Cities, digital communication and post-pandemic: from smart cities to platform urbanism

Ciudades, comunicación digital y pospandemia: de las smart cities al urbanismo de plataformas

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Abstract

The paper will focus on the old connection between cities and digital communication in light of transformations speeded up both in the social, economic and health emergency of Covid-19 and in the post-pandemic. Thereby, the aim of the study will be to notice significant changes in the agenda of our field and its relations with urbanistic dimensions and theories. Therefore, it will undertake a strategy of academic literature review in three fundamental instances. Firstly, attention is turned to the conditions that have made possible to understand urban realities in relation to information machines. Secondly, the study will retrieve the definition and criticism of smart cities whose strength becomes legible as an interpretive framework for many digital technologies in cities of our region and in the particular context of global crisis. Finally, the article will address platform urbanism as a perspective that allows to investigate the spread and reconstruction of metropolitan spaces through platformization and app ecosystems. In these aspects we will find a possible agenda for our field that —if it did not wait for the health emergency to begin— has heuristic capacity for understanding and explaining the future realities of Iberoamerican cities in light of mutations derived from the new normalization.

Resumen

Este trabajo aborda la antigua relación entre ciudades y comunicación digital a la luz de las aceleradas transformaciones tanto en la emergencia social, económica y sanitaria del Covid-19 como en la pospandemia. Con el objetivo de advertir cambios significativos en la agenda de nuestro campo y sus relaciones con dimensiones y teorías urbanísticas, nos aproximaremos desde una estrategia de revisión de la literatura académica a tres instancias fundamentales. En primer lugar, atenderemos a las condiciones que han hecho posible comprender las realidades urbanas en vinculación con máquinas de información tanto a través de aproximaciones morfológicas como en la historia concreta de las ciudades digitales a inicios de nuestra centuria. A continuación, nos detendremos en las definiciones y en las críticas a las *smart cities* cuya fuerza se hace legible como marco interpretativo para muchas de las tecnologías digitales en las ciudades de nuestra región y en el contexto particular de la crisis global. Finalmente, abordaremos el urbanismo de plataformas como perspectiva para indagar la proliferación y reconstrucción de espacios metropolitanos a través de la *plataformización* y de ecosistemas de aplicaciones. En estos aspectos descubriremos posibles líneas y temáticas de investigación para nuestro campo que —si no esperaron a la emergencia sanitaria para comenzar— guardan capacidad heurística para comprender y explicar las futuras realidades de las ciudades iberoamericanas a la luz de las mutaciones derivadas de la nueva normalización.

Palabras clave

Ciudades, urbanismo, plataformas, comunicación, digital, smart cities, pospandemia, plataformización.

Introduction

If at the beginning of the century the *dotcom boom* and the war theaters resulting from terrorist attacks unfolded a progressive control of telecommunications by military conglomerates, secret agencies and corporate actors, the latest crises accelerated this restructuring and extended the cooptation of democratic illusions by undoing the virtual borders of cyberspace. First, the *subprime* defalcation delivered renewed forces to concentrated multinationals that found spaces to extract big data while penetrating local administrations and pursuing *gentrification* and *ghettoization* under generalized surveillance (Zuboff, 2020). Then, the Covid-19 pandemic acted as an amplifying vector of *platformization* and ensured the progressive infrastructural conversion of ubiquitous computing into a reality inseparable from everyday city life.

In this scenario, the links between studies on cities, digital communication and the media are more related for at least two reasons. Firstly, the catastrophic forces unleashed by the pandemic would show that the privileged vector of contagion was the metropolitan areas. This revived the links our field has with urban, architectural and geographical theories rooted in a rich tradition of authors and themes[1] (*cf.* Parker, 2003; Graham, 2004; Hutchison, 2010; da Cunha, 2013). Secondly, a large part of the strategies for prevention, detection and containment of the virus would rely on vast digital ecosystems robust enough to present an infrastructural character with directive forces on urban networks and flows (energy, sanitary, residual, telecommunication, security, commercial, etc.). Such deployment has begun to exhibit the entangled, embodied and embedded profile of *pervasive computing* as a substrate of *standardization* to regulate everyday life practices in post-pandemic normalization by pretending to compute, as Guattari (2008) would say, physical, mental and social ecologies. In this context, media and communication studies are assiduously evoked and provoked in analyses of urban informatics, spatial computing, big data-assisted municipal management, city operating systems, critical geography, smart and digital cities, or, more recently, platform urbanism.

However, these trends and currents go unnoticed in the foundations of our field and create a sustained agenda that -if it has not waited for the pandemic to begin- shows signs of vitality, mutation and growth. Our objective is to systematize some of its conditions and features that can improve new lines of research in digital communication. Therefore, in a first section we present the relationship between cities and informational machines. From there, we will follow a tour through conceptualizations of intelligent cities and we will note their main critical points. In the third section we will dwell on the particularities of the researches that ascribe to platform urbanism, seeing in them a field of theoretical and empirical dispute that aspires to understand how meaning is produced, constructed and mediated in urban space in *platformization*.

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1   A minimal list would contain urban sociology driven by Weber, the relationship between metropolis and mental life in Simmel or the Frankfurtian classics (cf. Benjamin and Kracauer). It could also be argued that our field has been influenced by ethnographies of Chicagoan descent focused on city ecologies, by Marxist and structuralist inspired approaches of the new sociology of the urban question (with Castells, Harvey or Lefebvre) or by cultural analyses of consumer practices (de Certeau).

Method

The methodological strategy is based on the critical review of the academic literature that addresses the multiple relationships between digital communication and cities. As such, it is an analysis that seeks to produce knowledge from other sources and finds justification in the huge volume of contributions -accelerated in the pandemic context- on the subject (Onwuegbuzie and Frels, 2016). In these terms, this work follows Cooper's (1988) classifications, since the proposed review integrates and synthesizes research with a primarily conceptual focus and with an exhaustive analytical structure that was developed through selective processes according to the quality, originality and relevance of the studies resorted for our field. In addition, the chronological order of the notions presented has been important for the following pages, as there are specific changes in communication studies, which not only enables to reconstruct analytical aspects but also to plan new research in prospective terms.

This selection is accompanied by ways of organizing and systematizing information that allow a qualitative strategy characterized as a meta-study that attempts to recover the most relevant theoretical frameworks, data, methods, applications and critical trends (Aveyard, 2014). To this end, the construction of the review was forged according to the (retrospective) analysis of publications that began by classic authors and continued with debates. Then, academic and technical materials that have deployed the notion of smart cities in permanent dialogue and dispute with cultural, social, economic and political studies of communication were approached. Likewidser, relevant publications were obtained at the conceptual innovation level on platforming processes linked to software and media studies, digital economy and governance analysis. In all cases, an evaluation of the literature in terms of regional relevance was introduced by consulting specialized search engines and journals focused on Ibero-American contexts.

Cities and information machines

It is important to ask about the conditions of the theoretical relationship between cities and digital realities. For this reason - without setting an absolute point, nor a complete genealogy - it is inevitable to refer to Mumford as a recurrent author for our field. The validity of his thought can be seen in the

works that describe metropolitan transformations in both poles of the Cold War under a catastrophic tinge:

But where are the new gods? The nuclear reactor is the core of their power; radio transmission and rockets are their angelic means of communication and transport; but there is the control room beyond these secondary agents of divinity, with its Cybernetic Divinity imposing its flashing decisions and its infallible answers: omniscience and omnipotence, triumphantly espoused to science. (2012 [1961], p. 903).

This idea about the destiny of city technology is hypertrophied in "The Myth of the Machine" (2011 [1970], vol. 2), under the concept of a mega-machine that would drive a generalized dehumanization. While the roots are ancestral, the profile of the modern metropolitan mega-machine would then emerge in a pentagon of power, productivity, profit, political control and propaganda that would degrade social and personal relationships and impoverish humanistic values. As the quotation anticipates, this mega-machine -expressed in accelerated conglomeration and large-scale bureaucratic organization- finds, since the middle of the last century, at its core the power of atomic energy, space travel and mainframe computers as the organic (mechanical and electronic control of personality and human life).

This hypothesis will not go unnoticed by French post-structuralism, but it can also be seen in the late work of Lynch (1985) who -exceeding his famous works on mental maps- critically explores three normative models of urban morphology: the cosmic, the organic and, finally, the machinic. The latter is a legacy as old as the bloody American colonization, for when the city acquires machinic form that become mechanical automatons, making possible a functional whole whose power -mirrored in the speedy machines of business corporations- lies in the rapid gridding of space to enable the administration of goods and people. Thus, for Lynch, the machine model was the result of engineering design intended for the transmission of force, motion, energy and *information* - as he will specifically emphasize in our time. The approaches depended on this alienating model that made it possible to encompass complex entities and activities through the progressive *standardization* of traffic, facilities, sanitation, telecommunications, zoning, production processes, etc.

Beyond Mumford and Lynch, as Luque-Ayala and Marvin (2020) point out, there are other possible genealogies of the relationship between cities and computing machines. Not only because, since the second half of the last

century, with the first cybernetics, researchers and planners intensified a vision of cities as digital communication systems, but also because attempts to apply statistical, mathematical and computational analysis to the urban have multiplied, transforming it into a domain for technical intervention and decision-making (this topic is recurrent, for example, in the introduction of *mainframes* in Latin America). In fact, although Lynch in the early 1980s[2] dismisses the possibility of defining the shape of a city through the analogy with the computer, he finds possible connections in the management of the vastness of flows. It will be that managerial capacity that will allow these comparisons to be recovered in the futuristic cities of corporate *imagineering*, in the defense functions and in the pragmatic and automated solutions to urban problems under supposedly neutral, value-free and apolitical perspectives that accompanied the rise of neoliberalism (Greenfield, 2013; Rossi, 2017).

By the 1990s, the idea of connected cities would take hold under the ubiquitous computing program (driven by Xerox) that would establish an urban world progressively governed by interconnectivity without limits (Crang and Graham, 2007; Dallabona-Fariniuk and Firmino, 2018). The theoretical intentions of the decade would be described by W. Mitchell (1996), who would advance in the extensive description of programmable places, autonomous vehicles, electronically augmented bodies and connective architectures of *bit cities*. In the topology of the *Infobahn*, civic structures and spatial arrangements would affect both access to economic opportunities and services, and the character and content of public discourse, democratic values, forms of cultural activity and daily routine.

The new century would accelerate certain post-urban fantasies that far exceeded Mitchell's proposals and were based on the supposed immateriality of telecommunications. Therefore, following Castells' (1997) conclusions on the dynamization of urbanization processes through digital networks, Graham (2004) would recover the idea of cyber-cities to capture the materiality of socio-technical interconnections under three clear conceptual trends. First, a perspective in which the territoriality and spatiality of urban life are replaced by information technologies. Then, a co-evolution in which

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2   It is not by chance that, in those decades, as seen in Finquelievich (2016) and in Velázquez Ramírez and Pradilla (2013), the work of critical Ibero-American sociologists dedicated to digital technologies in urban transformations, as well as to technology parks, districts and technopolis, has become more consolidated.

electronic and geographic spaces are produced together as part of the restructuring of the globalized capitalist system. Finally, recombination trends that would focus on how technologies involve complex and subtle mixtures of human actors and artifacts to form hybrid networks.

However, just at the moment when the Social Sciences and Humanities agenda was transforming its epistemological bases to think about the relationship between cities and informational machines, agents from the corporate world, began to carve the notional foundations, the rhetoric and the technical systems of urban digital communication.

Smart cities

During the 1990s[3], the concept of cyber-cities will be accompanied by different terms related to a growing synonymy: digital, virtual, ubiquitous, connected and smart cities (*intelligent* and *smart cities, cf.* Cocchia, 2014; Albino, Berardi and Dangelico, 2015; Sharifi *et al.,* 2021). However, this last denomination, after being the subject of debates, indicators and academic rankings, becomes dominant due to IBM executive report (Dirks and Keeling, 2009) that would be decisive to install a promotion line of technologies for metropolitan areas and that would accompany the global population growth promising, in the midst of crisis, fiscal austerity. The omnipresent information technology of this industry would create the framework for quantitative "control", conceptualizing cities as "systems of subsystems" and operationalizing decision making through *big data* and *cloud computing* to regulate and optimize governmental, citizen (health, education and security), commercial and public infrastructure (transportation, communications, waste, water and energy) services. It is not surprising that, in this context, "intelligence" is defined as the ability to model behavioral patterns from big data processed in these subsystems. Soon, manufacturers, distributors or hardware and software integrators such as Cisco, Siemens, Qualcomm, Microsoft, Intel, Hitachi, Amazon, Alibaba and Alphabet, among others, would join this perspective (Firmino, 2017; Shapiro, 2020).

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3   Some authors trace the notion of *smart city* to earlier decades under the development of forms of urban *management* that included smart growth. Other researchers relate them to the Kyoto Protocol, to the European Union's sustainability recommendations and to the promotion of the Internet in local populations with the new century.

As pointed out by Rossi (2017), Mosco (2019) and Luque-Ayala and Marvin (2020) this sort of digital utopianism promoted by corporations and expressed in *datification* will be accompanied by international organizations and local governments through strongly normative visions where proprietary technology will appear as the main force. In fact, its standards will be a matter of discussion for institutions such as the ITU (*International Telecommunication Union*) and the IEEE (*Institute of Electrical and Electronics Engineers*). At least in the case of the former, as a multilateral association with academic participation, the definition of indicators (U4SSC) that for more than five years have been seeking to be implemented in Ibero-American cities under evaluations of technical groups with the objective (although complex) of improving the quality of life of the population (Lazzaretti *et al.,* 2019; Copaja-Alegre and Esponda-Alva, 2019) would be promoted.

However, the notion of *smart city* has become ambiguous and nebulous as its scope presents a continuous dispute of features that aim to exceed any technocentric conception and include governmental, economic, cultural, psychological, social, environmental, ecological, educational, community and, of course, contextual dimensions (Pellicer *et al.,* 2013; Cocchia, 2014; Kitchin *et al.,* 2017; Luque-Ayala and Marvin, 2020). Thus, definitions often emphasize that smart cities integrate e-governments with mechanisms for public participation, informed citizenship and transparent decision making (based on open data and event modeling). In addition, the generation of smart populations with skilled, flexible, cosmopolitan, empowered, participatory, entrepreneurial human resources, willing to enter continuous learning processes and business communities is encouraged (Piekas *et al.,* 2018).

In the same sense, these definitions include life policies sustained in the promotion of quality in culture, health, safety, housing, education, and tourism (Albino et al., 2015; Scandalora da Silva et al., 2020), a sort of biopolitics that connects with economies based on competitiveness, flexible manufacturing, services, and innovation oriented towards entrepreneurship (knowledge economy but also cognitive capitalism, cfr. Rossi, 2017). Another recurring topic is mobility, accessibility, and transportation systems (public, private, on-demand, shared) restructured to become more efficient (in the face of climate change) and integrated with information infrastructure (Carmona, 2017; Rico-Ramírez et al., 2019). Finally, in addition, the characterizations promote environmental and ecological aspects, reason for which the notion of smart city has shifted in recent years (both in the literature and in corporate and adminis-

trative discourses) towards concepts such as sustainable, creative, or resilient cities (Allam, 2020; Cordova et al., 2020).

As stated by Sharifi *et al.* (2021), post-coronavirus scenarios promise a growth in big data management and *deep learning* applied to *smart city* projects, especially since many cities have relied on smart solutions to combat the pandemic in a range of technologies including CCTV, computer biometrics, thermal cameras, air and water sensors, Artificial Intelligence applied to prevention and health monitoring, remote building management (IoT), etc. In the Ibero-American context, when metropolitan areas became emergency zones, research, experiments, and projects (both academic and corporate) have grown to reimagine the relationship between city and digital communication. This is demonstrated by topics such as technological strategies applied to traffic reduction, nightlife and economic reactivation (Lagos *et al.,* 2022); digital governments (Céspedes and Núñez, 2020), sustainability and urban innovation (Araujo and Luján, 2022), big data, GIS and Covid-19 applications (Ferlin *et al.,* 2021; Bastías and Leiva, 2020); emergency management, mass urban living and inclusion (Luter and Mar, 2021). In all these experiences and others, *smart cities* -both in *ex nihilo* construction and in the refabrication of existing areas- are understood to emerge as cultural projects that, as Shapiro (2020) following Stiegler points out, are *phármakon*: remedy and poison at the same time with the consequent overconfidence in the field of urban policy. Therefore, it is not surprising that the criticisms have multiplied with the same speed at which they are gaining followers.

First, it has been questioned that cities, seen as inefficient, are only raw material for the extraction of values and data. A sort of inexhaustible and infinite source of resources recovered through proprietary urban operating systems that are energized by an agenda of corporate interests (Luque-Ayala and Marvin, 2020; Sennett, 2019; Rossi, 2017). Likewise, Greenfield points out that *smart cities* belong to neoliberal economic policies as they imply a deregulation of private actors, as well as limitations on public oversight of business (Negro, 2021). With this, services are progressively privatized and an unrestricted opening to foreign investment and an elimination of taxes that coincides with states reduced to the minimum expression (where citizens are conceptualized as entrepreneurs and consumers). Ultimately, cities become products and governments see as compromised their ability to act in the face of global companies.

Also, as Kitchin points out these projects are often criticized by the emphasis on technical, pragmatic or common-sense solutions rather than political and social guidelines. From a radical positivism, cities seem to be postulated as systems that are knowable, quantifiable, manageable and controllable a priori by algorithmic means instead of being addressed in their contingent, complex and ambiguous problems. In that sense, many of these initiatives are homogenizing, ahistorical and anti-territorial, while reinforcing existing power relations and geometries and their inequities (Mosco, 2019), escaping from democratic processes of accountability and ending up with developments for the people who need them the least (Allam, 2020). As Luque-Ayala and Marvin (2020) point out, there is also questioning from decolonial, gender and ecological perspectives.

Third, as Shapiro (2020) says, connected cities support an infrastructure that creates potentially vulnerable urban systems with a plethora of new risks. Thus, the emerging data flow from companies (in networks, grids, sensors, actuators, scanners, cameras, etc.), from citizen initiative (*crowdsourcing*) or from public administration, and if they sustain the continuous operation of the urban infrastructure also open those systems to greater *cybersecurity* problems (*hacking, cracking,* viruses, etc.) as well as to emerging technical drawbacks (*glitches, crashes*). Likewise, it has been recurrently pointed out that *smart cities* present problematic consequences at the sociopolitical and ethical level by including an expansion of geospatial surveillance, predictive profiling, social sorting, loss of rights and increasing *dataveillance* (Mosco, 2019). As Kitchin says, big data and codes are not neutral, but are always partial, political and imperfect. In the same sense, Greenfield will warn that urban *seamless* technology is potentially consistent with authoritarian regimes because - far from encrypting an unintended consequence - it is in tune with calls for efficiency, optimization, and a will to control every vestige of human beings.

Likewise, Sennett (2019) postulates an ethical critique from the historical relations and tensions between *ville* (physical place) and *cité* (mentality) embodied in two scenarios for what his colleague W. Mitchell had named *bit cities*. In the first, technology straightens and seeks to prescribe how people should use the spaces they inhabit. These are cities that are closed, controlling, hermetic, authoritarian, hindering and particularly onerous, where what is built is imposed on what is lived. In the second, digital technology coordinates, but does not eliminate the disorderly activities of the

city but stimulates its inhabitants to face complex problems and contemplate human differences through open, democratic, hermeneutic, tolerant, egalitarian alternatives, promoters of living intelligence and under unpackaged, accessible, cheap, and free knowledge-centered technology. As mentioned by Alves *et al.* (2019), these criticisms also imply evaluating projects in Brazil and Portugal, an evolution of the concept that wants to be out of technological limitations and involve urban co-creation with inhabitants and citizens who assume active positions as promoters of innovation projects and improvement of quality of life in terms of inclusion, participation, democratic engagement, access to information and decentralized, distributed and community-driven decision-making (preferred example of much of the literature is Barcelona).

Platform urbanism

According to Mosco (2019), smart city projects have restructured around the idea of *platforms*. In fact, the same year of the IBM report, Virilio (2009) understood that the circulatory speeds of digital communication, financialization and multimodal freight platforms would contribute to the progressive dissolution of metropolises into networks of a chrono-politics of acceleration (*omnipolis*). Thus, during the capitalist crisis, the French thinker coins the idea of the *city-everywhere* (*l'outre-ville*) characterized by the impossibility of inhabiting the *algorithmic instant* in a war against the civilian population that would have territory in software and where mathematical automatons dedicated to the "trajectory" of exchanges would promote the passage from national identity to a global traceability.

It is not by chance that the architectural and dromological idea of platforms agree with the senses of computational ubiquity. At the end of the last century, the notion began to be used for operating systems, *e-commerce* sites and web 2.0 applications that incorporated *prosumer* activities; while in the first decade of the 2000s, it would show relationships between culture and materiality of computable consoles for *game studies* (Bogost and Montfort, 2007), and it would integrate political dimensions of agency constriction in analyses of digital distribution (*Youtube, iTunes*) (Gillespie, 2010; Plantin *et al.,* 2018). A few years later Helmond (2015) summarized the formatting of social media (*Facebook*) in an infrastructural (modular *programmabili-*

ty) and economic model that would allow decentralizing and recentralizing flows of big data. This *platformization* -based on software-as-a-service architectures (Kaldrack and Leeker, 2015)- implied the extension and medial integration of the rest of the Internet, while making online data and external application ecosystems available to be executed and processed on the platforms (*platform ready*).

Observing digital geographies in their deepest materiality, Bratton (2016) would summarize the multilevel integration of planetary-scale computational ubiquity under the analogy of the stack that condensed the new verticality of practices in multiple dimensions. The author referred to certain sections of these mutable structures as *platforms* characterized as both techno-economic institutions (with etymological roots in programs and plans (*platte fourme*)) and reprogrammable engines, generating interactions and transactions. The strength of these platforms would lie in the extraction of differential surplus value by setting possible means of action, standardized remote coordination, information prediction and integrated algorithmic control (Touza, 2022).

Regarding business models based on data mining and processing -within speculations- Srnicek (2018) synthesized the idea of "platform capitalism" from the infrastructural character of those in digital intermediations (between different economic agents) and as a scaffolding for the construction of new services and products. Precisely, the broad-spectrum sociocultural interrogation on *platformization* belongs to Van Dijck *et al*. (2018) who warned of deeper socio-institutional restructurings in legal, axiological and political dimensions. They would also attend to both governance mechanisms (*datification*, commodification and selection) in the areas of proliferation of platforms (tourism, mobility, finance, news, health, education, etc.) and interactions with end users, with public entities and with other companies.

In all these studies, it seems to be taken for granted that platforms promote changes both in cultural industries (cf. Poell and Nieborg, 2022) and in the activities and services located in cities (cf. Bagó *et al.,* 2018). However, only with Barns' (2019) idea of *platform*[4] urbanism will be fully un-

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4   The translation of "*platform urbanism*" is misleading since this category is sometimes used to designate the study of platforms (applications and technological ecosystems) that are deployed in cities and other times it names urban planning based on these digital realities. Because of this ambiguity, we prefer to keep the plural for the Spanish form.

derstood as well as how *platformization* seeks to restructure everyday city life by affecting the ways of thinking, valuing, remembering, perceiving, producing and regulating urban space and its social relations. In doing so, the author sought to investigate the way in which the actors of the platform economy influence collective production and consumption, but also to address the reconfiguration of these by every day and historically situated urban experiences. In that sense, the services of these digital communication entities exceed the idea of business models by being conceptualized as part of dynamic socio-spatial processes of transformation and restructuring of urban relations and institutions. In fact, for Hodson (2020) and Söderström and Mermet (2020) the activities supported by the platforms -as constitutive or parasitic of space and city infrastructure- reconfigure urban materiality and daily life, as well as the ways of experiencing, governing, knowing, and designing cities. Thus, against the idea of "placing platform capitalism in space" that favors a certain dystopian, fetishistic, defeatist and "techno-alarmist" character, as Leszczynski (2020) says, *platformization* is never frictionless or inevitably successful as its interfaces with cities are actively negotiated and contested under forms of coexistence, neighborliness, intimacy, and bonds (Bissell, 2020; Sadowski, 2020).

Likewise, without there being a complete rupture, Barns states that these perspectives would attend to the displacement of the corporate structuring of *smart cities* (both *top-down* and *bottom-up*) towards an increasing presence and intensive interaction with *smart* devices in the urban environment (Fields, Bissell and Macrorie, 2020). Due to miniaturization trends, digital communication artifacts are embedded in the ways we think, dwell, and build everyday city life and are progressively becoming the informational infrastructure of our cities. Thus, for Hodson (2020), platform urbanism can access multiple empirical and effectively existing dimensions in the pandemic context, unlike *smart cities* whose narratives still have a certain utopian bias.

In this sense, a first difference with *smart* urbanism is because platforms seem to entail greater antagonism or conflict with local governments (at least in Western countries[5]). This tension can be seen in the constant regulatory

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5   These differences are recalibrated when we talk about non-Western societies, considering the different geopolitics of *platformization*. In fact, Caprotti and Liu (2020 a, b) follow the vicissitudes of the BATH group (Baidu, Alibaba, Tencent, Huawei) both in Chinese smart city projects (City brain and the social credit system) and urban platforms negotiated with governments and local authorities. In fact, the notion of platforms in some authors such as Repette *et al.* (2021) or Zwick and Spicer

disputes between legislative and executive powers and the responsibilities of these companies (which, in addition, structure "privacy policies" constituting gray zones or clickwraps). In this sense, halfway between the public and the private, the (inter)mediations of the platforms exceed the economic levels as they acquire new institutionalization characteristics that are strongly situated and local, but with a complex and difficult to grasp status (Touza, 2022). For Söderström and Mermet (2020) and Stehlin *et al.* (2020). This situation demonstrates an unequal balance between companies and municipal policy makers, as the former quickly takes advantage of the regulatory gap, which creates new forms of flexibility, precariousness, insecurity, opacity, and informality in the markets it transforms (rental, mobility, sharing, etc.) and shapes the legislative agenda. Therefore, according to Graham (2020), the power of platforms lies in taking advantage of "conjunctural geographies" as ways of being simultaneously embedded and detached from the city spacetime that they mediate and negotiate permanently, joining the local to obtain rewards and withdrawing to avoid any responsibility and conflict.

From a second point of view, unlike smart cities, the platforms would be characterized by supporting more interactive processes with urbanites (Sadowski, 2020). Thus, instead of studying contracts between a municipality and a monitoring technology provider, these authors focus on big data dashboards as proprietary technological interfaces that overlay smarts systems and deploy a more opaque analytical grid of governmentality that is scaled to the metropolitan areas in which they operate. Thus, platform governance practices are noticed both in the restricted possibility of access to data and in closed designs and architectures that prevent auditing their operations, monopolize information and engender rentier extraction asymmetries (Helmond, 2015; Plantin *et al.,* 2018; Barns, 2019; Shapiro in Hodson, 2020; Odendaal, 2022). Although some platforms share anonymized data with governments (e.g., Airbnb, Waze, Google Maps, Uber), the technical foundation of the progressive closures lies in API and SDK standardization, with programmability of microservices and marketability of third-party applications. As F. Kittler would say, therein lies the power relations based on algorithmic control of data, addresses and commands. Thus, once the intermediation by platforms is urbanized, the city becomes part of their proprietary ecosystem

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(2021) is ambiguous enough to refer to the idea of open citizen government that provides information for popular participation and public policy decision-making.

and decision making is relocated within them, allowing them - based on their ubiquity and invisibility - to build legitimacy in urban governance issues and settle in municipal data control rooms (Söderström and Mermet, 2020).

Third, while smart city projects adopt corporate solutions, urban platforms aim to transform and take over the operations of services that are more market-oriented (*sharing, gig*). For Sadowski (2020) and Hodson *et al*. (2020), it means that *platformization* grows because cities are the oldest multilateral markets and their operation allows them to benefit from the spatial proximity of users and workers in sufficiently dense populations (*pool of freelancers*) to mediate social relations (acting on psychic and collective individuation as mentioned by G. Simondon). Therein lie the well-known geolocalized *network effects* in which additional users increase the importance of the platform and trigger increasing monopolization (Srnicek, 2018; Caprotti and Liu, 2020a, 2020b). It is the swift momentum of these effects that allows scaling solutions and designs at the boundaries of metropolitan areas while tempting the venture capital (Chréthien and Isaac, 2020). But the influence is two-way as cities see their markets compromised and platforms create new spaces and times as alternative values are extracted from "unproductive" goods, people and events (an empty bed, a spare seat in the car, cf. Bauriedl and Strüver, 2020).

Fourth, in contrast to the verticality of *smart cities*, as Pollio (2021) demonstrates, platforms drive multiple, small and detailed adaptations of urban infrastructures (such as airports) and of the relationships between agents (such as passengers and drivers). In this sense, *platformization* is never complete, not only because new alternative platforms are always appearing, but also because there is a radical indeterminacy of economic forms, work regimes and future possibilities at the interface between companies and cities - especially in countries of the Global South- inscribed in the materiality of situated relations. Thus, as Leszczynski (2020) and Odendaal (2022) point out, platform/city links are found to be diverse, rhizomatic, fragile, fallible and dependent on specific locations. Therefore, there is a co-generative dynamic between digital platforms and urban life that disregards the strategy of global companies that pretend to establish themselves as a phenomenon without struggles or conflicts (Stehlin, Hodson and McMeekin, 2020; Rose *et al.,* 2021). Therefore, possible oppositional processes and emancipatory potentials also emerge in alternative developments (e.g., platform cooperativisms).

A final difference pointed out by Söderström and Mermet (2020) occurs at the technological level, since the artifactuality of *smart cities* works in

an extractive way by tracking and measuring people and things, while platforms are also interactive and constructive (we expose in them, for example, our preferences, tastes, emotions, etc.). Thereby, the idea of platforms emphasizes the situated and material interactional character in cities that allows them to produce embodied effects, affective dimensions and normative frameworks that need to be addressed in order to understand the *micropolitical* pathways of subjectivity production (Bauriedl and Strüver, 2020).

In fact, the periods of pandemic distancing and isolation were marked by questions about the urban mutations and renegotiations brought about by *platforming*. Most studies focus on transformations in the world of work (e.g., Battistini and Carmona, 2021; ECLAC, 2021) and in educational and health services; however, research also questions the representation and construction of the social space of Ibero-American cities by these platforms. Thus, for example, ecosystems of *applications* that modify mobility have been addressed. Particularly, in the case of Uber, in addition to multiple analyses on working conditions, both the impact on public services (Brentini and Hirosue, 2021) and the entry strategies in Ibero-American cities during Covid-19 and the algorithmic regulation of displacements and uncertainties in the crisis (Guerra, 2021) have also been analyzed. Other characteristic explorations have to do with the *platforming* of tourism (Souza and Leonelli, 2021) involving both transformations of health and commercial policies in emergence and the reconfiguration of accommodations (Roelofsen and Minca, 2021). Finally, *platforming* also reconstructed urban eating habits (hence the multiple discussions in relation to *delivery* applications) as well as sanitary practices in the *e-health* sector. Of course, in these studies, the changes in the digital communication agenda that will allow linking urban platforms with *social media* (problematizing, for example, identification microservices), as well as with the massive electronic banking and financial "inclusion" (*fintech*) or with the transformations of the cultural industry in *streaming* (audiovisual, musical, literary, recreational, etc.) are also evident.

Conclusions

The research agenda of pandemic communication and the construction of the so-called new normality - better said, normalization (*standardization*) - shows a huge difference. Nevertheless, the long-standing relationship bet-

ween *digital realities* and *cities* finds both in the thematization of *smart cities* and in platform urbanism expressions that - if they have not waited for the health, social, economic and political crisis to begin - demonstrate vitality and heuristic capacity.

But an agenda is never complete, nor is it expressed in a clear and distinct way. Therefore, in the first place, there is a whole set of studies that add empirical dimensions to the two aspects we have addressed and that may provide elements to deepen our knowledge of these phenomena. Thus, as we have seen, the tragic contingency multiplied the studies of *platforming*. In fact, although the category of platform urbanism predates the Covid and, indeed, almost a decade ago the critical hypothesis of contemporary capitalism gave full force to current discussions, it is worth noting that the pandemic bequeathed a multiplication of digital mediations and transformations. Understanding the multiple logics in the *platforming* of Ibero-American cities can provide a solution for the analysis of digital communication as situated and contextualized processes.

Therefore, it is possible to imagine future contributions to this agenda that evaluate the diversity of strategies for the inclusion and permanence of platforms in our regions. We will try to follow the deployment of ubiquitous computing, on the one hand, understanding how it restructures surfaces and city practices. But, on the other hand, warning of possibilities to limit the stories of a fantastic capitalism based on immaterial algorithms, angel investors and all-powerful unicorns, by demonstrating that urban standardization through digital mediation does not occur without conflicts, without counterpoints, without readjustment and mutual specification of institutions, citizen regulatory frameworks and application ecosystems that support *platformization*.

Also, at a time when *smart* technologies are proliferating, perhaps we could ask ourselves whether the etymologically correct translation is "intelligent" or "biting". In these terms, the study of digital communication will need to contemplate the details of *smart city* feasibility in line with established traditions of social and engineering analysis. Perhaps an alternative would be to break down these divisions and build critical trends that bring together the best of each field. In any case, it is necessary to analyze carefully how Ibero-American cities are reconstructed by corporate actors, but also how in many of these cities the *smart* discourse finds alliances with local public policy makers under notions of resilience and sustainability that, if they humanize the sector, can also function as a Trojan horse.

In addition, it is necessary to take up the long-range theoretical agenda. Many of the studies, as we pointed out at the beginning, connect communication with the disciplines of urbanism. However, both the problem of smart cities and that of *platformization* call for theoretical frameworks that can grasp the complexity of the realities they are encompassing. The philosophy of technology, post-structuralism and the so-called new media theories can help to elucidate the force diagrams inscribed in spatial, environmental, urban, vertical and informational computation. In this sense, as anticipated in other contributions, *platformization* and *smart* urbanism can be seen as a restructuring deployed on city facilities that works by modulating or managing the main events of multiplicities in open spaces.

Likewise, if considering the hypothesis of platforms as a reorganization of sociocultural relations and interrelations, the minimum consequence is that they "bring into contact", while the maximum implies a reconstruction of the flows of activity and, therefore, of psychic and collective individuation (or of the way in which the actors involved in the new relationship that emerges from the technical substratum think of themselves and others). On the one hand, this would lead us to problematize, in Simondonian terms, the transindividuation processes of technical assemblages and networks (both of smart cities and of *platformization*). While, on the other hand, it could provoke reflections on the consequences of the concretization of cities in computable media (as pointed out by F. Kittler). While the study of the media does not exempt from addressing technical realities, we could imagine analyses that emphasize infrastructural control by attending to the *microservices* of information processing, storage and transmission as fundamental standardization processes of power relations in the urban.

Support and financial support for research

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