PArtecipazione e COnflitto
http://siba-ese.unisalento.it/index.php/paco
ISSN: 1972-7623 (print version)
ISSN: 2035-6609 (electronic version)
PACO, Issue 13(2) 2020: 1168-1179
DOI: 10.1285/i20356609v13i2p1168

Published in July 15, 2020

RESEARCH NOTE

(Smart) City and the (Open) Data. A Critical Approach to a Platform-driven Urban Citizenship

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ABSTRACT: This paper represents a first attempt to reconstruct a theoretical map of the relation between technology (digital media) and citizenship. We start from the reconstruction of the role of citizens in the smart city paradigm and then face the challenge that the so-called *Big Techs* move to the ideal of an engaged "smart community" by promoting an individual relationship between users/citizens and digital platforms. Finally, we present two emerging participation paradigms concerning Data Activism and Cooperativism, which seem to represent relevant fields for experiencing (and observing) the agency of a future, *networked* citizenship.

KEYWORDS: Citizen Participation; Digital Platforms; Smart City; Technology; Urban Experience.

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1. City and Technology: from the Age of Mass Media toward the *Connected City*

Starting from the Industrial Revolution and throughout the entire 20th century, the modern city hosted and promoted the spread of innovations underlying major socio-economic transformations. Media played a strategic role in this story: the history of the western Metropolis is, in fact, one of growing interdependence between urban economy, culture and society, and communication technologies. The *immersive art* and the mediatising of the *experience of the place* that characterised the Universal Expositions inaugurated a progressive overlap between citizenship and spectatorship in the European capitals of the 19th century; the cinema allowed processes of representation and promotion of new metropolitan lifestyles; finally, the widespread domestic TV penetration allowed changes in consumer behaviour and a mediated mass participation in significant public events. Representation and mediation processes actively contributed to shaping space (its perception) and the experience (also *imagined*) of the big city. The distinctive qualities of the modern city allowed it to assume the role of an *incubator*, *early adopter* and *driving force* of technologies related to media processes. This role persisted in the affirmation phase of information technology and is confirmed today in the so-called "platformisation" era, with the concentration of economic interests and power affecting the web.

Since the beginning of the 21st century, the definition of "smart city" and "smart community" stands at the centre of a multifaceted storyworld, which inspired city development policies and activated participation issues among the citizens, thus marking a specific phase in the history of urban imagery and assuming the character of *utopia* (Townsend 2013). The use of the adjective "intelligent" or "smart" dates back to the very origins of the ICT spread[1]. On the one hand, it stems from the implementation of databases and computational systems in public administration services, aimed at improving their efficiency and response times; on the other hand, it refers to the possibility of activating intelligence distributed throughout the territory by making network (internet) resources accessible and shareable for an increasing number of citizens and social/cultural associations (e.g. the "civic networks" experience: Iperbole in Bologna, Civica.net in Rome or De Digitale Stad in Amsterdam – all born in the mid-nineties of the last century) (Bryan, Tambini, Tsagarousianou 1998). In the first decade of this century, the increasingly marked infrastructuring of cities with broadband networks (FTTC and FTTH) – which are considered the engine for the management of ever-higher quality public services (health, education) and an essential prerequisite for promoting working conditions and lifestyles that respect people's needs – enhanced the *storyworld* of the informational city. Not by chance, at this stage, the imaginary of an *intelligent* city crossed by digital connection networks begins to expand toward the "green/sustainable city" and "resilient city" (Hatuka et al. 2019). The widening process of the smart city "meaning" generates political narratives in support of specific strategies of urban redesign, which as we will see involve a new balance between the role of policies and public actors as well as a clearly neo-liberal drive for innovation, promoted by global big tech. Between 2006 and 2009, in the first phase of this process, leading high-tech companies (such as IBM, which launched the Smarter City initiative, and Cisco, which promoted the Connected Urban Development Program since 2006) engaged the imagery of the smart city in

[1] Given the specific purposes of this article, we are considering the broader and widespread definition of "smart city" - a term that crossed the boundaries of technical/specialist vocabulary and entered the language of politicians and city administrators. Willis and Aurigi (2018) present an extensive review of the labels that synthesize the link between city and technology from 1996 to 2016, counting 14 of them. See also Albino, Berardi, Dangelico (2015) which propose an analytical review of smart city definitions.

corporate storytelling (Paroutis, Bennett, Heracleous 2014; McNeill 2015). Companies left aside the political and social impact assessments of the decision-making process, and only applied the *rhetoric of innovation*, devoid of any political meaning and critical apparatus. In the struggle to consolidate into a theoretical paradigm functional for decision-making processes, these narratives unfailingly celebrate the irresistible march of progress, accelerated by private capital investments (Townsend 2013; Söderström, Paasche, Klauser 2014; Bria, Morozov 2019) and supported by the success of location-based technologies and services, included under the definition of "locative media" (Wilken, Goggin 2014; Parisi 2018)[2].

Also thanks to pressure from the first Obama administration in the US, the adoption of the smart city framework stimulates investments and drives the primacy of innovation to the public sector in a phase of deep recession and lack of private funding. At the same time, the political storytelling of the smart city paradigm successfully balances the social value attributed to broadband infrastructure with the necessary response to the energy and environmental sustainability needs of complex urban areas (Boorsma 2018). The rhetoric of sustainability, in particular, provides the advantage of coordinating different needs: the institutional process of urban renewal, required by regulatory standards focused on environmental impact; the "grassroots" claims of associations and civil society movements; and lastly, the ecological awareness of new urban lifestyles, prompted and stimulated by companies that invest in such niches of consumers to reframe their brand values (Vanolo 2014).

On the other side of the ocean, in Europe, the neo-liberal smart city has to deal with the regulatory framework expressed in the European Platform for Intelligent Cities (EPIC), promoted by the EU at the beginning of the last decade (Komninos 2008). No progress is made concerning the eco-sustainable technological paradigm described above, because smart urban management consists of the use of ICT-based technologies "to deliver more effective and efficient public services that improve living and working conditions and create more sustainable urban environments" (Menychtas et al. 2011). ICT supports decision-making and provides city managers with monitoring and management platforms that improve the efficiency of water distribution or lighting and transport systems. Moreover, "the newly gained information can be used for intelligent and informed decision-making", interconnecting the monitoring of systems within "a city's core systems" and making them interoperable (Menychtas et al. 2011, 12). The goal of many projects developed in this phase, not accidentally, is the creation of dashboard and decision support tools that help to understand and rule cities from a strongly centralised perspective according to a top-down logic.

Still, the functional matrix of the interaction between ICTs and the city already includes a perspective that rebalances the technocratic structure – it is evident in the expression "smart community", which often occurs in association with the label "smart city" in EU programming documents. By focusing on the "smart community", ICTs are given the ability to act as tools for citizens' empowerment: its mediation allows user participation in the governance of cities according to a bottom-up logic. This perspective implies joining a strategy aimed at a greater involvement in public decision-making and greater scrutiny of public agencies. As for the smart city model, the US and the Obama administration promoted the "smart community", committing themselves to adopt an open government model and requiring the governments of each state to make more data available to nongovernmental users (Obama 2009; Coglianese 2009). In Europe, the accessibility of

[2] Besides its use in urban daily life, location-based technologies have also been employed both in the mobilisation practices of the so-called "smart mobs" (Rheingold 2002) and in some artistic participatory events (Tuters,Varnelis 2006), giving back to location-based services a less technocratic character, aimed at sociability and collective, co-created creative expression.

public datasets for free use, re-use and redistribution quickly became a critical element of policies for the engagement of citizens, economic stakeholders and other social actors.

The Open Data movement, which was emerging at the time, based its pressure on governments on these demands, considering this frontier of innovation as a possibility for moving *from e-government to we-government* (Linders 2012). Making information available then becomes an essential condition to build spaces of dialogue and cooperation and to enable "users (such as individuals, firms or organised groups) to interact with one another or with public decision-makers (administrative, legislative), either through general public comment and debate or two-way individual communication and feedback" (Rabari, Storper 2015). According to this vision, the triggering of smart communities, inspired by participatory Internet cultures and enabled by many-to-many interactivity and ubiquitous communications, would have led to a higher level of co-production in decision-making. This path proved to be slow and filled with obstacles. More generally, this utopian vision provided citizens and urban movements with a framework to challenge local governments and offered local governments an opportunity to experience the citizens' involvement in open consultations – a useful aspect for institutional storytelling, but one that hardly questions the problematic aspects of urban government (Vanolo 2016). On the Citizens-to-Government axis, the most diffused and effective service design formula employs online citizens' consultations to collect inputs, deepen the analysis of specific issues and maintain contact with stakeholders. On the opposite, Government-to-Citizens axis, we observe the valorisation of opportunities for spreading personalised information (as we are experimenting during the COVID-19 emergency phase), which can help citizens to make decisions or orient behaviour in critical scenarios. The majority of citizens, however, did not perceive the opening of such interaction channels as a significant and permanent opportunity.

The frontier revealed by the open government model likely produced a gap in which US big tech platforms grafted their services. This shift, which occurred during the last five years, dramatically changed the scenario, threatening to consign to memory this same term used until now to interpret the relationship between ICTs and urban government.

2. Big Techs Strike Back. A New Digital Infrastructure for the City

At the dawn of the 21st century, the rewriting of high-tech companies' history is about to begin: the *dot-com crash* redefines the scenario of the digital economy and sets the premises for some of the big tech companies to take control of strategic sectors of urban life. As it passes, the *perfect storm* caused by the dotcom-bubble crash causes eminent victims – such as Pets.com and WorldCom – but leaves "alive" companies strong or resilient enough to withstand the crisis: among them Yahoo, Cisco, eBay and, above all, Amazon, Apple and Google. As a matter of fact, during those years, the whole future order of the web gets redesigned. After the worst-case scenario, some companies gradually expand their influence on the global market as well as cultures and politics: twenty years later, some of them rule the platform ecosystem depicted by van Dijck, Poell and de Waal (2018) in the Platform Society's theoretical model. Regardless of the specific business models adopted by companies, multi-sided markets underpinning digital platforms require a growing network of users willing to provide data (information related to their activities, choices, preferences) in order to obtain useful and personalised services or products in return. The reflections of these transformations enlighten the relationship between technology, politics and city government: as Gillespie (2010, p. 360) states, while the term "platforms" seems to offer "a comforting sense of technical neutrality and progressive open-

ness", their *infrastructuring* capability reveal a political attitude, able to shaping public discourse, social life and contemporary economics. Two converging demands support the dynamics of big tech penetration in urban space: the need for users to access "convenient", customised and (supposedly) free services, and the pressure, for technological companies, to rely on a continually increasing user base. We are dealing with a new stage in the relationship between media and the city, which is directly challenging governance and urban policy, thanks to its ability to "engage" citizens/users in public interest sectors while *bypassing the institutional mediation*.

As we have seen, the techno-social architecture of the "ideal" smart city rests on two key elements: technological infrastructure and citizen engagement/participation. Nevertheless, the application of the model to "actual" urban contexts proves to be quite complicated: differences related to specific local environments (economy, culture, geographical and social morphologies) represent not always surmountable obstacles. The adoption and sustainability of the model also face a public opinion not always responsive to the application of technology in urban life. The agreements between ICT companies and local governments aim at making proprietary technologies and systems available to citizens through the mediation of public institutions. This pattern betrays an *entrepreneurial* (Hollands 2008) and *neo-liberal* (Vanolo 2014) vision of the smart city; while promising to adopt transparency and openness criteria, it reveals a *substantial opacity* of the paths and tools which support interaction between citizens and public institutions. In some cases, the smart city even serves as an arena in which corporations strategically work on their empowerment (Di Bella 2016).

The widening gap between an urban technological infrastructure ruled by institutions and corporations, and citizens' daily practices of digital media use, paved the way for the "colonisation" of urban space for a new generation of tech companies. For the same reasons which determine their success in social, political and consumer spheres, digital platforms also emerge as *powerful mediators of the urban experience*; they provide instant and effective solutions for contemporary lifestyle; they offer flexible and real-time responses tailored to specific work and life schedules which characterise metropolitan living. Above all, they ensure a steady and inclusive *infrastructure* for a wide variety of functions and services: as pointed out by some recent theoretical approaches, combining perspectives and frameworks of platform and infrastructure studies, infrastructure services are currently undergoing a process of "platformisation", and the leading platforms are becoming infrastructures *difficult to disregard* (Plantin et al. 2016).

The entrance of economic actors in city governance, which at first depended on local government's mediation, now appears disintermediated and relies on an individual connection between citizens and "generalist" proprietary platforms. For media and political participation scholars, this is a well-known phenomenon. Considering the evolving relationship between technology and participation in public life, we find that the transformations which occurred in the internet political-economic scenario of the last decades redefined its terms and shaped them according to the specific affordances and constraints (Baym 2015) of social media platforms. The process of "capturing" participation within proprietary platforms – designed for different purposes than civic/political engagement – also affects traditional citizenship and urban activism practices and contributes to their radical restructuring. The need to *customise* the urban experience, increasingly relying on digital and mobile media, encounters the economic interests of digital platforms: in this way the direction of the city's media infrastructuring process shifts to tech giants, incorporating both mobility and daily consumption practices and activities related to urban economies' strategic sectors – ranging from tourism (Guttentag 2015) to shopping (Alaimo, Kallinikos 2017) to the enjoyment of cultural and artistic heritage (Magaudda 2014). Big tech's promises of disintermediation, simplification, efficiency and flexibility require users/citizens to adopt collaborative behaviour. The rhetoric of the sharing economy, therefore, intervenes to promote lifestyles suitable for the new economic paradigms. Digital technologies, supported with a logic

based on cooperation and reciprocity, provide "free" services, information and knowledge, while users repay them through non-monetary contributions, which platforms convert into data.

Lengthening of working time and a frequent overlap with leisure time; managing mobility in big cities; planning leisure time, consumptions, and everyday tasks (e.g. food shopping): all of these and many other activities go through a *datafication* process, turning into *a commodity for platforms*. As a result of these life-style transformations, which are especially characteristic for big cities, the sharing economy quickly turns into the *gig economy* (Irani 2015; Kalleberg, Vallas 2017; Pulignano 2019) – its dark side, or something resembling it. The urban environment gets crowded with citizens who are Airbnb hosts (Parisi 2018; Bruni, Esposito 2019), Foodora, Deliveroo or Glovo riders, Uber drivers (Scholz 2016a). Based on the broad availability of data drawn from urban life activities, the so-called "Platform Capitalism" (Srnicek 2017) gradually colonises public space and the socio-economic fabric of the urban environment. The initial critical reflections and political concerns then focus on *digital platform mediated labour* and its unrecognised rights (Fuchs, Sandoval 2014; Wood, Graham et al. 2019). Nevertheless, we should also consider the effects of such phenomena on urban economies. These processes of "conquering" are driven by the interests of companies frequently acting in a normative vacuum, with no shared policies and regulations, and moving effortlessly between online and offline sectors – this is the case of Amazon, which now places a significant presence in the large-scale retail sector alongside e-commerce. The gig economy arising from proprietary platforms' policies and spreading in big cities does not redistribute wealth, but instead generates new inequality and raises awareness about the fundamental imbalance between public and private spheres – between *politics* and the *market*. The rise of a Platform Urbanism (Barns 2020), ruled by corporations and able to model the polis according to the interests of the private sector, raises issues related to the rewriting of the contract between citizenship and the city government (O'Reilly 2010). These issues reflect political demands, addressed by several "grassroots" initiatives, involving both citizens and public institutions and cooperative entrepreneurship, who share the use of technology and data produced by the daily practices of citizens and consumers to foster common-interest projects.

3. Beyond a Platform-driven Urban Citizenship. Open Data/Activism, Commons/Cooperativism

In the last two decades, urban movement and activists' agendas increasingly appear to retrieve the historical issue of the "right to the city" (Lefebvre 1968), updating it to a new social structure. The original claim (which involved the right *to habitat* and *to inhabit*) now extends to the technology-mediated sphere of the city, including issues related to digital forms of participation solicited by political decision-makers. Indeed, the current interpretation of the right to the city disputes the use of a governance-oriented approach in the handling of urban political issues. It rejects the "technocratic" inspiration and the rhetoric of the "neutrality" of governance procedures entrusted to technologies, which on the contrary assume (or imply) *specific political visions* – e.g. the promotion of a strictly regulated idea of civic/political participation, based on a kind of citizenship instrumental to the good functioning of the machine (the "smart community"). The city government, according to this critical perspective, reflects a neo-liberal approach to the economy and society, arguing that technology adoption does not undermine but rather increases efficiency. At the same time, the process of transformation of "urban policy" into "city governance" made a further step "from managerialism to entrepreneurialism" (Harvey 1989). This shift assigns entrepreneurial tasks to decision-makers. Crit-

icism of such management of urban politics underlines that it produces (and *reproduces*) social inequalities, excludes whole sectors of the population from choices that affect them, and permits (and encourages) the exploitation of the common urban space by entrepreneurs. It also allows the concentration of capital and does not redistribute income, and finally promotes the competition for resources between cities, both on a national and global scale. Recent urban protests, which combine local and global dynamics, focus on these processes and their consequences for the residents and city-users. The case of the "mega-events" (Roche 2017; Massidda, Parisi 2016) demonstrates how the need to attract capital and tourism can activate local and temporary economies – an expression of neoliberal urbanism with a cultural character as well (Peck 2012) – which increasingly rely on digital platforms.

The new "urban entrepreneurship" increasingly depends on connective technologies for two main reasons: on the one hand, they ensure *efficiency criteria* and a *capillary capacity to permeate management, production and consumption processes*; on the other hand, they give the possibility to *control and collect data* – which, as we know, translate into value. A large part of the activities related to the daily city experience takes place through apps and the use of mobile devices, which allow to track movements, enable consumptions and use of services, and, not least, organise many kinds of digital platform-based work. On the urban and metropolitan scale in particular, platforms emerge as *the load-bearing architectures of the "new logistics"*: essential infrastructures for contemporary urban life, linked to personal digital technologies, which are strategic for a variety of sectors of potential application. For example, Uber is often used for the transport of patients to hospitals in countries where healthcare systems do not guarantee access to this service at advantageous conditions. Activists and citizens thus model their claims in the context of the platform economy, which unfolds its peculiar ability to generate and accumulate profits in the intersection between *urban* and *connected environments*.

If the city represents the elective (and contested) space in which platforms carry out their political economy, it is not surprising that from this very space, civil society offers its alternatives. Digital infrastructuring processes imply the "falling" of global dynamics in local contexts[3]: it is not by chance that the urban environment plays a strategic role in the development of innovative policies and the claim of new rights. The responses to a market-oriented Platform Urbanism focus on technologies and the knowledge potential offered by data in order to build more inclusive models of citizens' activation and empowerment. The relationship between digital technologies and urban life takes place against the background of the broader, long-term process of progressive convergence and an overlap of the roles and practices of citizens and networked publics. A simplified reading of the latter process likely explains the failure of attempts to build top-down relations between decision-makers and citizens in connected environments: the idea that politicians and public authorities could use social media to open up spaces for discussion with citizens proved to be improper. Proprietary social networking platforms implement a logic designed to foster audience engagement for entertainment and marketing purposes – the same logic underlying the success of brands and influencers, and even a few leaders. Nevertheless, they fail to support real citizen participation in (urban) government. The labels that recalled the entry of urban politics and economics into the age of digital mediation between civil society and the political – "smart", "sharing", "open", "participatory" – now appear weakened by their rhetorical use by decision-makers and market players. However, these same labels marked an attempt to respond to collective needs no less relevant today than in past decades. Not surprisingly, the emergence of new participatory practices seeks to restore its original meaning, updating it to a more complicated urban political-economic

[3] For instance, Bakardjieva (2019) analyses the characteristics of platform-mediated participation in the context of the New EU Democracies.

ecosystem, through a process that *radically challenges the idea of an on-demand, datafied and platform-driven participation*.

We can identify two paradigms, corresponding to the same amount of spheres of action of civil society, of which one operates in the field of technologies and data (data collection and elaboration, technologies and management systems) and the other in the field of production, consumption, sociality (interfaces and platforms for the offer of services and goods, and sociality and participatory processes). Both aim to shift the user-technology rapport in favour of the citizen/consumer and presuppose a significant awareness in the approach to technology among their adopters.

On the first axis, we find Data Activism and the movements for Open Data. This "line of action" is based on the observation and analysis of the business models of proprietary platforms, and the awareness of the role they play in the management (at different levels) of city life. While it is clear that these models rely on the translation of actions, behaviours and choices (both individual and collective) into data (aggregated, disaggregated, re-aggregated), the datafication process rests on a fundamental opacity, due to mechanisms working in the background of the user experience (e.g. trade secret protected algorithms). The ideals of openness and transparency in governance management oppose this very "closure" of platform data to the public eye. The latter is a long-standing principle recalled in the participation requests of citizens and civil society organisations which operate at the urban scale[4]. Nevertheless, although it is now applied at different levels by local governments, it seems to not have substantially modified existing power relations between institutions (political and economic) and citizenship, and its potential drifts are contested (e.g. Lessig 2009, King 2006). Data Activism can be framed in the broader movement of Media Activism, and encompasses many different practices and subjectivities; it "embraces the broad range of social mobilisations taking a critical stance towards massive data collection and big data moregeenrally" and "aims at reaching out to laymen, thanks to software that makes complex tasks such as data analysis and visualisation or encryption much easier to perform" (Milan 2017, 152). It promotes *data access* "against" *data possession* and supports the civic use of data rather than its commercial exploitation. Nevertheless, some practices related to Data Activism are controversial, such as the civic hacking analysed by Schrock (2016) and Townsend (2013), which critics consider too contiguous to corporations and driven by a top-down logic (Slee 2012). However, the reflection it requires concerns the possibility of reinterpreting and restructuring openness and transparency: it suggests the potential for data – defined by Srnicek as "new raw material to appropriate" (Srnicek 2017, 101) – to be re-appropriated to some extent by those who concretely contribute to generating them.

On the second axis, we can find new forms of Cooperativism (Scholz 2016b) and the movements aimed at promoting the Commons (Arvidsson 2020) in the age of digital capitalism. This paradigm concerns the fields of consumption, production as well as technological infrastructuring, and also applies to the spheres of sociability, mutualism, community services and many other *urban goods*. They adopt the logic of *participatory design*, which supports the possibility of building and inhabiting digital environments designed according to collaborative principles and based on distributed or cooperative property. The platform mechanisms bend to

[4] The many civic participation experiences within open data movements are based on local contexts, urban and political cultures, and political scenarios of different countries, resulting in a very diverse range of initiatives. Ruijer, Grimmelikhuijsen and Meijer (2017) provide some examples and suggest to outline them according to three democratic processes: monitorial, deliberative and participatory. Meijer and Potjer (2018), suggest a classification based on a comparative research of 25 cases of "citizen-generated" open data. See also: Sieber and Johnson (2015); Bunders and Varró (2019).

community-oriented purposes, social inclusion, wealth redistribution and the promotion of fairer and more sustainable behaviours and lifestyles. The practices related to this second model restore the meaning of "sharing" (Schor, Fitzmaurice 2015) and apply it in a range of sectors, from responsible production and consumption to the reduction of food waste (Paltrinieri, Parmiggiani 2017), from participation in cultural, social and political life to the care of the common space and the improvement of the quality of life (Marinelli, Parisi 2019). The issue of participation thus starts a useful dialogue with urban interaction design and urban information technology. Local experiences arising in this field aim at a recomposition of the relationship between citizenship and the use of internet technologies; they foresee a conscious use of digital media both by private individuals and networks of citizens and set the boundaries of an agency focused on the promotion of proximity relations and solidarity as well as social justice issues (Meijera, Potjerb 2018).

These experiences seem to be still confined to specific sectors and local contexts, and therefore point out that the reach of practices that challenge the technocratic vision of the connected city is still not widespread. Furthermore, they face an unavoidably limited ability to influence global-scale processes driven by the logics and mechanisms of proprietary platforms. Nevertheless, they foreshadow an opportunity to create *new public spaces*, shaped by practices that cross the online and offline boundaries and whose rules are *negotiated with* and not just *imposed by* the market. The conceptual framework of the smart city and its applications in the "actual" urban environment appear to be further undermined by the vision of a "networked" city and citizenship both based on *co-constructed* (Foth, Brynskov and Ojala 2015) digital infrastructures. New imagery about the connected city is maybe challenging the primacy of platforms' algorithm logic, thanks to interfaces and communication channels more similar to the *civic* media which provide an "'architecture of opportunities' where public and private urban design professionals as well as citizens need to reconsider their own role and ownership in 'city making' that is not only smart but foremost human" (van der Graaf, Ballon 2018).

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