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The smart city: urban landscapes in the current crisis

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Abstract

This article aims to investigate the notion of the smart, technological and interoperable city that has found growing attention in Europe and thus also in Italy, as a possible escape from the current and on-going economic, political and social crisis, and as a driving force for the creation of post-recession cities. In the article, the idea of “slyness” applied in the Italian context to the concept of landscape, (Farinelli, 1991) is borrowed to present the urban model of “smartness” on two levels of analysis: the first is the discursive representation as it emerges from policies and from grey literature; the second is related to the (possible) socio-territorial consequences of its application. In doing so, the paper gives space to the representative and discursive levels, as much as to the processes of territorialization implicit in the smart city paradigm.

Keywords: Smart City, Social-Economic Crisis, Technology, Urban Policies

1. Introduction

The smart city discourse is one of the few, if not the only one of a certain entity, to propose an image of prosperity and progress in a phase dominated by the pessimism induced by the prolonging effects of the crisis (Rossi, 2013, p. 53).

During the current economic, political, social and cultural crisis, a new model of urban development has emerged and spread across Europe: the smart city.

The *smart city* model believes that the diffusion of technology is the best way to keep together sustainability and urban economic

development. A city is *smart* if it can, in the first place, integrate a “strategic set” of initiatives related to infrastructures, technologies and digital services, aimed at improving the quality of life of its citizens. In view of the scarcity of resources, the *smart city* and those community and national programmes promoting it become important elements to envisage how the cities of tomorrow will be planned and built.

As in the concept of landscape, the smart city has a double-sided dimension to it. It refers both to the reality of a territory as well as to the (multimedia) ensemble of its representations (Farinelli, 1991, uses the term “sly” to define landscapes because it encompasses “the thing” and “the image of the thing”). Thanks to this

feature, the smart city landscape also takes on an aspect of “slyness”. On the one hand it displays a precisely constructed shape through discursive representations and images while on the other, it does the same through concrete actions. Given the relative newness of this urban model and its recent genesis, on a *discourse and imaginary level* the smart city landscape exhibits highly structured foundations and seems understandable only in relation to specific socio-cultural and political processes. The discourse on smart city landscapes doesn’t come at a later time, compared to an external and “already given” reality, pre-existing to its enunciation (Barnes and Duncan, 1992)¹. On the contrary, it is a productive and not neutral act affecting the way in which ideas on the future of the city evolve into concrete plans of action². The performative power of discourse is a central issue, and emerges clearly when we look at urban policies (Rose and Miller, 1992). The political and legislative contexts reveal the existence of such discursive systems more distinctly than others (Mole, 2007), and also show their role in spreading certain territorial “smart” actions. For this reason, it is important to pay special attention to the means by which the discourse on smartness is broached, and how the status of smart city can be achieved in contemporary urban realities.

¹ The semantic complexity of the term “landscape” – that is perhaps the result of the many approaches to the topic – generates other conceptual frameworks for presenting and understanding the smart city and its proliferation both in terms of the “collective consciousness” and territorializing acts. Given the prominence assumed by discourse features in the “smart city landscape”, it was considered here more useful to start from this level and then proceed freely to highlight the pros and cons of some “territorial interpretations” of smart ideas. An in-depth analysis of the various meanings of the term landscape has been developed by the Author in other publications, to which we refer the reader (Aru et al., 2012; Aru and Tanca, 2015).

² This conceptualization of landscape is of course tied to the idea of discourse developed by Michel Foucault (1971) and used by postmodern and post-structuralist scholars in critical discourse analysis (CDA) (Fairclough, 1995; Barker and Galasinski, 2001; Phillips and Hardy, 2002; Phillips and Jorgensen, 2002; Rydin, 2005).

What is a smart city? What are the risks and what is the potential of the smart city model when weighed against the current economic and social crisis³.

In order to find possible answers to these questions, section 2 will briefly evaluate the first level of reasoning (how the smart city is imagined and described); while section 3 focuses on the more “concrete” aspects of the smart city paradigm, focusing on its critical points and the latent potential of the “smart city” model.

Even though this paper is a discursive rather than an argumentative essay, from an analytical point of view it will look at some of the academic articles that embrace a critical approach (Hollands, 2008; March and Ribera-Fumaz, 2014; Söderström et al., 2014; Vanolo, 2014). One reason for this is to better understand whether or not transforming existing cities into smart ones really will provide a way to prevail over the structural conditions that have produced the recent economic crisis, or if they will turn out to be a product of the political and economical neoliberal system that is at the root of the very crisis itself.

2. Smart City, a utopia within reach. Here and now

The smart city presents itself as a potentially rich paradigm, thanks to the numerous impressions, hypotheses and indications regarding its shape, organization and management (Crivello, 2014; Vanolo, 2014). It is defined by the European Commission as “a place where the traditional networks and services are made more efficient with the use of digital and telecommunications technologies, for the benefit of its inhabitants and businesses. With this vision in mind, the European Union is investing in ICT research and innovation, and developing

³ The line of reasoning here proposed is based on a series of impressions and theoretical reflections, even though it is the result of a series of more detailed analyses carried out during the period of research on “*Smart Torino. Opportunità e rischi del paradigma della città intelligente*” led by the Centre for Research EU-POLIS (Politecnico and Turin University) since 2012.

policies to improve the quality of life of citizens and make cities more sustainable in view of Europe's 20-20-20 targets"⁴.

Yet the complex ensemble of normative and legislative measures that have defined this paradigm first on a Community level, and then on a national one, makes it difficult to reconstruct the genealogy of the concept (Vanolo, 2014). The smart city seems to be more the result of a series of entrepreneurial insights – with a subsequent capitulation of community activities aimed at contrasting the crisis – than a concrete product of a scientific and academic reflection. IBM's model Smarter City/Future City exemplifies this, dealing particularly with terms like planning and management, infrastructure, etc. All this is in spite of the noticeable increase in academic studies in the last few years, which have tried to offer explanations for this (complex) genealogy as well as for the various meanings that the term "smart" has assumed at different times and in different contexts (Chourabi, 2012; Crivello, 2014; Neirotti et al., 2014).

If we look at the discursive representation – textual as well as visual – beginning with the analysis of an intentionally large and diversified number of sources⁵, we see a marked recurrence of terms and images, configuring the smart city as a sort of "achievable utopia", an "ideal-type" urban constellation that addresses various aspects of urban life (transport, the environment, quality of life, etc.) (Kourtit and Nijkamp, 2012, p. 93; Vanolo, 2014) together with the related sectors of the economy (from housing to mobility issues, from environmental problems to industry) (Rossi, 2013). Similarly to what has been done on a European scale, the Italian public bands issued for the financing of "smart" actions, talk about "the development of innovative models, aimed at providing solutions to problems on an urban and metropolitan scale through a combination of technologies and

integration and inclusion models"⁶. A Smart City is a city where technology is used pervasively, and it is described as Innovative, Inclusive, Interactive, Intelligent (ICity Rate, 2012)⁷. It represents the 'technological' transformation of the city, viewed as the best strategy to keep together sustainability, urban economic development and social inclusivity. The representation of the smart city can thus "stimulate a positive collective consciousness for growth and development" (Rossi, 2013, p. 68) even though one consequence is that it can appear to be "opaque" and not quite so well-defined. Such an innovative view could be applied especially to the very idea of smartness in an urban space, resulting in a somewhat uncritical expectation for concrete, stable, recognizable and extensive results.

Utopia is achievable because it constitutes the ultimate goal resulting from a series of progressive steps, all related to the realization of specific indicators, suited to measuring the performance of smart initiatives in different urban contexts⁸ (de Luca, 2013). In this scenario, the adoption of metaphors recalling a veritable "race to develop" in the latest Italian I-City Rate report⁹ (2015) comes as no surprise, with individual cities competing for the podium, and more importantly, the allocation of more financial resources: "The three leading cities in 2014 have confirmed their position on the podium, though with the following changes in performance: Milan has sprung forward, with Florence following closely behind, while Bologna has registered a sudden halt" (ICity Rate, 2015).

⁶ Art. 1, comma 6, p. 6, Decreto Direttoriale n. 84/Ric., 2th March 2012 – *Smart Cities and Communities and Social Innovation*.

⁷ Cfr. <http://www.icitylab.it/il-rapporto-icityrate/edizione-2012/>.

⁸ The six dimensions of smartness, as described on a European scale after the 2007 research carried out by the Wien and Delft Polytechnic Schools and by Ljubljana University (Griffinger et al., 2007), are: *smart economy, smart mobility, smart governance, smart environment, smart living, smart people*. In the European indicators, each of these dimensions is articulated in different voices, each one with its own indicator.

⁹ The annual report of the Italian smart cities. Cfr. <http://www.icitylab.it/il-rapporto-icityrate/edizione-2015/dati-2015/>.

⁴ Cfr. <http://ec.europa.eu/digital-agenda/en/smart-cities>.

⁵ More specifically: the Campaign Europe 2020, on a national scale the MIUR competitions (cfr. Note n. 1), grey literature published online, and the images of "smart city" in Google Search results.

3. The Smart City: from discourses to territories

Since the development of the Smart City paradigm is relatively recent, it is easier to speculate on discursive plans, or on the impressions that people have formed of smart policies, from companies with a smart approach, or from the grey literature on the theme, rather than on the consequence of smart actions, either because “territorial transformation” has often not yet taken place, or because some actions labelled as “smart” were really present in the political policies before the term had come into use. For this reason, when we talk about “*smart*” *practices*, we are talking about all those practices which can be thought out, redefined or reconfigured as *smart*. With this premise, these *practices* recall two “conceptual” orders. First, we mean those *practices* which spread chronologically *before* the advent of the *smart city* paradigm, and which underwent a *smart* ‘reconfiguration’ later (for example: the creation of cycling lanes; the diffusion of public transport phone apps). Then, we have the *ideas of practice*, i.e. those ideas which are contained *in nuce* in the paradigm, but which haven’t yet been realized.

By taking this two-tier approach to our analysis, we can form a better idea of the different connotations the term “smart city” has assumed across the international panorama; if we consider what really makes a city “smart”, i.e. those elements which are truly innovative when compared with the past and which should help resolve the crisis, it is possible to identify two main varieties of *smartness*, associated with either a “soft” or a “hard” idea of innovation. The “hard” version of the *smart city* sees innovation as the use and widespread application of leading-edge technologies, while the “soft” one places more emphasis on the involvement of social networks and the utilisation of human resources as the main engine for territorial development. The latter approach involves making the most of an urban system (and a socio-anthropoc subsystem) in which social capital ensures the achievement of adequate liveability levels through an appropriate use of available resources (i.e. a widespread awareness).

The “hard” variation of smartness views smart cities in technological terms, construing them as a potentially digital *system of systems*. This is a vision that has also been too often conveyed by European indicators, which have ascribed to these *hard* aspects a preponderant role in the classification of smart or less-smart cities. Initially, it was a vision that led to the commercialization on a broad scale of innovative solutions for sectors of great relevance and financial weight, such as the energy sector. The “soft” variety can be found instead in the instrument of the “ideas contest” which is present in European projects (*governance* strategies), as well as between the lines of those explicitly dedicated to *Social Innovation*¹⁰, even though these too openly talk about the use of technological devices¹¹.

Understanding what the characteristic traits of smartness are and which version ought to be adopted in policies financing the realization and running of a “smart city” is by no means a secondary consideration. Indeed, in this development model, it is the smart city itself that guides the appraisal of needs. Which problems demand attention? Which exigencies ought first to be attended to? Further, which areas require action, which subjects are to be involved and which sectors and projects need more support, particularly in terms of financial resources (Toldo, 2013). When it comes to its realization in the actual transformation of a city, the smart city could paradoxically reinforce those “distorted” processes already at work, as well as advancing alternatives to overcome the crisis itself (Tables 1 and 2).

¹⁰ The notions of *Social Innovation* and Smart city have been directly associated, especially in the area of policies (and the ensuing debate therein) (Pollio, 2013).

¹¹ For example, the 2012 contest “Smart Cities and Communities and Social Innovation” financed some of the projects in Turin elaborated by young people under 30. At least two of these projects centre on the implementation of the SBG (Solidarity Buying Groups) and on the systematizing of the Urban Vegetable Gardens in the province.

	Risks
Innovation	<p>Excessive and exclusive development of technological innovation.</p> <p>Main risks linked with this include:</p> <ul style="list-style-type: none"> - Social and/or spatial exclusion connected with the digital divide. - Excessive development of technology, with solutions exclusively destined to those problems which can be solved by means of a technological approach.
Public-private relationship	<p>Excessive privatization of some sectors and erosion of the welfare state.</p>

Table 1. Main risks linked with the “Smart City” model.

It is especially the large global companies – IBM, Cisco Systems and Siemens – that convey the idea of a growth-oriented and technologically innovative *smart city*. They are engineering the practical evolution of the smart city, creating protocols, especially in environmental issues (de Luca, 2013; Toldo, 2013).

If *smartness* tends to a certain type of innovation – adopting the development of specific top-of-the-notch technologies as its first objective – the risk is that the broader and more complex urban problems would end up falling off the agenda, replaced by those problems which are considered *a priori* solvable by technological solutions¹².

¹² Turin’s case, with its *Master Plan To Smile*, and more in general the Italian case, are a wonderful example of how an instrument which takes into account the complexities of “urban intelligences” to orientate transformations (in terms of policies) can –and should – be pursued. Cfr. <http://www.torinosmartcity.it/wp-content/uploads/2013/11/SMILE-MASTERPLAN-PER-TORINO-SMART-CITY.pdf>.

	Potentialities
Innovation	<p>Potentialities linked with technological development in terms of social and territorial inclusion (e.g. development of forms of “bottom-up power”).</p> <p>Social innovation becomes more and more present in the declarations and in the actions of the smart city. The Main potential linked with this is:</p> <ul style="list-style-type: none"> - New forms of facing territorial changes (new “bottom-up” logic vs. old “top-down” logic)
Public-private relationship	<p>Private investments as a driving force for an economic reboot at a time when public finances are experiencing a crisis.</p> <p>Better rationalization of public finances to allocate to other spending sectors.</p> <p>Support for the diffusion of start-up companies.</p>

Table 2. Main potentials linked with the “Smart City” model.

The risk is that society is placed at the service of innovation, and not vice versa. As soon as it becomes real in instigating a city’s transformation, the smart and technological city may paradoxically reinforce some exclusion processes for those cities that cannot or are not considered suitable candidates for *smartness*, both in terms of space and (naturally) of society. It’s a post-politic vision (Swyngedouw, 2007) that again questions the very concept of citizenship (Balibar, 2012), one that assumes a greater value – and greater acknowledgement – when it can be integrated

into a vision of the smart city and its operative potential.

On a strictly discursive level, the smart city is – as we have already said – an *inclusive* city, a context where economic growth and regeneration need to live side by side with social and environmental sustainability. It is not just a matter of simple coexistence; the underlying notion is that no true development is possible without the practical resolution of grave social problems. Yet, even those projects and actions that aim to promote social inclusion are overtly connoted in technological terms. Take for example the projects selected by the Italian Government in the project *Smart City&Communities and Social Innovation*¹³ which, not by chance, identified “Welfare technologies and inclusion” as one of the 16 lines of action to be considered. Some of the aims of these actions contained in the EU document are: “inclusion of risk categories and the prevention of forms of social distress, through the development of innovative services based on the use of ICT technologies and directed towards the solution of problems for disabled people, the social inclusion of immigrants from foreign countries, the support to low-salary families, the reinsertion in the education system of drop-out youngsters, the improvement of the access to welfare and health services”. Clearly, technology has been placed at the forefront as a central resource for social action. Like any other resource, its value and importance are defined in terms of specific socio-cultural contexts and cultural models. In a world that is becoming increasingly *smart* (or that strives to become so) the possibilities offered by technological devices become fundamental in order to avert modern forms of exclusion (Santangelo, 2016). In countries where *smartness* is emerging as a model for the future city and a guide for urban politics, not having access to the world of technologies could lead to increasing levels of exclusion for tomorrow’s citizenship (in a broad sense).

¹³ The MIUR – Ministero dell’Istruzione, dell’Università e della Ricerca – through the announcement *Smart City&Communities and Social Innovation* has destined 655 millions of euros.

Naturally, there is no contradiction between the use of technology and (for example) advancing social inclusion. Until recently, although the majority of the actions regarding the implementation of ICT in urban environments have initially been of the “top-down” type, things are likely to change in the future. New unified platforms for urban living are being experimented with – see IoT (*Internet of Things*) and IoS (*Internet of Services*) – which may well enable technology to develop more open and shared platforms (Hernández-Muñoz et al., 2011). In some specific contexts, technology has been highly effective in activating new forms of bottom-up power, which has resulted in processes of (re)appropriation of urban spaces and/or in negotiation dynamics among powers, with varying conflictual levels for each State. So, according to such a scenario, they would not only activate exclusion processes, but also processes of social and territorial inclusion (Aru, Puttilli and Santangelo, 2014).

Another aspect that strongly characterizes “today’s city of the future” relates to the new forms of public-private partnership (PPP) mobilized by the “smart city project”: the private sector explores profitability spaces in public areas, while the public is guarantor both for the availability of these spaces and the profit accruing from the capital invested. Crisis and the austerity conditions, though, seem to reduce the “bargaining power” of the State towards the large private companies.

Aside from any communitarian claims, some critical studies – Hollands (2008) the most famous – present the smart city as the umpteenth tag that tries to cover neo-conservative logic (Söderström et al., 2014; Vanolo, 2014; March and Ribera-Fumaz, 2014). The Smart city is unquestionably aligned to the neo-liberal model and, as such, it is more oriented towards growth and technological innovation than to being a solution for revenue redistribution (Raco, 2013). According to this construal, it is the need to attract private investment that motivates the predilection for high profitability smart actions and innovations (leading-edge technologies that stimulate the revamp of neo-liberal economic modalities) instead of any interest in across the board social innovation. The financial crisis of the last seven years has in fact driven many

Western governments to implement even more systematically the neo-liberal model and the logic of profitability at the cost of an increasing privatization of larger sectors of the welfare State (education, healthcare etc.; cfr. Raco, 2013)¹⁴. This privatization process risks placing important social and political issues that once were the responsibility of the State into the hands of “external wise-men” (as in the case of private companies) or entrusting solutions to technology, seen – and presented – as infallible and trustworthy instruments especially because “they aren’t human”, and thus cannot be corrupted by the possibility of human error. Another critical point hidden in certain ideas of innovation is that some ideas of *smart* development are chosen (and modelled) without an in-depth territorial analysis first evaluating the impact (and the functionality) of certain “protocols”. As valid as they may be in certain contexts, they won’t necessarily work in other scenarios. The “soft” version of the smart city, the one more strictly linked with the idea of social innovation, stresses the notion of non-neutrality in the innovation processes in context, superseding a strictly technical vision of *smartness* as it is often conveyed by European indicators (de Luca, 2013).

4. Conclusion. Starting again from the territory

“[T]here is no unique global definition of SC, [...] the current trends and evolution patterns of any individual SC depend to a great extent on local context factors. City policy makers are therefore urged to try to understand these factors in order to shape appropriate strategies for their SCs” (Neirotti et al., 2014, p. 35).

Due to their demographic relevance and prevalent economic role, urban environments are the first to feel the most tangible effects of the crisis, such as the reviewing of welfare expenditure and how available resources should be utilised (Santangelo, 2016).

Both the “hard” and the “soft” aspects of the smart city paradigm are plainly manifest. A city is smart if it can put all its knowledge and competence to use in a smart perspective, which entails constructing dialogue, working on forging unity between different subjects and practices, as well as on developing human capital. Yet the concurrent existence of these two forms is not always taken into account in a smart city’s territorial transformation. Continuing with a sports metaphor, the key to the challenge for local administrations lies in the importance that is given to each of the components of innovation for every single action of territorial advancement and change.

The different souls that inhabit the smart city, as well as the new dichotomous spectrum of territorial and social exclusion or inclusion they have activated, are by no means the natural result of “neutral” dynamics. For this reason, many people such as Massey in *For Space* (2005) are calling for a *responsible geography*, taking territories and their complexity as a starting point. So what is most necessary today is to start from what is going on (or what is missing) in individual territories, and to abandon the idea that there is only one valid “smartness”, measurable away from the territorial context. We should also abandon the idea that “intelligence” always needs to be gauged in terms of technological developments, because urban problems are never always solvable through technological solutions¹⁵. In this sense, the role of *territory* becomes crucial, since the word denotes a “space for living, where life

¹⁴ Moreover, the ongoing privatization process and the new idea of the smart city seem to have made the act of consuming even more important, reinforcing the idea that the citizen is, first of all, a consumer of services rather than an object (and subject) of collective rights, with all the consequences that this equation can have in terms of social justice and democracy.

¹⁵ The case of Turin, with its *Master Plan To Smile*, and more in general the Italian case, are an excellent example of how an instrument which takes into account the complexities of “urban intelligences” to orientate transformations (in terms of policies) can – and should – be pursued. Cfr. <http://www.torinosmartcity.it/wp-content/uploads/2013/11/SMILE-MASTERPLAN-PER-TORINO-SMART-CITY.pdf>.

projects are formed by individuals and society as a whole. It constitutes a web of relationships and fluxes on different geographic scales, between local and global”, where no action can fail to consider the knowledge and the awareness “of the possibilities and the limits that the territory offers, of the human and environmental resources available, of the critical aspects to face and the opportunities that can be seized” (Giorda and Puttilli, 2011, p. 17).

Taking the territory as a starting point means understanding and giving space to the multiple urban intelligences, as the *social* varieties of *smartness* indicate. Collective intelligences that stay consistent with the social dimension can be seen as driving forces for territorial resilience, and as a way to resist and reinvent themselves when dealing with severe economic and social crises.

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