physical and cultural boundaries, transforming buildings into interactive platforms that communicate global messages of solidarity, awareness and engagement. Therefore, the integration of digital technologies into architecture has the power to influence behavior and inspire collective action on a global scale

Urban art and technology

Virilio (1993) discusses the impact of technologies on the perception and organization of urban spaces, criticizing the dehumanization and emptying of cities. Sá (2014) complements this view by indicating that deterritorialization of Castells (1999) can be characterized by anonymity and loneliness. For Breinbjerg (2012), isolation is promoted by immersive and mixed technologies such as cell phones, virtual and augmented reality and headsets. In contrast, Colangelo (2014) presents a study in which the technologies associated with the Empire State building enriched the urban experience. Lights, sounds and screens created a complex and dynamic relational space, where information, space and people intertwined in new ways.

MA promotes a more engaged and reflective form of democratic participation, often linked to urban art. As Toft (2014, p. 80) emphasizes, is "[…] intuitive and easily decipherable by the general public". Therefore, public engagement in the form of urban art is increasingly relevant in MA, which proposes more participatory and meaningful interactions (Halskov, 2021).

When urban art is integrated into social movements, it promotes exchanges between different cultures and "[…] in this process there is a fruitful encounter between art and political

activism" (Campbell, 2015, p. 260). Assuming that "[…] every citizen is a creator of information with a message" (Unesco, 2019a, p. 12), the architecture of cities becomes an aesthetic manifestation of dissent (Rancière, 1996).

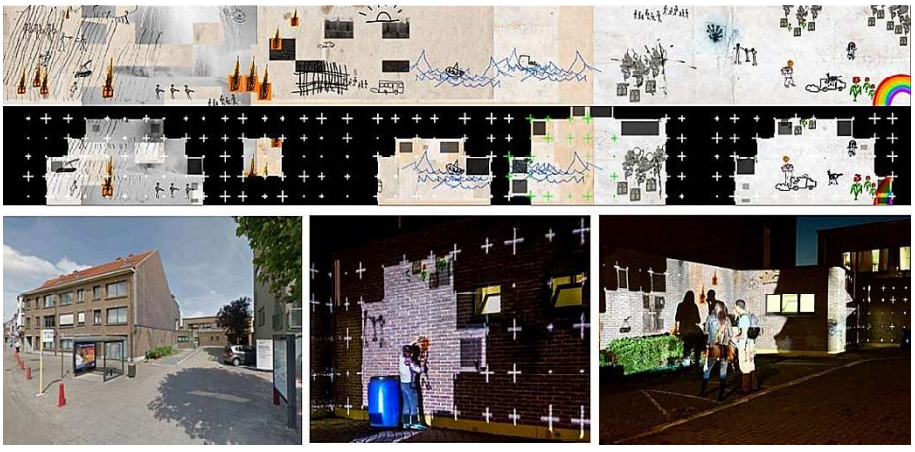
For example, during the COVID-19 pandemic, Brazilian social activists, prevented from taking to the streets due to isolation rules, used facades for political protests. Projections of slogans, information about the numbers of the pandemic, requests to maintain isolation and encouragement to use vaccines occupied the public face of buildings, impacting the neighborhood (Beiguelman, 2020; Brasil, 2020).

Memarovic et al. (2012) claim that visual digital media provoke passive engagement, however, for Lévy (1999, p. 79) "[…] an information receiver, unless dead, is never passive". In other words, passers-by in an urban environment augmented by technologies, even if unconsciously, receive stimulating information that will be interpreted by the "emancipated spectator" (Rancière, 2012).

This emancipated spectator is the individual sensitized (ibid.) by the socially relevant narratives displayed in the public space, which, for Wouters, Claes and Moere (2018) is an important quality of MA. Researchers such as Berrett (2018), Caldwell and Foth (2014), Fredericks Hespanhol and Tomitsch (2016), Schielke (2023) advocate the use of MA as a tool for social activism and mobilizing communities around urgent social causes.

One example is the installation "Stories of Exile" (Wouters, Claes and Moere, 2018), which projects the trajectory of these people onto the façade of a refugee shelter in Antwerp (Belgium). The installation created an unexpected space for interaction and allowed the refugees to express themselves and share their stories in a visible and engaging way. The result was a positive impact on the local community, raising awareness of the humanitarian crisis and stimulating dialogue between refugees and residents, as illustrated in Figure 2.

Figure 2 – Installation “Stories of Exile” [s.d.]



Source: Wouters (2018, p. 119-130).

In short, Media Architecture transcends simple urban aesthetics by integrating art and technology to promote social engagement and mobilization, transforming façades into interactive platforms. This architecture is a powerful vehicle for socially relevant narratives, as it offers new means of expression and communication, encouraging citizen participation and community dialog.

Ubiquitous participation in Media Architecture

In social inclusion debates, citizen participation is irrefutable (Cardoso and Valle, 2012; Santos Júnior, 2012) and extends to smart cities (Costa and Oliveira, 2017; Okada Wolff e Mikroyannidis, 2015) and MIL Cities (Ortiz, Suzuki e Castro, 2022), where it plays a crucial role. In MA, participation encompasses both technical aspects of engagement and interactivity with technology, as well as social aspects such as involvement and awareness. However, social, behavioral and psychological factors such as system usability, technological anxiety or fear of making mistakes (da Cunha and da Silva, 2023), can lead some people to feel embarrassed or demotivated to interact actively (Wouters et al., 2016), hindering the effectiveness of democratic debate

To further explore these complex relationships, Halskov's work (2021) illustrates, from the works of the Media Architecture Biennale (MAB), numerous possibilities, patterns and trends in participation. Such as the growing integration of sensor technologies into the environment, where interfaces allow for more natural and intuitive interactions, eliminating the need for buttons.

This concept, termed “ubiquitous participation” (Hespanhol and Tomitsch, 2012), leverages digital elements embedded in the environment to foster collective interactions and connect individuals to their surroundings. In this way, mediated by technology, even those who do not feel comfortable can interact and share the space without the need for any specific activity. Therefore, ubiquitous participation does not necessarily depend on users' specialized knowledge.

A practical example of this theory can be seen in immersive installations such as "Oca" at the Museum of Tomorrow in Rio de Janeiro (Ferrari, 2022) and "Chromapollination" in Sydney, Australia (Hespanhol & Tomitsch, 2012). These installations (Figure 3) use speakers, lights and sensors to create dynamic interactions that respond to people's presence and movements, intuitively connecting them to the environment.

These examples demonstrate how Media Architecture is a powerful tool for social activism and placemaking. By using public space to exchange collective messages, it extends the reach and amplifies the voices of the community (Caldwell and Foth, 2014). The work of Hoggenmueller et al. (2018), for example, engaged the community of two streets in a friendly competition to save energy, using graphic and playful displays to present the energy consumption of each street and stimulate the participation of residents in the quest for sustainability.

Therefore, MA's ubiquitous participation facilitates interaction, engagement and strengthens social activism. It is understood that interactive installations connect people, redefine places and highlight the importance of citizen participation in technological urban environments.

Figure 3 – Oca (Appelbaum, 2016) e Chromapolination (Hespanhol e Tomitsch, 2012)

Source: authors (2024) based on Ferrari (2022) and Hespanhol & Tomitsch (2012).

Digital citizenship in public spaces

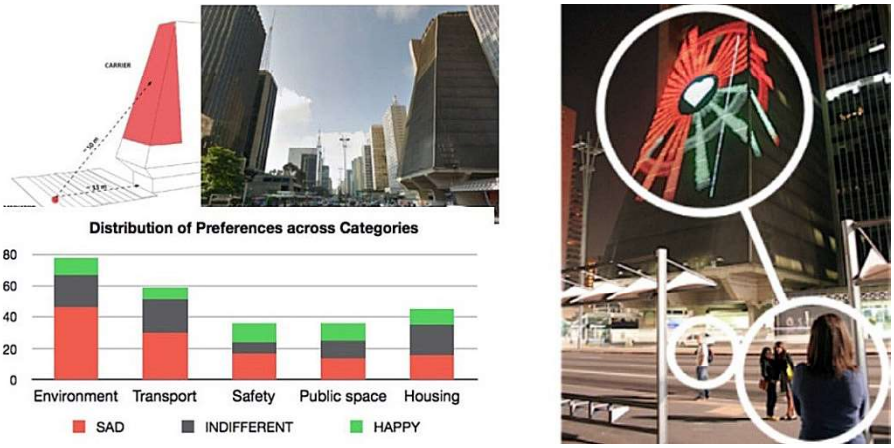
One of the effects of globalization is the hegemonization of space, leading to the loss of identities and cultural roots (Castells, 1999), resulting in "[…] a kind of disconnection from the physical and social space where one lives" (Sá, 2014, p. 221), marked by a lack of interest in the city's public domains. For Santos (2020), the occupation of space is important for the construction of meaningful places, which for Jacobs (2014) consists of the interaction of the various elements that make up the city and society.

The relationships between human and non-human agents that stimulate innovations (Müller and Souza, 2020) is fundamental in MA, which emerges as a city-building tool and celebrates diversity and identity (Fredericks, Hespanhol and Tomitsch, 2016) and urban spaces are transformed into scenarios for narratives and interactions.

Like "Beco Expandido" (Santos, Boniconte and Mattos, 2021) in São Paulo, for example, which connects the public to graffiti art through augmented reality (AR), or in Sydney and Melbourne, Australia, where the game "Urban Codemakers" (Innocent, 2018) also uses AR to allow citizens to uncover historical elements and highlights of their respective city.

For Kostopoulou et al. (2018), experiences integrated with public space highlight the great potential of technologies in communicating cultural values. Even so, it is essential to consider aspects such as social interaction, the accessibility of technology and community engagement in content creation, so that the narratives are truly meaningful and inclusive. Like the Digital Birthing Tree project (Anderson,

Figure 4 – Installation "Sentiment Dashboard"



Source: Behrens et al. (2014).

Wouters e Jefferies, 2021), which included the native Australian people in all phases of the Science Gallery façade project in Melbourne (Australia), which displays narratives of indigenous culture on small multimedia screens.

Similarly, in São Paulo, the Sentiment Dashboard installation (Behrens et al., 2014) allowed citizens to share their impressions on topics such as urban mobility, the environment, security, public space, and housing through universal figures (Figure 4). For this reason, social impact is a recurring theme in MA work, which encompasses the multiculturalism of the city and the challenges of public communication (Caldwell et al., 2016).

In summary, the universal language of ICTs in Media Architecture facilitates inclusive participation among all citizens, promoting intercultural exchange and humanization. It also allows the population to be included in the co-creation of spaces, strengthening the sense of belonging and identity and facilitating dialogue in the multicultural city.

The challenges of Media Architecture

Initially, Allen (2012) points out that ICTs, as well as being tools for social activism, can also serve as instruments of segregation, corroborating Castells (1999), who argues that globalization is a complex process that generates cultural tensions and conflicts. Santos (1996) adds to his concerns about the worsening of prejudice, suggesting a growing segmentation and polarization of society.

Despite their apparent neutrality, ICTs are embedded within social realities and perpetuate existing power dynamics, including

market dominance (Roedel, 2021) and the potential for economic exploitation of public spaces (Campbell, 2015). Dade-Robertson et al. (2012) argue that social groups that are more engaged with digital media gain a greater voice in ICT-mediated discussions, while the most vulnerable often do not have access to participatory platforms.

Therefore, the concentration of power in the hands of a few, corruption, socio-economic inequality, social exclusion, lack of transparency in public institutions, political manipulation, polarization and fragmentation of society compromise the legitimacy and effectiveness of the democratic system (Santos Júnior, 2012). Campbell (2015) observes that public spaces are often dominated by instances of power that define their uses.

Dade-Robertson et al. (2012) express concern about this power asymmetry when analyzing the Viewpoint artifact, identifying that even participatory MA interventions can generate hegemonic and unreliable results. This is reflected in biased behavior, as discussed by Borges, Sanchez and Sampaio (2024). Biased algorithmic filtering and loss of autonomy compromise democracy, negatively impacting the formation of public opinion and citizen participation, reproducing inequalities and undermining transparency in public management (Roedel, 2021).

The film Blade Runner (SCOTT, 1982) highlights the consequences of ICTs in the presentation of one-sided information, advertising saturation, visual pollution and media waste (Caldwell et al., 2014; McArthur, 2018). MA researchers highlight political and corporate propaganda as significant challenges, advocating for regulations that guarantee freedom of expression and cultural diversity (Lee, 2016; McArthur, 2018; Melzer, 2021; Scully and Mayze, 2018).

In addition to a sense of distrust and paranoia, control is a risk of the growing integration of ICTs in the urban space (Allen, 2012). According to Manovich (2005), the environment becomes dense in data, resulting in increasingly invisible visual surveillance and the combination of technologies such as environmental sensors, radars and cellular communication creates a space of ubiquitous monitoring (Breinbjerg, 2012; Manovich, 2005).

The massive collection of data by tech giants such as Google and Facebook, as well as cases such as WikiLeaks, are examples presented by Roedel (2021) of extensive control exercised by governments and companies. Allen (2012) and Breinbjerg (2012) argue that this type of surveillance can restrict physical movements and shape social behavior. The Google Maps Hacks experiment by Weckert (2020) exemplifies this form of control, in which the artist simulated virtual traffic jams using 99 smartphones, ultimately influencing real traffic.

These concerns echo Santos' (1996) reflections on social control and the right to come and go – like Ferrari (2023), who discusses the normalization of surveillance technologies, and the risk of injustice and racism based on facial recognition data. The discussion of the panopticon illustrates the illusion of control over the monitored space (Breinbjerg, 2012).

In short, ICTs not only serve as catalysts for social activism but also function as potential instruments of segregation and control. This duality reflects a scenario of market domination

and power asymmetry, involving issues of public space democratization, citizen participation, and the protection of freedom of expression.

Citizen in control

The growing integration of ICTs in contemporary cities raises questions about surveillance, control and social inequality (Allen, 2012; Manovich, 2005; Santos, 1996), that can both enable citizen participation and reinforce social exclusion. This calls into question the democratization of public space and the protection of freedom of expression.

Technologies offer significant advantages over traditional face-to-face methods, such as remote access to debates and decisions in real time, and the possibility of collecting and analyzing data. This data from digital platforms reflects community needs and extends the reach of different layers of society. For example, the Chromapollination and Oca installations can create inclusive sensory experiences, connecting individuals to the environment and promoting collective engagement (Ferrari, 2022; Hespanhol and Tomitsch, 2012).

On the other hand, these advantages could be associated with significant challenges such as digital exclusion, lack of infrastructure, high device costs and low digital literacy. This exposes a barrier for many social groups such as the elderly, people on low incomes or those with lower digital literacy. Furthermore, control and surveillance dynamics promote inequalities, with risks of data manipulation and concentration of power on corporate or institutional platforms (Roedel, 2021; Allen, 2012).

Caldwell and Foth (2014) understand control as empowerment of the citizens, who can proactively and participatively transform their environment. In this sense, the fusion of architecture with ICTs enables two-way communication, which challenges the boundaries between public and private (Arendt, 2017; Souza, 2023), redefining the relationship between man and the city and the way citizens participate in public space (Caldwell and Foth, 2014; Wouters, 2016).

The ability to project messages and images in highly visible places, as in the illuminations in solidarity with Ukraine (Schielke, 2023), gives MA the potential to broaden the debate on social and political issues. The integration of digital elements with the built environment also allows for the creation of immersive and interactive experiences, such as the Oca (Ferrari, 2022) and Chromapollination (Hespanhol & Tomitsch, 2012) installations. These playful installations evoke emotions and stimulate reflection, allowing citizens to actively participate in the co-creation of city design (Colangelo, 2014).

Although the risks of excessive commercialization, control of public space and hegemonization of data are serious

(Melzer, 2021; Scully & Mayze, 2018), when associated with urban art, ICTs have the power to amplify the voices of society and promote cultural exchange between different communities (Campbell, 2015). The projection of visible messages in prominent places, as demonstrated by the intervention of the Viva JK Collective and the Stories of Exile installation (Wouters Claes and Moere, 2018), enables social activists to use moving images to express collective concerns and demands (Beiguelman, 2020; Wouters et al., 2016). When citizens who create content know how to integrate technologies and understand the power of information (Caldwell and Foth, 2014), they transform the public space into a medium for sharing information.

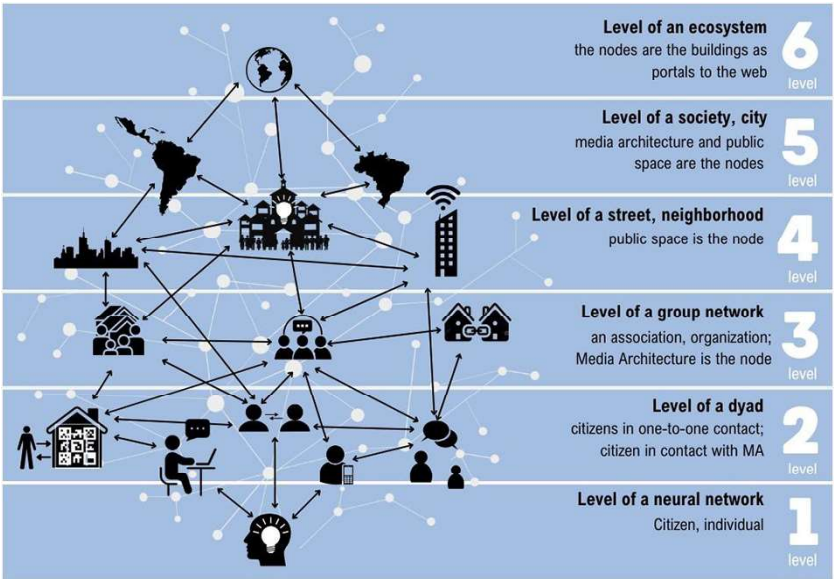
Even if the dehumanization and isolation promoted by certain technologies (Virilio, 1993; Sá, 2014) are a risk for cities, the quality of connection prevails, as in the work of Hoggenmueller et al. (2018). With the technological layer, these public spaces have gained aesthetic expression in public involvement and engagement, to enrich local life and strengthen the connection with place (Memarovic, Langheinrich e Fatah, 2014; Scully e Mayze, 2018; Wouters, Claes e Moere, 2018).

To mitigate the limitations of the fusion between technologies and architecture, it is necessary to adopt strategies that promote universal digital inclusion and foster a more equitable management of public space. Initiatives such as the Sentiment Dashboard and the Digital Birthing Tree highlight the importance of including marginalized communities in the planning and execution of projects (Anderson, Wouters and Jefferies, 2021; Behrens et al., 2014).

These approaches reinforce the idea that ICTs and Media Architecture act as effective tools for citizen empowerment, if they are designed and implemented with an inclusive perspective. The fusion of architecture with digital media must go beyond superficial technological solutions, embracing practices that value dissent and plurality, essential elements for the democratic dynamics of public space (Rancière, 1996; Jacobs, 2014).

Based on this research, it is assumed that Media Architecture reflects the hybrid, complex and interconnected nature of contemporary cities, inserting itself into a node in the city's fractal network (Figure 5), facilitating communication, collaboration and revitalizing the concept of public space.

Figure 5 – Public space as a node



Source: prepared by the authors, in 2024.

Conclusion

The qualities of Media Architecture reveal that it is an essential discipline for MIL Cities, by promoting access to information and enabling citizens to become content creators. However, the democratization of public space through ICTs and MA faces significant challenges related to digital exclusion and social inequality. To ensure a fairer and more equitable society, it is essential to promote universal inclusion, which values diversity and meets the needs of different social groups.

Although ICTs offer powerful tools for civic engagement, their impact depends on projects that integrate cultural and social diversity. It is recommended that future work explore the benefits and limitations of urban technologies, seeking solutions that promote true equity in citizen participation.

In conclusion, MA enhances the ecosystem of MIL Cities by offering a platform for citizen expression and participation, thereby strengthening the connections between information, governance, and citizens.

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Declaration

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References

ALAVI, H. S. et al. (2019). Introduction to Human-Building Interaction (HBI): Interfacing HCI with Architecture and Urban Design. *ACM Transactions on Computer-Human Interaction*, v. 26, n. 2, pp. 1-10.

ALLEN, P. (2012). Framing the media architectural body. In: 4th MEDIA ARCHITECTURE BIENNALE CONFERENCE, 4, Aarhus, Dinamarca. *Anais*. Nova York, ACM, pp. 9-12.

ANDERSON, S.; WOUTERS, N.; JEFFERIES, R. (2021). Decolonising the urban screen: an argument and approach for first peoples-led content programs in massive media. In: 5th MEDIA ARCHITECTURE BIENNALE CONFERENCE, 5, Aarhus, Dinamarca. *Anais*. Nova York, ACM, pp. 66-78.

APPELBAUM, R. (2016). *Museu do Amanhã.* Rio de Janeiro, Ralph Appelbaum Associates. Disponível em: https://raai.com/project/museum-of-tomorrow/. Acesso em: 5 fev 2025.

ARENDT, H. (2017). *A condição humana*. Rio de Janeiro, Forense Universitária.

BEHRENS, M. et al. (2014). Smart Citizen sentiment dashboard: a case study Into Media Architectural Interfaces. In: INTERNATIONAL SYMPOSIUM ON PERVASIVE DISPLAYS, 3, Copenhague, Dinamarca. *Anais*. Nova York, ACM, pp. 19-24.

BEIGUELMAN, G. (2020). *Coronavida: pandemia, cidade e cultura urbana*. São Paulo, Escola da Cidade.

BERRETT, J. (2018). Media architecture: content with purpose for the public. In: 4th MEDIA ARCHITECTURE BIENNALE CONFERENCE, 4, Pequim, China. *Anais*. Nova York, ACM, pp. 28-34.

BLADE RUNNER (1982). Direção de Ridley Scott. Burbank, Califórnia, Warner Bros. Entertainment Inc.

BOIANI, E.; D`ÁQUINO, V. T.; RAMOS, M. C. L.; COSTA, E. M.; LENTHZ, L. (2020). Lagoa uma visão CHIS Cidades mais Humanas, Inteligentes e Sustentáveis: novação urbana e cocriação. In: X CONGRESSO INTERNACIONAL DE CONHECIMENTO E INOVAÇÃO (ciKi), 10, Cidade do Panamá, Panamá. *Anais.* Disponível em: https://proceeding.ciki.ufsc.br/index.php/ciki/article/view/1008. Acesso em: 14 jun 2024.

BORGES, T.; SANCHEZ, C. S.; SAMPAIO, R. C. (2024). Inteligência Artificial e governança democrática: uma análise cientométrica. In: ENCONTRO NACIONAL DE ENSINO E PESQUISA DO CAMPO DE PÚBLICAS, 5, Belo Horizonte. *Anais.* Disponível em: https://anepecp.org/ojs/index.php/br/article/view/360. Acesso em: 6 maio 2024.

BRASIL [Constituição (1988)]. *Constituição da República Federativa do Brasil de 1988*. Brasília, Presidência da República. Disponível em: http://www.planalto.gov.br/ccivil_03/Constituicao/ Constituiçao.htm. Acesso em: 14 fev 2025.

BRASIL, A. (2020). I*magens de vítimas da Covid-19 são projetadas no Cristo Redentor em celebração de homenagem*. Disponível em: https://diariodonordeste.verdesmares.com.br/pais/imagens-de-vitimas-da-covid-19-sao-projetadas-no-cristo-redentor-em-celebracao-de-homenagem-1.2961719. Acesso em: 13 jul 2024.

BREINBJERG, M. (2012). Urban sound interfaces: Poetic approaches to media architecture. In: MEDIA ARCHITECTURE BIENNALE CONFERENCE, 4, Aarhus, Dinamarca. Proceedings of the 4th Media Architecture Biennale: Participation. *Anais.* Nova York, ACM, pp. 43-46.

CALDWELL, G. A.; GUARALDA, M.; DONOVAN, J.; RITTENBRUCH, M. (2016). The InstaBooth: making common ground for media architectural design. In: 3 rd MEDIA ARCHITECTURE BIENNALE CONFERENCE, 3, 2016, Sydney, Austrália. *Anais*. Nova York, ACM, pp. 1-8.

CALDWELL, G. A.; FOTH, M. (2014). DIY media architecture: Open and participatory approaches to community engagement. In: 2nd MEDIA ARCHITECTURE BIENNALE CONFERENCE, 2, 2014, Aarhus, Dinamaca. *Anais.* Nova York, ACM, pp. 1-10.

CAMPBELL, B. (2015). *Arte para uma cidade sensível.* São Paulo, Invisíveis Produções.

CARDOSO, A. L.; VALLE, C. L. (2012). Habitação e governança urbana: avaliação da experiência em 10 cidades brasileiras. *Cadernos Metrópole*. São Paulo, n. 4, pp. 33-63.

CARNEIRO, G. P. (2014). *Arquitetura interativa: contextos, fundamentos e design*. Tese de doutorado. São Paulo, Universidade Federal de São Paulo.

CASTELLS, M. (1999). *A sociedade em rede.* Rio de Janeiro, Paz & Terra.

_____ (2011). Museus na era da informação: conectores culturais de tempo e espaço. *MUSAS – Revista Brasileira de Museus e Museologia.* Rio de Janeiro, v. VIII, n. 5, pp. 8-21.

COLANGELO, D. (2014). The empire state building and the roles of low-resolution media façades in a data society. In: 2nd MEDIA ARCHITECTURE BIENNALE CONFERENCE, 2, Aarhus, Dinamarca. *Anais.* Nova York, ACM, pp. 11-20.

COSTA, E. M.; OLIVEIRA, Á. D. (2017). “Humane Smart Cities”. In: FRODEMAN, R. (org.). T*he Oxford Handbook of Interdisciplinarity*. Nova York, Oxford University Press.

DA CUNHA, R. D.; DA SILVA, R. L. (2023). Self-Service aversion: correlations between experience design and rejection of bank ATMs by some users. *Estudos em Design*. Rio de Janeiro, v. 31, n. 2, pp. 63-68.

DADE-ROBERTSON, M. et al. (2012). The political sensorium. In: 4th MEDIA ARCHITECTURE BIENNALE CONFERENCE, 4, Aarhus, Dinamarca. *Anais*. Nova York, ACM, pp. 47-50.

FERRARI, A. C. (2022). *Uso da Media Architecture na expografia da sociedade em rede: experienciando museus Interativos*. Dissertação de mestrado. Florianópolis, Universidade Federal de Santa Catarina.

FERRARI, A. C.; SOUZA, M. V. (2023). Media Architecture uma Mídia do Conhecimento. In: XIII CONGRESSO INTERNACIONAL DE CONHECIMENTO E INOVAÇÃO (CIKI), 13, Florianópolis. *Anais.* Disponível em: https://proceeding.ciki.ufsc.br/index.php/ciki/article/download/1401/808/5916. Acesso em: 10 abr 2024.

FERRARI, M. V. (2023). Test, swarm, normalize: how surveillance technologies have infiltrated Paris 2024 Olympic Games. *Cadernos Metrópole.* São Paulo, v. 25, n. 56, pp. 75-96.

FREDERICKS, J.; HESPANHOL, L.; TOMITSCH, M. (2016). Not just pretty lights: using digital technologies to inform city making. In: 3rd MEDIA ARCHITECTURE BIENNALE CONFERENCE, 3. *Anais*. Sydney, Austrália. Nova York, ACM, pp. 1-9.

HALSKOV, K. (2021). A Media Architecture Design Space: The MAB 2012–2018 Nominees. In: 5th MEDIA ARCHITECTURE BIENNALE CONFERENCE, 5, Aarhus, Dinamarca. *Anais.* Nova York, ACM, pp. 12-22.

HESPANHOL, L.; TOMITSCH, M. (2012). Designing for collective participation with media installations in public spaces. In: 4th MEDIA ARCHITECTURE BIENNALE CONFERENCE, 4, Aarhus, Dinamarca. *Anais*. Nova York, ACM, pp. 33-42.

HOGGENMUELLER, M. et al. (2018) A Media Architecture Approach to Designing Shared Displays for Residential Internet-of-Things Devices. In: 4th MEDIA ARCHITECTURE BIENNALE CONFERENCE, 4, Pequim, China. *Anais*. Nova York, ACM, pp. 106-117.

INNOCENT, T. (2018). Play about Place: Placemaking in location-based game design. In: 4th MEDIA ARCHITECTURE BIENNALE CONFERENCE, 4, Pequim, China. *Anais*. Nova York, ACM, pp. 137-143.

JACOBS, J. (2014). *Morte e vida de grandes cidades*. São Paulo, WMF Martins Fontes.

KOSTOPOULOU, E. et al. (2018). Mediated Spatial Narratives: Experiencing Archival Material and Shared Memories in Urban Space. In: 4th b MEDIA ARCHITECTURE BIENNALE CONFERENCE, 4, Pequim, China. *Anais.* Nova York, ACM, pp. 118-127.

LAZRAK, N.; ZAHIR, J.; MOUSANNIF, H. (2018). Responsive cities and data gathering: Challenges and opportunities. In: 4th MEDIA ARCHITECTURE BIENNALE CONFERENCE, 4, Pequim, China. *Anais*. Nova York, ACM, pp. 1-8.

LEE, S. J. (2016). Citywide management of media facades: Case study of Seoul City. In: 3rd MEDIA ARCHITECTURE BIENNALE CONFERENCE, 3, Sydney, Austrália. *Anais*. Nova York, ACM, pp. 1-4.

LEMOS, A. (2006). Ciberespaço e tecnologias móveis: processos de territorialização e desterritorialização na cibercultura. IN: ENCONTRO ANUAL DA COMPÓS - ASSOCIAÇÃO NACIONAL DOS PROGRAMAS DE PÓS-GRADUAÇÃO EM COMUNICAÇÃO, 15, Bauru. *Anais*. Campinas, Galoá, pp. 1-17.

LÉVY, P. (1999). *Cibercultura*. São Paulo, Editora 34.

MANOVICH, L. (2005). *The poetics of augmented space*. Disponível em: http://manovich.net/index.php/projects/the-poetics-of-augmented-space. Acesso em: 11 jul 2024.

MCARTHUR, I. (2018). Mapping Chongqing's Urban Media Ecology. In: 4th MEDIA ARCHITECTURE BIENNALE CONFERENCE, 4, Pequim, China. *Anais*. Nova York, ACM, pp. 1-10.

MELZER, Z. (2021). Media Architecture as Privatization: Rethinking the Role of Space in the Media Architecture of Yonge-Dundas Square. In: 5th MEDIA ARCHITECTURE BIENNALE CONFERENCE, 5, Aarhus, Dinamarca. *Anais.* Nova York, ACM, pp. 141-147.

MEMAROVIC, N. et al. (2012). Using public displays to stimulate passive engagement, active engagement, and discovery in public spaces. In: 4th MEDIA ARCHITECTURE BIENNALE CONFERENCE, 4, Aarhus, Dinamarca. *Anais*. Nova York, ACM, pp. 55-64.

MEMAROVIC, N.; LANGHEINRICH, M.; FATAH, A. (2014). Community is the message: Viewing networked public displays through McLuhan's lens of figure and ground. In: 2nd MEDIA ARCHITECTURE BIENNALE CONFERENCE, 2, Aarhus, Dinamarca. *Anais*. Nova York, ACM, pp. 30-33.

MENDES, A.; SPANHOL, F. J.; SOUZA, M. V. D. (2018). "Letramento digital e letramento acadêmico: um diálogo necessário". In: TEIXEIRA, C. S.; SOUZA, M. V. D. (org.). *Educação fora da caixa: tendências internacionais e perspectivas sobre a inovação na educação*. São Paulo, Editora Blucher.

MORIN, E. (1992) . Do Conceito de sistema ao paradigma da complexidade. *Revista de Sistemas Sociais e Evolutivos,* v. 15, n. 4, pp. 371-385.

MÜLLER, F. M.; SOUZA, M. V. (2020). The role of Knowledge Media in Network Education. I*nternational Journal for Innovation Education and Research*. Dhaka, v. 8, n. 7, pp. 76-93.

OKADA, A.; WOLFF, A.; MIKROYANNIDIS, A. (2015). Fostering young smart citizens through personal learning environments for urban inquiries. In: 10TH EUROPEAN CONFERENCE ON TECHNOLOGY ENHANCED LEARNING: DESIGN FOR TEACHING AND LEARNING IN A NETWORKED WORLD, 10, Toledo, Espanha. Smart Learning Ecosystems in Smart Regions and Cities. Disponível em: http://www.mifav.uniroma2.it/inevent/events/scl2015/docs/SLEECTEL2015_paper_2.pdf. Acesso em: 19 jun 2024.

ORTIZ, F. C.; SUZUKI, J. C.; CASTRO, R. C. M. L. (org.) (2022). *Cidades AMI: indicadores, métricas e casos.* São Paulo, FFLCH/USP, Prolam/USP.

RANCIÈRE, J. (1996). *O dissenso*. Disponível em: https://artepensamento.ims.com.br/item/o-dissenso/. Acesso em: 13 jul 2024.

_____ (2012). *O espectador emancipado*. São Paulo, WMF Martins Fontes.

REIA, J.; CRUZ, L. (2023). Cidades inteligentes no Brasil: conexões entre poder corporativo, direitos e engajamento cívico. *Cadernos Metrópole.* São Paulo, v. 25, n. 57, pp. 467-490.

ROEDEL, D. (2021). A participação social mediada pelas tecnologias de informação e comunicação – TIC. *Ciência e Luta de Classes Digital.* Rio de Janeiro, v. 2, n. 2, pp. 15-24.

SÁ, T. (2014). Lugares e não lugares em Marc Augé. *Tempo Social*. São Paulo, v. 26, n. 2, pp. 209-229.

SANTAELLA, L. (2013). "A cidade e o corpo como Interfaces". In: SANTAELLA, L. *Comunicação ubíqua: repercussões na cultua na educação.* São Paulo, Paulus Editora.

SANTOS, G.; BONICONTE, A.; MATTOS, A. (2021). *Beco expandido.* Disponível em: https://www.midiadub.com/works/beco-expandido. Acesso em: 14 jul 2024.

SANTOS JÚNIOR, O. A. (2012). Democracia, desigualdades e governança local: dilemas da reforma municipal no Brasil. *Cadernos Metrópole*. São Paulo, n. 8, pp. 87-103.

SANTOS, M. (1996). *As cidades mutiladas*. Disponível em: https://www.miltonsantos.com.br/site/wp-content/uploads/2011/12/As-cidadanias-mutiladas_MiltonSantos1996-1997SITE.pdf. Acesso em: 19 jun 2024.

_____ (2020). *A natureza do espaço: técnica e tempo*. São Paulo, Edusp.

SCHIELKE, T. (2023). Cities Light Up in Solidarity With Ukraine: From Internationally Synchronized Illuminations to Projection Activism, Drone Shows and Global Art Projects. In: 6th MEDIA ARCHITECTURE BIENNALE CONFERENCE, 6, Toronto, Canadá. *Anais*. Nova York, ACM, pp. 14-27.

SCULLY, M.; MAYZE, S. (2018). Media Façades: When Buildings Perform. In: 4th MEDIA ARCHITECTURE BIENNALE CONFERENCE, 4, Pequim, China. *Anais*. Nova York, ACM, pp.19-27.

SENNETT, R. (1997). *Carne e pedra*. Rio de Janeiro, Record.

SIQUEIRA, L. F.; MARZULO, E. P. (2021). Da democracia participativa à desdemocratização na cidade: a experiência do Orçamento Participativo em Porto Alegre. *Cadernos Metrópole*. São Paulo, v. 23, n. 50, pp. 399-422.

SOUZA, M. V. (2015). "Mídias digitais, globalização, redes e cidadania no Brasil". In: SOUZA, M. V.; GIGLIO, K. (org.). *Mídias digitais, redes sociais e educação em rede: experiências na pesquisa e extensão universitária.* São Paulo, Blucher Acadêmico.

_____ (2016). *Redes informatizadas de comunicação: a teia da rede internacional DPH*. São Paulo, Blucher Acadêmico.

_____ (2023). *As vozes do silêncio: o movimento pela democratização da comunicação no Brasil.* Porto Alegre, Editora Fi.

SPANHOL, F. J.; CUADRADO, A. M. M.; PEREIRA, N. L. (2020). Prácticas para la enseñanza y el aprendizaje de habilidades digitales en la educación superior: Una revisión sistemática en la literatura. *Revista Exitus*. Santarém, n. 10, p.e020055.

TOFT, T. S. (2014). Situations of presence: Reclaiming public space in the urban digital gallery. In: 2nd MEDIA ARCHITECTURE BIENNALE CONFERENCE, 2, Aarhus, Dinamarca. *Anais.* Nova York, ACM, pp. 79-84.

UNESCO (2019a). *Global Framework for Media and Information Literacy Cities (MIL Cities)*. Disponível em: https://webarchive.unesco.org/20220102171737/https://en.unesco.org/sites/default/files/global_framework_for_mil_cities.pdf. Acesso em: 23 jun 2024.

_____ (2019b). *Smart cities: Shaping the society of 2030.* Disponível em https://unesdoc.unesco.org/ark:/48223/pf0000367762. Acesso em: 23 jun 2024.

VIRILIO, P. (1993). *O espaço crítico*. Rio de Janeiro, Editora 34.

WECKERT, S. (2020). *Google Maps Hacks* [Arte urbana]. Disponível em: https://www.simonweckert.com/googlemapshacks.html. Acesso em: 7 jun 2024.

WILLIAMS, S. (2016). "The responsive city: the city of the future re-imagined from the bottom up". In: HAAS, T.; OLSSON, K. (org.). *Emergent urbanism: urban planning & design in times of structural and systemic change.* Londres, Routledge.

WOUTERS, N. et al. (2016). Uncovering the honeypot effect: how audiences engage with public interactive systems. In: 3rd MEDIA ARCHITECTURE BIENNALE CONFERENCE, 3, Sydney, Austrália. *Anais.* Nova York, ACM, pp. 5-16.

WOUTERS, N.; CLAES, S.; MOERE, A. V. (2018). Hyperlocal Media Architecture: Displaying Societal Narratives in Contested Spaces In: 4th MEDIA ARCHITECTURE BIENNALE CONFERENCE, 4, Pequim, China. *Anais.* Nova York, ACM, pp. 76-83.

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