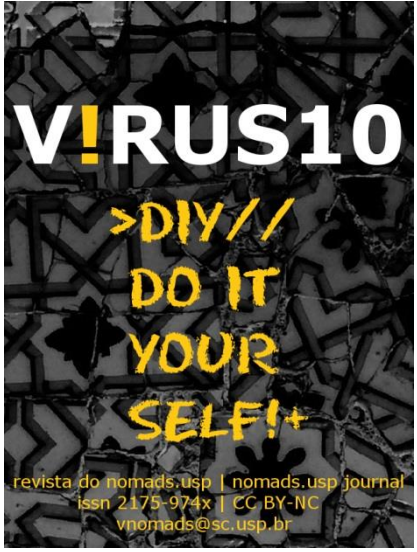

Open source cities: towards a second order urbanism.

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How to quote this text: Sá, A. I. J. A., 2015. Open source cities: towards a second order urbanism. *V!RUS,* 10. [e-journal] Available at: <http://www.nomads.usp.br/virus/virus10/?sec=4&item=5&lang=en> [Accessed dd mm aaaa].

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Abstract

This paper discusses the participatory and decision-making processes guiding urban space production in Brazil in order to reflect on alternatives to expand citizen cooperation. It proposes to investigate new tools and practices that arise in the context of a broad expansion of digital communication technologies, identified as open source or peer to peer urbanism, which pursue cities more open to collaboration and collective creation. Those tactics relate with the "do it yourself" (DIY) concept and, more precisely, with its latest developments towards "do it with others" (Diwo) propositions. It is intended to explore Vilem Flusser and other second-order cybernetics' authors, in order to formulate a preliminary set of parameters and raise questions that could help guiding the production of similar initiatives.

Keywords: urban planning; open source urbanism; citizen participation; digital technologies; second order cybernetics.

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Introduction

The main urban planning and management instruments effective on today's Brazil regard themselves as participatory and advocate in defense of "popular participation"[1] as a key aspect of the development of urban public policy. On the other hand, several authors question the effectiveness of such mechanisms, which seldom promote anything other than "participation in quotation marks": restricted to the elective function, devoid of decision-making power and frequently used as a means of validating proposals created in a centralized, heteronomous and technocratic manner (Souza, 2013, p.182).

In parallel, the expansion of digital communication technologies integrates the experience and infrastructure of the modern metropolis as elements codependent and inseparable from their physical-territorial dimension, resulting on a profound paradigm shift for architecture and urbanism. The incorporation of computational resources to space production happens broadly, ranging from software primarily aimed at the architectural object itself – going beyond the representational level to establish new design practices[2] – to proposals of smart cities which integrate technology information in search of greater efficiency, sustainability and competitiveness in the global market. It is intended, more specifically, to explore initiatives that borrow a vocabulary typical of the informational universe, adopting terms such as "open source" and "copyleft", in reference to open and collaborative processes of cities' transformation.

There is considerable controversy concerning the impacts of human sociability increasing contamination by digital communication networks, involving issues such as privacy, subjectivity control and a fetishism that leads to the enchantment with technology on its own. It is believed that concepts of second-order cybernetics and Vilém Flusser are valuable to guide the discussion concerning the application of computational resources to the production of space, especially regarding the study of collaborative mechanisms which present alternatives to the prevailing participation notions and search to increase citizen autonomy in decision-making processes of urban transformation.

Second order cybernetics: basic principles for collaborative space production

The term "second order" in cybernetics refers to the study of so-called "observing systems", ie, those which recognize the presence and interference of the observer and its relationship to the system observed.[3] Von Foerster points out that while

[1] Kapp, in the paper "Right to everyday space: housing and autonomy in the plan of a metropolis", points to problems associated with the use of the expressions participation, in general, and, more specifically, popular participation. Considering Agamben's demonstration on modern European languages - in which the term people is associated with both the political subject par excellence as with those usually excluded from the political classes, such as the poor and the disinherited - the distinctive and generally pejorative character that the word implies is revealed: "if the popular exists, than the nonpopular must exist as well" (Kapp, 2012, p.468).

[2] For further information about the use of computing in architectural design processes and its consequences, see Cabral Filho's *The Ethical Implications of Automated Computation in Design*, 2013.

[3] For a thorough conceptualization of Second-Order Cybernetics, we suggest Glanville's paper Second Order Cybernetics [n.d.]. In it, the author presents the central notions, its precursors and key interlocutors, through a historical overview, as well as its application in different fields of knowledge.

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predecessor cybernetics create a epistemology for investigating biological or regulatory "first order" processes (as homeostasis or habituation); second-order cybernetics has a conceptual framework able to deal satisfactorily with "second order" processes, such as cognition, dialogue and socio-cultural relations (Von Foerster *apud* Glanville, n.d., p.18). The issue is, therefore, to approach specific mechanisms or systems from relational aspects. In assuming the interaction between observer and observed system, a *circularity* condition is established, another of its central notions: "Objects generate process, just as they are generated by process" (Glanville, *op. cit*., p.17). The defense of scientific neutrality is overcome, by opting for recognizing the viewer as part of the observed system, at the same time transforming and being transformed by it.

Von Foerster reveals the liberating dimension of second-order cybernetics, as it exploits, primarily, metaphysical questions: "We can choose who we wish to become when we have decided on an in principle undecidable question" (Von Foerster, 1991, p.5). The counterpart of this freedom, however, is responsibility for what one produces, from which it is often possible to evade through the discourse of scientific neutrality. The solution the author suggests for such impasse is what he defines as his ethical postulate (which he points can only be applicable to him, once applying it to others would be, in itself, a contradiction): "Tell them they should always try to act so as to increase the number of choices. Yes, increase the number of choices!" (Von Foerster, *op. cit*., p.6). It should be emphasized that Von Foerster gives the term *choices* a fundamentally decisory character, as opposed to which it would be in case he argued for increasing the number of options, what would express a more elective association.

Souza demonstrates how the character of the allegedly neutral and impartial expert is paramount in the universe of urban planning (Souza, *op. cit*., p.182). Especially in the technocratic approachs, this supposed objectivity is used to validate processes impervious to citizen participation, or in which the existing participation does not result in effective decision making opportunities. Despite the importance of specialized knowledge and the critical role of skilled professionals in the planning process, technical rigor is often used as a means to justify proposals based on analyzes and diagnoses that call themselves neutral, but which disregard the true yearnings and concerns of city dwellers. It is believed that the second-order cybernetic thought, especially from the perspective of Von Foerster's ethical postulate, raises fundamental issues to the notion of participation in current planning processes and to the proposition of tools open to collective collaboration and the expansion of decisory processes.

Planning and participation: from a technocratic regard towards a second order model

Souza identifies the prevailing planning practices in today's Brazil as "politicized planning" (Souza, *op*. *cit*., p.162). With its main instruments being the new municipal Masterplans, developed under the guidelines of the Cities' Statute - *'Estatuto da Cidade'* (2001), such approach configures a left oriented adaptation of "strategic planning".[4] Although usually based on urban reform inspired ideas and incorporating

[4] For a detailed description of the main approaches to today's urban planning, among which is included "politicized planning", in reference to the most recurrent practices in Brazil, see Souza's Changing the city: an introduction to critical planning and urban management, part II, 2013.

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breakthroughs on social policies - in comparison with modern regulatory planning -, such model overestimates the role of bureaucracy and legislation, dedicating little attention to effectively implementing participatory processes open to collective decision making, which results in the reinforcement of technicist procedures and standards, configuring what Souza defines as a "left-oriented technocratism" (Souza, *op*. *cit*., p.163).

The *Estatuto da Cidade* determines guidelines for urban policy development and establishes the requirement of "democratic management through the participation of citizens and representative associations of the various sectors of community in the elaboration, implementation and monitoring of plans, programs and projects of urban development" (Estatuto da Cidade, 2001). The approach given to citizen participation in the statute is, however, vague. By not clarifying whether its role should be decisory or merely consultative (which occurs more often), it converts institutionalized participation into one more task to be carried forward to meet bureaucratic requirements. In this sense, one must question the pertinence of the term participation in itself, once regardless of the depth of its implementation it always "implies a different instance, not composed by the participants, which determines and coordinates the process" (Kapp, 2012, p.467-468).

The notion of this "other instance", external to the socio-spatial context of a proposed action, but supposedly more capable to decide in its favor, reveals the heteronomous character of existing mechanisms for the planning and management of cities, which directly relates to the distance of the observer model previously mentioned. The defense of an approach which prioritizes merely consultative participation, maintaining the primacy of the expert for decision making and design is based on a technically biased argument: once the people are heard at the participatory stage, this specialized professionals would be better suited to materialize citizens' demands, establishing what is or is not technically viable and providing adequate solutions for each case. For many, such reasoning is sufficient: specific knowledge gives certain group a greater ability to define the best or most creative proposals, insured against pre-established political interests through the perspective of neutrality. Despite the ingenuity behind such thought - or deliberate responsibility avoidance - and the fragility of the notion of objectivity, some second-order cybernetics concepts are worth remembering to discuss the relevance of this argument, even under a strictly operational standpoint, especially ones referring to Ashby's Law of Requisite Variety.[5]

Ashby's Law determines that for any system to be effectively controlled by another system, without restricting its possible outcomes, the latter should have at least the same variety of elements as the controlled system (Ashby *apud* Glanville, [n.d.], p.2-3). Assuming cities as the controlled systems, with their significant complexity articulated by a number of variables, and traditional urban planning mechanisms as controlling systems, one could deduct that those necessarily operate by restriction. Ie, even if an institutional, bureaucratic and hierarchical structure is composed by a qualified and organized staff, such an arrangement, by itself, is unlikely to provide answers adequate to the intricacy and diversity of systems such as the contemporary metropolis.

[5] Law of Requisite Variety (1956).

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On the article "The Value of Being Unmanageable: Variety and Creativity in CyberSpace" [n.d.], Glanville draws upon Ashby's Law to discuss means of dealing with the control of complex systems (ie, potentially unmanageable). Besides restricting complexity, as exemplified above, the author presents two possibilities: mutual control within groups or the acceptance of unmanageability, and recognition of life as "out of control" (*op*. *cit*., p.5). Considering that the second option carries a very deep philosophical shift – perhaps too abstract to be applied to the effective production of planning tools and processes –, the first alternative, however, discloses a fertile perspective. Glanville demonstrates how the term *control* has acquired a negative connotation, through association with authoritarian personalities or regimes. Nevertheless, as opposed to what can be implied by common sense, a relationship of control does not necessarily presupposes a unidirectional linear sense, but can happen in a circular manner among participants in a given system. Thus, it's possible that control could occur without variety impoverishment or authoritarianism (Glanville, [n.d.], p.2-5). In order for this to happen, it's necessary to transform existing structures and instruments, expanding them to encompass multiple stakeholders and creating mechanisms that enable operational control over distributed models.

In the paper "The Ethical Implications of Automated Computation in Design" (2013), Cabral Filho argues for an "second order architecture", guided by the precepts that drive the cybernetic thinking of that nature. By criticizing the hegemonic use of automated computation in architecture design – more directed towards formal aspects and consolidated creative processes than to developing new practices open to integration of final users –, the author proposes promoting architecture to a dialogical level, conceiving it as a system that includes both the building and its inhabitants (Cabral Filho, 2013, p.1358). The discussion is aimed at the architectural object, but could as well be transposed to the production of urban space more broadly. Would it be possible to create mechanisms that seek to establish a "second order urbanism"? By all indications, efforts have been undertaken by the proponents of the so-called open source or peer to peer urbanism, through the creation of networked collaborative urban production platforms and the research of new tools for planning and governance.

Open source urbanism, copyleft cities, and collaborative platforms

Open source softwares are those whose source code is made available to public and collaborative development. The term copyleft arises in opposition to copyright restrictions as a permission to openly copy and distribute contents. Copyleft founds the expression "all right reversed", in contrast with the traditional "all rights reserved". Such notions relate to the idea of exploring the potential of networked communication to promote the dissemination of free knowledge and pursue a more solidary society.

In recent years, one can observe a growing number of initiatives aimed at the production and intervention in urban spaces that are based on these principles and incorporate their vocabulary, giving rise to what has been called peer to peer urbanism, open source architecture, copyleft city or wikitecture. Despite resources such as network organization, collective action and participation encouragement have been long exploited for the transformation of cities; the advent of the internet exponentially expands communication capability and connectivity, making it an important catalyst for this kind of practice.

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Much has been debated about the association between the increasing use of digital communication networks and a consolidating scenario of fragmented cities, marked by the evasion of public spaces, as well as the decline of face to face socialization and the corporal sphere of urban experience. Privacy invasion and surveillance systems and devices - increasingly diffuse and elusive - by governments and large companies, are recurrent threats. Furthermore, purely consumerist fetishism for gadgets contributes to nothing but the "dispersion, distraction and fun," which Flusser points out as weaknesses of an information society (Flusser, 2008, p.92).[6] The author argues that there are two basic trends for social structures in the era of technical images: the first, in line with the concerns discussed above, is oriented toward a "centrally planned, totalitarian society of images receivers and employees". The second trend, more optimistic, would conform a "dialogic telematic society of image-makers and collectors" (Flusser, *op*. *cit*., p.12), getting closer to the *do it yourself* (DIY) concept and, especially to its recent development into the idea implied by the expression do it with others (DIWO).

Connected to the notion of self-sufficiency and to varying degrees of consumerism criticism, the do it yourself (DIY) idea manifests itself differently in multiple disciplines. Its origins can be traced from the late nineteenth century, with the Arts & Crafts movement, which advocated craft production as a tool for social transformation and opposition to the division of labor caused by industrialization. Having experiences in the 1950s, as the Kwikset house, proposed by Charles and Ray Eames - a prefabricated kit so that users could assemble and customize their home - DIY gains strength in the 1970s with the punk and anarchist movements, especially through music production and publishing (zines and other independent media vehicles), advocating for autonomy in relation to corporations and cultural industry. Later, the notion of "do it yourself" expands to the most diverse fields, from art to interior architecture, through initiatives with varying degrees of social and political engagement, for which internet consolidation represents an important means of communication.

The expanding possibilities of network connectivity brings a shift towards do it with others (DIWO) propositions. According to Garrett, DIWO is originally proposed in 2006 by the art community and online magazine Furtherfield, in reference to networked artistic creation and open/horizontal curating processes (Garret, 2012). The concept is rapidly adopted by other disciplines and begins to illustrate a broad approach to collaborative production, always linked to the idea of collective intelligence, free knowledge and empowerment of stakeholders. Myers emphasizes the role of free software for such processes in the digital sphere: "Free software can therefore be understood historically and ethically as a defense of pluralistic liberty against a real threat. It is an ethical question, of freedom, which is very different from just being a new method of organization or a more efficient means of production" (Myers *apud* Garret, *op*. *cit*.). It is in this sense that fall (or should fall) the proposals for open source cities beginning to be delineated.

[6] In the book *The Universe of Technical Images*, Flusser discusses the sociocultural impacts of the proliferation of what he calls technical images (post-writing images: photography, video, television, film and, ultimately, computerized image) in contemporary society, assuming that establishes an absolute paradigm disruption that gives rise not only to new means of representation, but also to new language and models of thought and imagination.

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Sassen contrasts peer to peer urbanism to the notion of smart city, a current trend in discussions about urban space and technology. According to Sassen, instead of placing the technology in a dialog position with the user, the smart city makes it invisible and puts it in command. A tendency to a heteronomous urban management is thus reproduced, and the opportunity to benefit from the potential generated by the openness and indeterminacy of an open source approach is lost. By opening up to collaboration, institutional knowledge systems about the city, usually centralized and hierarchical, could become contaminated by new layers of information to which they are often impervious. In analogy to the platform WikiLeaks, the author creates the image of neighborhoods which "leak" local everyday wisdom, destabilizing vertical structures and yielding surprising new relations based on institutions more porous to citizen cooperation (Sassen, 2013).

Recent actions identified with this thought point towards promoting face to face interaction, enhancing exchange with the urban context and enabling decision-making processes at the local level. The consolidation of the web 2.0 and georeferencing tools - which overlap, in real time, the material and the digital universes, enable augmented reality situations and deepen the pervasiveness of spatial experience. Without disregarding the contradictions arising from the broad government and corporate control over the online environment – especially on social networks –, the internet provides, at the same time, conditions for the emergence of true laboratories for the collaborative practice of urban common life. "Today, perhaps the most influential platform for creating real encounters and improving public spaces is paradoxically and interestingly the web, a horizontal/rhizomatic system with a high potential for quick dissemination of ideas and information where anyone can have access and act as individual" (Battistela, 2013).[7]

Such proposals take place in a context which makes it increasingly difficult to distinguish between the physical and informational spheres of urban experience, making it more pertinent to understand them as inseparable, codependent fields of mutually changing social practices of a hybrid space. Di Siena (2014) defends that the *in situ* sphere is not weakened, but instead, plays an essential role in this dynamic, with computerized media providing an expansion of the communication environment, where connectivity, sync and decentralization are catalysts for the organization of any planned action. Opportunities arise for new models of citizen control, closer to the cybernetic idea of mutual control between groups; instruments are designed to pressure governments to respect public opinion and to implement more transparent and participatory policies. Current information distribution conditions enable tools previously impossible to be coordinated, allowing, according to the author, the transformation of existing power structures: "There is a new system based on the addition or accumulation of all the small potentials (or powers) of the mass of citizens that, thanks to the systems of communication on the internet, can equal or exceed the power (or potential) of those who are in a privileged position today" (Di Siena, *op. cit.*).

[7] Although Battistela refers to the web as a universe accessible to everyone, especially in the Brazilian context, one cannot disregard that access to communication networks is still a factor of social segregation and an object of political dispute. However, internet use has increased considerably, reaching 105 million users in the second quarter of 2013. Source: IBOPE, 2013.

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Regarding current urban planning practices, as well as the role and responsibilities of architects, the consolidation of collaborative networked systems signals a paradigm shift that profoundly transforms hegemonic ways of conceiving and managing space. Sikiaridi and Vogelaar, from the office Hybrid Space Lab argue that this type of platform may gradually replace the design logic of the industrial era, from which the "creative class" designs for the "uncultured masses" (Sikiaridi and Vogelaar, 2012). This is not at all about disqualifying specific knowledge or underestimating the role of specialized professionals in the processes of space production. It is, however, about appreciating the contribution that can come from non-experts users, from their specific knowledge and experiences and, above all, to recognize that technical authority should not override collective will in public concerning decision making processes. Therefore, the role of the expert shifts increasingly from the conventional exercise of designing and deciding toward articulating processes of collaborative creation, technical consultancy and production of models that can be tested and modified by users.

Preliminary parameters for a second order urbanism

I. **Connectivity and dialogue**

> These people should weave the cross wires, the 'antifascist' wires in order to open the field to dialogues that disrupt numbing discourses in order to transform the social structure of network synchronized beams (Flusser, *op*. *cit*., p.93, our translation).

Pursuing the creation of networks to connect cities' various actors is an imperative task for initiatives proposing an "open source" urbanism. According to Flusser, dialogue is the joint creation of new information, is what overcomes "chatter" - mere repetition of speeches - through its creative and transformative potential; it is what inspires the new "engagement" (*ibidem,* p.96). In urban production processes, communicative action presents itself as essential to possibilitate collective decision making and to strengthen contact with otherness, but not without challenges, especially in contexts of deep social inequality - like Brazil - which undermine conditions for a fair debate.[8]

Social networks like Facebook and Twitter, despite surveillance mechanisms and content monitoring, have acquired great relevance for citizen mobilization. They have turned into basic means of articulation in movements such as 15M in Spain, from 2011; Turkey's Taksim Square protests and Brazilian june journeys - whose demonstrations, despite the heterogeneity and complexity, presented a series of demands directly related to urban transformation and right to the city - (both in 2013). These paradigmatic examples have global repercussion, but represent a small fraction among numerous situations in which social networks become a vehicle for organizing collective action at various scales. The use of the web as a dialogical environment aimed at the quest for social transformation is evident, for example, in online discussions witnessed in the current electoral context, in which the use of digital networks has been playing a crucial role. Paradoxically, the use of robots (bots) and fake profiles aimed at manipulating public opinion, by political campaigns, undermines the democratic circumstances for debate. A battlefield is, therefore, conformed, marked by the constant tension between the perpetuation of "numbing discourses"

[8] About communicative action in planning and urban management, see Souza, 2013, p.337, and Item 7 of Part II, p. 149-151.

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through the mentioned subterfuges, and the construction of a legitimate and potentially transforming dialogue.

> If there was, in the twentieth century, the effective human filter of social relevance of the press; in social networks, despite the broad democratization of thought, many "digital gangs" started selling the ability to guide the society through refined strategies such as creating "trending topics". They act with such strength, that organic tweets (from ordinary people, the sons of God) lose their relevance within the flood of messages produced by robots, because those ultimately prevent legitimate messages to be visible for a long period of time (Gouveia, 2014).

Some networked proposals have emerged with the goal of thinking space production through the dialogue between citizens. WhatIf?Cities, for example, proposes to stimulate and register urban dwellers' collective imagination and desire concerning their hometowns. The app allows users to post comments, questions or proposals in georeferenced maps and discussion forums, seeking to put urban issues on the agenda and encourage engagement and self-organization. It is open source, so it can be freely adapted and apropriated to various contexts and scales. On the occasions presented by the app's developers, online use was combined with presencial workshops.

Fig.1: What if? Cities. Available at: <http://whatif.es/> [Accessed 10 December 2013].

Fix My Transport has a starting point with is common to many other platforms: recording complaints about problems in public services, in this case, transportation - as does *NãoMove*, [9] in Belo Horizonte, among others - but it brings the specificity of articulating users with public power and operating companies, pushing them to take a stand on complaints and to take action. The application automatically groups similar reports in campaigns, allowing people with shared problems to discuss and organize themselves to demand improvements or propose solutions.

II. Information

Flusser gives the term *to inform* a broader notion (Flusser, *op*. *cit*., p.63-73.), which shifts from its conventional sense to associate it with the idea of pointing out new directions, providing meaning to the images created. "Informative images" are

[9] Available at: <http://naomove.com.br/> [Accessed 10 December 2013].

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opposed to "redundant images", tedious and repetitive, which give the impression of having been seen thousands of times, ie: they do not inform.

The concept of *information* relates to the production of models: simulations that can be subjected to testing and modified through predetermined parameters. Being able to test different scenarios, their impacts and consequences is fundamental to elucidate collective decision processes, since the difficulty in clearly comprehending intervention proposals and their implications, among other factors, constitutes a major obstacle to citizen participation. Traditional architectural representation, particularly technical drawing, is often used as a strategy to restrict the full understanding of its contents, thus creating a need for the development of spatial depiction tools that can be easily read and manipulated by people in general.

The website Streetmix,[10] for example, illustrates how an extremely simple platform can help simulating space transformation: starting from a typical street cross section (whose width and surroundings are determined by the user), to which one can add or remove a series of elements such as sidewalks, vegetation, parking lanes, bicycle lanes, benches, bus stops, etc. With a few clicks and in a very intuitive way, it´s possible to visualize the impacts of interventions and imagine different situations on the street level.

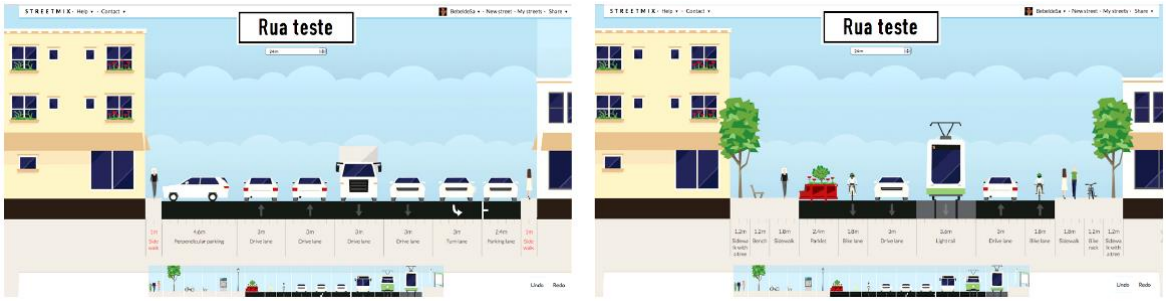

Fig. 2: Streetmix. Available at: <http://streetmix.net/> [Accessed 10 December 2013].

[10] Available at: <http://streetmix.net/> [Accessed 10 December 2013].

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Similarly, the City KIT, developed for the Housing Department of Hong Kong, targets a young audience which is familiar with the computing world, but less involved with the urban context. A game interface allows users to intervene on digital models of various neighborhoods, creating a bridge between city residents and planning professionals, encouraging engagement with issues related to the physical and built environment.

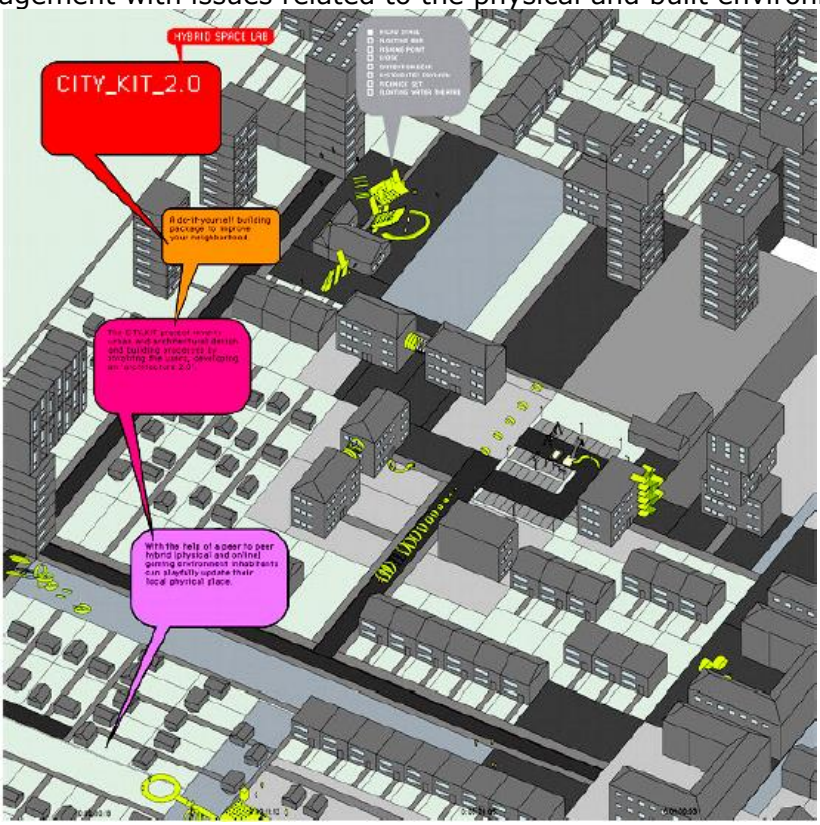

Fig. 3: City Kit. Available at: <http://www.world-architects.com/en/pages/hybrid-space-lab> [Accessed 10 December 2013].

Clearly, mechanisms such as those mentioned above do not cover all the issues involved in the specific contexts of each intervention, do not exhaust the possibilities of conceivable solutions and are not sufficient, by themselves, for the full development of urban proposals. Their power lies, however, in generating models that during the process of being collectively "informed", provide tools for the reflection on the transformation possibilities for the city and the necessary means for its achievement.

III. **Performative character**

Cities are produced and transformed all the time: not only by architects, planners and policy makers, but especially by its inhabitants, through daily life. As people move through the space, use it, experience and observe it, they cease to act only as receptors or consumers to become, at the same time, its producing agents. The city becomes the constantly changing outcome of collective experience; this process is what Sophie Wolfrum defines as "performative urbanism" (Wolfrum *apud* Rosa, 2011).

Technocratic urban planning, on the other hand, conceives the production of space from a linear sequence of steps: diagnosis, design, participation (when, generally, pre-conceived proposals are validated), intervention and delivery of an end product. These steps are generally impervious to each other and to parallel transformations that take

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place in the city. Bureaucratic procedures make the process usually very slow and result in interventions that, when finished, find very different contexts than those for which they were designed.

It is necessary to propose tools that incorporate the performative dimension, conceiving the city within a constant changing process in which the steps of interventions take place and update each other simultaneously - with collective collaboration as part of all phases, not as a stage itself. It is not about dismissing long-term planning nor disregarding that certain procedures demand time and careful evaluation to happen with due precaution. However, one must question if urban management could not happen at many levels, some of which could be lighter and more agile, porous to the daily transformations of the city and to self-organized practices.

IV. Technology spatialization

As previously discussed, the physical and informational spheres of social relations in cities are increasingly merging, making arise a hybrid space whose experience is marked by ubiquity. The expansion of the Internet and online social networks did not lead people into progressive isolation, as many predicted, but rather, had to adapt to increasingly portable devices that allow the digital universe to be carried around with their users. Much of what is accessed in mobile applications concerns the physical surroundings and allows people to "interact" with it, either accessing information about what is around, checking the bus timetable, tracing routes or sharing a photo of something seen.

But as much as these universes largely overlap, fragmentation persists. Computer interaction, in most cases, still takes place in two-dimensional interfaces, as pointed out by Cabral Filho (*op*. *cit*., p.1358), compromising corporal engagement. Digital technologies have been very effective in engaging the city, but were less successful occupying it, especially when it comes to tools aimed at dialogic purposes and spatial transformation – as Sassen (2014) points out about smart cities, where technology is spatialized efficaciously but in an invisible and authoritarian manner.

Closing remarks

Would it be possible to think that proposals for a peer produced and managed city indicates a movement towards a second order urbanism: dialogical, collaborative and open to indeterminacy? The examples so far investigated reveal fruitful possibilities and paths to be explored, although they still don’t seem to be able to express the same strength as the ideas in which they are inspired. Yet, these are all recent experiences going through a constant process of improvement and expansion. It should be emphasized, however, that the consolidation of such thinking depends on the capability to take a leap towards new institutional arrangements and effective incorporation of collaborative mechanisms to urban infrastructure and services; as well as on the openness to social change and, above all, political will.

Regarding the role of architects, planners and other professionals involved in city design and management, it is believed that efforts should return increasingly to the development of decision-making tools and mediation of collective space production processes. This largely requires giving up the monopoly of control over the final

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product - or even the notion of "final product" in itself, once acknowledging the city as in constant change - in favor of practices able to accommodate indeterminacy. The task may seem at first impossible, but, as Glanville demonstrates, "unmanageability" and loss of control are not necessarily negative. On the contrary, they can result on benefits directly linked to increased responsibility, freedom of choice and creativity (Glanville, *op*. *cit*., p.7-9).

Finally, returning to the discussion about the pertinence or not of using the term participation: rather than suggesting its waiver, it might make more sense to propose a displacement. Instead of assuming that citizens are the ones who should participate in decision making processes controlled by the technical and bureaucratic spheres, couldn't this scientific and institutional framework be taken as the participant – offering mechanisms, conditions, information and support – of decision-making processes conducted by society in its broadest sense?

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