

# A (MORE?) INTELLIGENT CITY

Una ciudad (¿más?) inteligente

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## Resumen

*En este artículo se reflexiona sobre el paradigma de ciudad inteligente reciente y exitosa, lo cual parece ser influyente en diferentes ámbitos (económicos, culturales, políticos, etc.) y las disciplinas (ciencias sociales, estudios de TIC, etc.). A partir de una breve reconstrucción del origen del concepto, esta contribución se centra en la dimensión urbana de paradigma y sobre el papel que juega la tecnología más avanzada en la reconfiguración de las ciudades y espacios urbanos en las ciudades.*

**Palabras clave:** *Nuevo paradigma urbano, tecnología, estrategias de desarrollo, fragmentación.*

## Abstract

*This article reflects upon the recent and successful smart city paradigm, which seems to be influential in different fields (economic, cultural, political, etc.) and disciplines (social sciences, ICT studies, etc.). Starting from a brief reconstruction of the origin of the concept, this contribution focuses on the urban dimension of the paradigm and on the role that the most advanced technology plays in reconfiguring cities and urban spaces within cities.*

**Keywords:** *New urban paradigm, technology, development strategies, fragmentation.*

## Introduction: moving towards smartness

The relationship between man and (any type of) technology has often been marked by misunderstandings: did human ingenuity create technology to guarantee its survival and supremacy over other living species or does technology represent the epilogue of human kind as we know it? Technology allows us to do and know more and to live better but, in exchange, does it make us increasingly dependent on technology itself? Is technology a good or bad thing? To try to answer these questions, we can try to reflect on the human being/technology relationship starting from the recent and widespread paradigm of the so-called *smart city*. This paradigm, as we will see, is clearly related to the role of technology in today's world but while on one hand it "chooses" the technology (opting for the most innovative one, at the very limit of feasibility of technology itself), on the other it considers no solution other than that regarding the use of the chosen technology. This paradigm's strong points are the vagueness of its definition (to become smart you just need to use smart technologies), and the ability to comprehend everything (everything and everyone could be smart). And yet, it has been so "successful" to make us rethink on the causes of its success.

Many authors have dwelled on reflecting the motives of the distribution and the interest that the paradigm has spurred in a wide variety of areas and for many different subjects (institutions, businesses, academies, civil society organisations, etc.). We have actually been talking and writing about smart cities for at least a decade, though with different highlights and focus points (Eger, 1997 and 2003; Coe *et al.*, 2001; Evans, 2002. See Hollands, 2008, for an excellent reconstruction of the debate). The problem of the apparent abandonment of the initial reflections on smart cities is, if anything, due on one side to the combination of different themes and approaches (for example: the intelligent city, Komninos, 2002; the cyborg-oriented literature, Haraway, 1991), and on the other to the vaster amount of alternative theories to the city crisis, as in the case of the creative city (Florida, 2002, 2005). The re-surfacing nature of the paradigm makes it even more interesting (why does it re-emerge so strongly?) and further highlights what a useful model it is for passing on certain messages and favouring the transfer of certain policy choices from one context to another (Crivello, 2014).

We are, however, interested to highlight two aspects in this contribution: the urban dimension of the paradigm, clear from its very name, and its spatial dimension in general, or rather the idea of space – and territory – that this paradigm, and even earlier the relationship between human beings and technology, brings into discussion.

### 1. Smart and city

In the current economic and financial (and social, political, cultural) crisis, that is without precedent in human memory, an interpretative paradigm of reality has been brought to light – the smart city, which seems to bring together two characteristics: (1) the possibility of simplifying the complexity of the contemporary world, theorising a model that can be used to understand its main functioning methods; (2) the ability to project ourselves into a desirable, plausible future.

Regarding the first point, if we were to adopt an a-critical point of view (in the literal sense of the word) to the smart city, we would probably have to go all the way back to the idea of the "Fordist city"

to find an explicative model of the functioning of the urban realities that sufficiently includes all material and immaterial components of cities. We would, however, have to recognise that that model was – probably – made more efficient by the subsequent reflections on the “post-Fordist” city, or rather the reflections on what, how and when it had changed compared to the previous phase (Bagnasco, 1990; Amin, 1994, including, in particular the contributions by B. Jessop, on the changes of the State, and M. Mayer, on the new urban policies). The smart city model, regarding its relative newness within the international panorama, does not however allow for any subsequent reflection, because there is no city as yet that can be defined as entirely smart, not even newly-founded cities such as Masdar (in the United Arab Emirates) or Songdo (in South Korea). At the very most, they may be considered real estate market operations in progress that may contribute little to our analysis on their results, effects and impacts as smart cities.

Regarding the second point, a certain messianic dimension of the paradigm is clear, both for the choice of analytical and operative dimensions (the most fortunate of which is that operated by Giffinger *et al.*, 2007) – which seem to cover every field in virtue of conceptual vagueness (Hollands, 2008; Vanolo, 2014) – as well as for the promise of tranquillity and wellbeing that complete adhesion to the paradigm would bring. The interpretative model of reality that is linked to the paradigm of the smart city is – in fact and not coincidentally – hugely successful in institutions, media, civil society, businesses and academies in forms and methods as yet largely unexpected. The smart city is everything a city should be: sustainable, intelligent, competitive, inclusive, creative, hyper-connected, technologically advanced, efficient, *e-governed*, open, etc. In short, and this is the main value of the paradigm, the smart city would be a summary of all the very best that economists, planners, sociologists, geographers, etc., have been able to imagine of the city of the future. This summary – to tell the truth, a fragile result of hypotheses and hopes rather than analysis and reasoning – is the strong point of the idea of the smart city: a summary that completely trusts in technology’s capability (any technology, as long as it is recent) to move human beings forwards, to guarantee a high level of wellbeing, to solve the problems of the global economic system and – an even bigger hope – to maintain the system of civil cohabitation on which western democracy is founded, at the same time empowering (thinking of Sen’s capability approach, 1985) “less developed” realities (their lack of development is obviously established by the more developed countries). All of this, moreover, starts from the cities, from the urban dimension that, at a time when the state system is unable to effectively solve global challenges<sup>2</sup>, remains a rather tangible bastion of the organisation of society. In this sense, the definition of a true protocol of *smartness*, like in the case of the “City Protocol” experience (<http://cityprotocol.org>) and the “smart” revision of the “Barcelona model” (which started with the Olympic experience in 1992), would give us an example of which operations are possible in adopting the smart city paradigm and to understand to what extent the smart city model is (i) relevant for forming future development scenarios and (ii) how much these scenarios can be specifics of a certain context (March, Ribera, 2014).

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2- The crisis of the State precedes the current crisis (see the formulation of the famous expression “hollowing out of the State”; Jessop, 2004), but it is rather coherent to think that the phenomenon of transformation of the role of the State is one of the factors of the complexity of the crisis itself. If anything, we can say that the crisis has also highlighted the extreme fragility of supranational organizations (first among them, the European Union), if for nothing else but the apparent distance between the instances of supranational institutions and the needs of the populations affected by the crisis.

The paradigm of the smart city, in virtue of its (im)probable translation into methodology of urban development, is not excessively utopic (such as in the case of the sustainable city) or elitist (such as in the case of the creative city). Above all, it does not entail any “post” prefix, ferrying us to a new era of clarity (we will become citizens of a smart – not stupid – city) and prosperity (thanks to the ability to exploit all the available innovations). In short, it is a non- (or post-) political idea that can be relatively shared and therefore is rather unable to generate conflict between basically dissimilar ideas of the future (Vanolo, 2014; Söderström *et al.*, 2014).

The paradigm of the smart city is therefore inclusive for its ability to bring together differing concepts, and for being common sense for individuals with different training and skills. In fact, the paradigm is strengthened by passages that are necessary in order to become smart (though vague, for example regarding the use of advanced technology to favour the inclusion of citizens: how can we not agree?), and by the possibility of measuring their own performance. The performance aspect, in particular, is the most developed, analysed and discussed one. The smart nature of a city perhaps will not yet be sufficiently understood, but we can certainly find numerous indications on how and how much we can be smart and on which cities are better placed than others: according to the European Union, for example, it is possible to become a smart city if we aim at setting up programs to save energy and use it efficiently, as well as reducing CO<sub>2</sub> emissions by 2020 (CE, 2010); for the Italian government, though currently reviewing expenses due to the economic crisis, the smart city is a model – one to aspire to – of a digital city, of development opportunities guaranteed by ICTs, of public and private collaboration to meet the challenges of getting through the crisis itself<sup>3</sup>; for businesses, despite the actions and initiatives outlined on a community and national level, interest in the theme of smartness is apparent, both in terms of investment opportunities and in terms of income in the medium- and long-term (see, for example, the “Smarter Cities” programme by IBM<sup>4</sup> and the research of Söderström and Klauser within the COST project “Smarter cities: new urban policy model in the making”<sup>5</sup>). The performance measurement of smart cities is not only affected by different perspectives depending on who is promoting the smartness (because we presume a certain difference between EU objectives, those of a ministry of research and university, and those of a multinational firm), but also of two, not secondary aspects: on one hand, performance is measured based on aims that are so synthetic as to be vague (therefore everything and its opposite would be true or the view point of those who can invest in the necessary experimentations – i.e., businesses – would be the most important); on the other it would be about evaluating the performance of processes, most of which are in progress, with all the risks and necessary cautions relating to defining winners and losers in categories whose efficiency cannot yet be proven.

In this overview of (little) light and (much) shadow, however, it is rather noteworthy – and in some ways comforting – that smart cities do not exist only as areas in which the EU, State, and businesses can put strategies and projects into action, but as places thanks to which it is possible to imagine a way of escaping the crisis. The city is once more a focal point.

3- “Decreto direttoriale” of 5<sup>th</sup> July 2012 n. 391/Ric. “Notification for the presentation of planning ideas for smart cities and communities and social innovation”.

4- [http://www.ibm.com/smarterplanet/us/en/smarter\\_cities/overview/](http://www.ibm.com/smarterplanet/us/en/smarter_cities/overview/)

5- <http://www3.unine.ch/files/content/sites/francisco.klauser/files/shared/documents/Smarter%20Cities%20Abstract.pdf>

## 2. Cities on the front line

As we have seen, the origin of the paradigm of the smart city (Vanolo, 2014), just like the forms of its passage from one context to another (Crivello, 2014), is a tool aimed at aiding the market to progressively cover more fields of intervention in urban policies. A tool that is useful in reinforcing both a progressive movement towards forms of entrepreneurial city (Harvey, 1989; Jessop, 1997; Raco, Gilliam, 2012) and a revision in a privatized sense of urban welfare (on the front line after the weakening of the state one) (Raco, 2013).

Analysis of the progressive movement towards privatized forms of governing urban transformations, in which the role of the public is at most that of guaranteeing the collective interest<sup>6</sup>, allows us to reflect on how even a “positive” paradigm such as that of the smart city may contribute to demolishing the idea of a public government of the city. Focusing on these aspects, however, on the one hand would require us to truly believe that a public golden age existed on various territorial levels, on the other it would deter us from considering how much the relationship between human beings (and society), their organisation in space (especially, but not only, urban) and technology has changed.

A large part of the attention focused on the paradigm of the smart city is aimed at the first part of the expression, that is *smartness*: the combination of all the cultural and behavioural components that refer to knowledge and the adoption of both new technologies and traditional technologies used in an innovative way. In a certain sense, even the social component of innovation (referring to *social innovation*: MacCallum *et al.*, 2009; cfr. Pollio in “Hacker cities and mash-up policies” in this issue) is not exempt from references to models in which technology, culture and entrepreneurship permeate new ways of organising civil society, even if in a scenario of technological hyper-rationality which can be used to hide – or to not reveal – processes to redefine power (Vanolo, 2014). The caution with which we tend to translate the term “smart” with “intelligent”, for example, is due to the need not to confuse “intelligent cities” – or rather a city with a widespread use of ICTs – with cities that are “intelligent” in the sense of being able to unite different visions of development (in this sense, smart is more cunning) and able to see the various intelligences involved.

Equally interesting, however, is the second part of the expression: the city. As often is the case in moments of crisis, the city seems to reacquire its role of main player in promoting chances for development and practices that are useful for starting over. On the one hand, it is almost a necessity, imposed by the need to find on all territorial scales subjects able to gather opportunities; on the other, cities must come back to the fore because they are in any case the first level of government confronting the tangible effects of the crisis (in terms of urban welfare and the redefinition of the use of available resources, as well in struggling to maintain an acceptable level of quality of life for all citizens). Therefore, inaction or inability to act by other government levels seems to put the focus back onto cities. This is particularly true, for example, in Italy, where a lack of urban policies on the state level has favoured greatly the lack of a coherent strategy of territorial development across the country (Dematteis, 2012). Yet, it is not merely a

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6- Refer to the wide debate on territorial governance and the role that is assigned to the public, for example in Davoudi *et al.*, 2008.

chance given, as much as it is a chance taken: in fact, the concentration (or scarcity) of various resources in urban areas is a condition to systemise (or rethink) experiences, programs, initiatives and skills. It is the opportunity to experiment which puts cities back into the game, entrusting themselves once more to hope more than to science: if the smart model is to work in cities, it will therefore be able to also redefine the perspectives of development of an entire country and a continent. We should note that the opportunity to invest in restricted areas (that is cities or parts of cities), put in act for example through selecting bids for tender that the EU and the Italian government have introduced, allows us to run less risks because less financial resources are used.

We should also highlight another two aspects that contribute to outlining a rather bleak view: (i) there is a certain short-sightedness – and also a worrying repetition compulsion – in promoting smart actions in cities, often with well-defined social and spatial targets (therefore in even more restricted parts than those of the entire urban area) without working, at the same time, on smart territories or rather on the relations between the urban and extra-urban areas and on the risks that a choice of areas in which to experiment and invest smartly leads to in terms of fragmentation; (ii) the paradigm of the smart city, as we have seen, is a simplifying summary of very varied ideas and models, with the consequent risk that we continue with an addictive process of possible solutions without having understood if, and how, the original problem has been resolved (and if the original problem was well placed, or not).

Having said all this, why is the paradigm of the smart city still so interesting to so many? At least two readings of the paradigm can be identified that allow us to reflect on the above-mentioned relationship between human beings and technology and on the spatial dimension of this relationship.

### 3. Human beings and technology

Technology has a role, in our lives, as an “agent” element (Latour, 2005) of and in our society. Within the smart paradigm, technology is by definition the most innovative, whether it regards systems of waste collection or intelligent public lighting, and is intended as something that changes the living conditions of the individual and the community: at human beings’ service, but also indispensable to them and, for this reason, generating inequalities linked to its conditions of use and the opportunities that it may generate. To avoid ambiguity, all reference to the relationship between the biological conditions of human beings and his ability to invent “external” devices to support his life cannot be limited to technology but should, more correctly, refer to the *tekhne*<sup>7</sup>: we dress against the cold, we use lenses (either in glasses or contact lenses) to see better, we build houses and roads, power stations to produce the energy necessary to make our cities work, etc. In fact, the relationship between human beings and technology is the essential condition for the survival of the species. But then, what has changed with technology over the last centuries and, above all, with the technology of the last decades? Technology is becoming more and more indispensable (for us), it is pervasive, ubiquitous and, in its informational component – which is both (a tool of) communication and (the possibility of) knowledge – allows us to clearly separate a before from

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 7- The reference is to Aristotle and his reflections born from the distinction between *sophia* and *phronēsis*. In particular, see the work by Flyvbjerg (starting with Flyvbjerg, 2001).

the after (Greenfield, 2006). These characteristics make it even more necessary that many of us would believe and, at the same time, would thereby make us dependent on it for the definition of our way of life (refer, for example, to the idea of “third wave” by Toffler and Toffler, 2006). As an example let us look at what we most readily associate with the idea of innovative technology: the smartphone. Its use allows us to carry out a series of activities much more simply and quickly than in the past (obtain information, localise a certain type of service, send a document...) but the use of a smartphone is linked to its possession, to the possibility of purchasing it, to the ability to use it and the ability to make the most of the opportunities linked to its use. Furthermore, if possession of a smartphone were to be taken for granted (the saying is: “who doesn’t have a phone like this, nowadays?”), we should not take for granted the role that increasingly updated apps have in generating the need for tools that are more capable for managing this constant flow of innovation. It is obviously a marketing mechanism and it is not the market that we intend to demonise. Nor do we want to demonise technology or smartphones. However, we should pay attention to the possibility of generating or sharpening forms of injustice and inequality which, moreover, are not exclusive prerogatives of technology but which may be exacerbated by it.

Technology is becoming more and more necessary: it defines us in our abilities and in our relationship with others; it places us within society and space. A change in community living conditions, starting from the possibilities given by the use of new technologies, is one of the strong points of the smart city paradigm (where “smart living, smart governance, smart people” represent the software version of society overlapping a hardware of “smart mobility, smart energy, smart economy”; Giffinger *et al.*, 2007) and, as we have seen, the paradigm is more interesting for what it promises rather than for what it plans. Furthermore, it lets us imagine a society at the service of innovation and not vice versa. It is a post-political vision (Swyngedouw, 2007), where we re-discuss the very concept of citizenship (Balibar, 2012).

This idea of the human beings/technology relationship, excessively simplified in the case of the smart city paradigm, finds in non-scientific literature and in the arts a more complete – in any case complex – treatment. Films, books, cartoons, visual arts tell us of our relationship with technology, often taking from the visionary idea of being half human and half machine the inspiration to reflect on our relationship with the exterior and otherness (the use of these terms and the reference to Raffestin, 1997, is deliberate). The cyborg-Tetsuo<sup>8</sup> is exemplary of the possibilities of interaction between human beings and technology but it is by now obsolete because the new frontier, as Ang Lee understood in “Hulk”<sup>9</sup>, is in the invisible (Hayles, 2004). Furthermore, the cyborg dimension perhaps is not so interesting in the human-machine hybrid as much as in the socio-spatial hybrids that technology allows, permits and facilitates. We should look to human beings not only as “social animals” but as “techno-social animals”, as a hybrid of awareness and knowledge, where knowledge is not only that given by experience, memory and reflection but also an awareness/knowledge that is shared with other human beings and with machines that may imagine, re-elaborate, produce and innovate<sup>10</sup>. This techno-animal is not however the

8- “Tetsuo” is the title of a 1989 Japanese film by Shin’ya Tsukamoto.

9- The film by Ang Lee (2003) refers to the famous Marvel cartoon character and adapts it to contemporary technology: Bruce Banner is not transformed into Hulk by just gamma rays alone, but a mix of gamma rays and “nanomed”, or rather genetically mutated micro-organisms which heal the host organism.

10- Hardt and Negri (2004) take up the idea of shared awareness in a less techno-centric vision, with the intelligent swarm (see also Lewis’ criticism, 2010).

true cyborg that we should be paying attention to, because the hybrid is not so much the human being himself (no more than he/she already is) but the urban (and non-urban) space where human activities take place. It is in the technology/space (and territory) relationship that the true heart of the smart city matter probably resides.

## Conclusions: space and technology

Within the way of living, organising, managing, understanding and interpreting space we can notice some substantial changes regarding the role of technology in the last few decades. In the first place, there is a fascination for the visible and invisible, for example for the dematerialisation of the city and for the disappearance of the tangible dimension of technology (Sassen, 2011), but focusing attention on this aspect probably distracts us from understanding what is changing and how: it is interesting that new technologies are invisible, but their pervasiveness is even more so. We can remedy the supposed non-visibility of certain technology (for example, Wi-Fi networks) by adopting tools useful in “seeing” the phenomenon in action, while in which way the pervasiveness of these networks changes how we stand in the world still requires reflection. Let us take public space as an example of this pervasiveness. As Barnett (2004) highlights effectively, despite the persistent idea of public areas as a physical place for the different activities of a community, it is impossible not to consider as public space also “virtual” spaces in which those (and other) activities may take place (also because the same people who use physical public areas for certain functions may prefer a virtual public area, for example on online media, to reach more people more quickly). The definition of public and private is strictly related to the (re)definition of citizenship and democracy, to the foundations of society as we know it – or believe we know it – today. But public and private exceed the sphere of the visible and, above all, exceed the sphere of political and legal standardisation (as shown by the latest cases of improper use of sensitive and personal data: the US PRISM surveillance programme springs to mind). The spin-offs in terms of spatiality are clear, considering that the first to adapt to this hybridisation are organised interests of varying nature, including “borderline” or avant-garde cultural movements and organised crime (cfr. Armao in “Smart resilience. In search of a new model of urban security” in this issue), that often act as a forerunner to interests of other kinds. These pioneers control space, both virtual and real, which is not necessarily in open conflict with the control exercised by the legitimate authorities because we are dealing with a space that “escapes” authority itself: it is a forgotten space between areas of official control, an expression of the tangled relationships between legitimate power and resistance (Sharp *et al.*, 2000; Harvey, 2012). Clearly, it is not only the holders of advanced technology who are the experts in “forgotten spaces”. In many European cities, for example, there are areas that stand beyond legality and the duty/rights relationship of the citizens, as is the case of the informal settlements of Roma and Sinti people and nomad populations in general. And yet, even in these cases technology (for example the use of mobile phones) plays a primary role in controlling the borders and maintaining contacts within and outside of the area itself.

The relationship between officially recognised areas and those which have been defined as forgotten areas, together with the relationship between real and virtual use of the same, allows us to also reflect on the interpretation of space in terms of spatial justice (or rather of spatialized and/or localised social justice; on the

distinction between the two forms of justice: Soja, 2010). Evidently there is a problem of fragmentation and segmentation of the space favoured by the use of new technology, also on different levels (for example in relation to the broad band distribution in various states, as well as coverage between central and marginal areas in the same country, or in the choice of blocks or individual buildings to test particular technologies).

Two theoretical questions seem useful in further dealing with the theme of the space/technology relationship: (i) the relationship of technology with its context; (ii) the outcome of the space/technology relationship.

The first question is a consequence of the scarce attention for the context in which smart formulas have dropped: the very idea of being able to protocol a model to be transferred everywhere define a substantial indifference to the specificity of places (as it highlights the difficulty of territorialising smart processes, or rather of going beyond their spatialisation). As we have seen, the problem of transferring policies and practices is at the centre of a long debate (Dolowitz, Marsh, 2000; Peck, 2011) that underlines how we privilege the attention on know-how more than know-where. The second question is closely linked to the first, because the attention (or lack thereof) to the context influences the result of the relationship between space and technology. In particular, the literature on the assemblages (see various articles published on the subject in *City* magazine throughout 2011, for example: McFarlane, 2011; Brenner et al., 2011) seems fruitful for analysing and interpreting the way in which technologies (not only the most recent) are combined with space for the activities and organisation of human beings. The term assemblage, in fact, is “often used to emphasise emergence, multiplicity and indeterminacy, and connects to a wider redefinition of the socio-spatial in terms of the composition of diverse elements into some form of provisional socio-spatial formation. To be more precise, *assemblages are composed of heterogeneous elements that may be human and non-human, organic and inorganic, technical and natural*” (Anderson, McFarlane, 2011, p. 124; my italics). Space is therefore understood and analysed as a hybrid space, the result of hybrid geographies in which a “profusion of intermediaries” of human and non-human kind contribute to redefining the how, where, why we carry out various human activities (Whatmore, 2002).

The paradigm of the smart city, the opaqueness and weakness of which we have written about in the previous pages, is an attempt to design the world introducing the technological dimension to support socio-economic and territorial re-organisation. If we were to turn the argument on its head and look at the technological dimension not as a support but as co-constituting the socio-economic and territorial system itself, we would perhaps be able to see and go beyond the current crisis with much wider and more interesting perspectives. This seems to be the frontier and with this article we intend to open the debate up to new perspectives and reflections.

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