

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/300779930>

# A Smart Planning for Smart City: The Concept of Smart City as an Opportunity to Re-think the Planning Models of the Contemporary City

Conference Paper · June 2015

DOI: 10.1007/978-3-319-21407-8\_40

CITATIONS

12

READS

4,415

2 authors, including:



Angela Cresta

Università degli Studi del Sannio

32 PUBLICATIONS 36 CITATIONS

SEE PROFILE

Some of the authors of this publication are also working on these related projects:



Territorial Impact Assessment della coesione territoriale delle regioni italiane. Modello, su base place evidence, per la valutazione di policy rivolte allo sviluppo della green economy in aree interne e periferie metropolitane [View project](#)



Competitiveness in Sustainability: the Territorial dimension implementation of Lisbon/Gothemburg processes in Italian regions and provinces [View project](#)

# **A SMART PLANNING for SMART CITY: the concept of smart city as an opportunity to re-think the planning models of the contemporary city**

Ilaria Greco<sup>1</sup>, Angela Cresta<sup>2</sup>

<sup>1</sup> Department of Law, Economic, Management and Quantitative Methods, University of Sannio, Via delle Puglie, 1, – 82100 Benevento, Italy [ilagreco@unisannio.it](mailto:ilagreco@unisannio.it)

<sup>2</sup> Department of Law, Economic, Management and Quantitative Methods, University of Sannio, Via delle Puglie, 1, – 82100 Benevento, Italy, [cresta@unisannio.it](mailto:cresta@unisannio.it)

**Abstract.** A “smart city” is generally meant as a technologically advanced cities, capable of joining “competitiveness” and “sustainability”, by integrating different dimensions of development (economic, mobility, environment, people, living and governance), becoming self-sufficient. A broad definition that suggested different and varied visions, from which are derived identification systems and different classifications of Smart cities. The contribution part from a reflection, already started by the time the authors, on the theme of “Smart City” as “Senseable city”, which means to focus the discussion no more on “how cities can be smarter”, but on “how intelligent technologies can lead us to rethink the patterns of urban development by making them fair and inclusive, as well as efficient and sustainable”.

About, the paper tries to explore a new field of research related to the relationship between spatial planning and smart city. The reference is timely to the European initiative FP7-ENERGY-2012-SMARTCITIES which provides specific actions dedicated to urban planning as a basis for the construction of the Smart Cities. The initiative includes a long-term vision and refers to an urban planning in able to manage, direct and govern energy policies..

**Keywords:** smart city, urban planning, urban development

## 1. A critical review of the concept of “Smart City”. The different approaches<sup>1</sup>

The term Smart City was firstly coined at the beginning of the Nineties in order to point out an urban development more and more dependent on technology and on innovation and globalization phenomena, mainly by an economic perspective (Gibson, Kozmetsky and Smilor, 1992).

However, it is in the last decade that the term Smart City has become more and more widespread, especially in the field of urban planning. Nevertheless, definition and approaches are still very heterogeneous: during the last decade, the term has been used with so many different meanings, that the concept seems to be in danger of becoming a new (and a further) “urban label” (Hollands, 2008), a fuzzy concept, often improperly used (Nam and Pardo, 2011).

Some scholars have clearly outlined how, despite the wide literature and contributions on this topic, it is difficult to find out an appropriate and, above all, a shared definition of the term Smart City (Giffinger et al., 2007; Caragliu, Del Bo, Nijkamp, 2009). In detail, as highlighted by Giffinger et al. (2007), “the term is not used in a holistic way, (...) but it is used for various aspects, which range from Smart City as an IT-district to a Smart City regarding the education (or smartness) of its inhabitants”.

Since 2007, numerous scholars have tried to “bring order” among the heterogeneous definitions of the concept and to achieve a shared vision of “smart city”.

Without going into details of the various attempts to arrive at an univocal definition of a smart city, we can summarize the different ways in which it has been interpreted the concept of smart city into three types of approaches: (1) a *techno-centered approach* characterized by a strong emphasis on “hardware”, new technologies and infrastructure that ITC would be the key to the smart city (Cairney and Speaks, 2000; Washburn and Sindhu 2010), (2) a *human-centered approach* where there is a large weight of social and human capital in defining the smart city (Partridge, 2004; Berry and Glaeser, 2005); (3) an *integrated approach* that defines a smart city from the possession of both the foregoing qualities, because the intelligent city has to ensure integration between technology and human and social capital to create the suitable condition for a continuous and ongoing process of growth and innovation (Kanter and Litow, 2009; Campbell, 2012).

As pointed out by Hollands (2008), this terminological vagueness could not be just a problem of defining a uniform framework for benchmarking but, behind a deliberate choice and an artificial generality, all the contradictions that characterize the new urban forms may be hidden [23].

Hollands shows clearly that, today, there are no studies that correlate the smart city projects with the most critical aspects of the city and its transformations, as instead it had been when the *entrepreneurial city* was born (Harvey, 1989), or when the dominance of the activities and neo-liberal spaces was increasing (Peck and Tickell,

---

<sup>1</sup>The paper is the result of a common reflection of the authors; however, the single sections can thus be attributed to: Ilaria Greco paragraphs 1, 4 and Angela Cresta paragraphs 2 and 3.

2002), and he emphasizes the risk that the smart city can be only a high-tech variation of the entrepreneurial city [22]; [28].

There are different schools of thought in Europe for the definition of Smart City:

a) There is who defines the Smart Cities of the technologically advanced city, where the sector's most important appears to be that of ICT, which would play an indispensable role in the realization of an intelligent city, technologically advanced and able to be competitive in a world scene. New technologies applied to the city are an element that facilitates and sets new horizons to build and remodel an urban environment where data and information are shared, retrieved and processed to give real-time solutions. This concept is to bring the vision of the first scholars, who spoke of the city as smart as those cities are able to leverage technology to improve the overall efficiency of the urban environment .... The challenge of the Smart City is that of a city that was relaunched with new technology but with the basic human intelligence that manages an intelligent city by nature.

b) A second definition is that of a city that is able to manage the resources available in an intelligent, connected, that is, a process of improving the quality of life: pivotal factor and common goal for the very definition. "Smartness has to do with intelligence, so smart cities can simply be considered as the contrary of stupid cities<sup>2</sup>.... Smart può essere quella città che sfrutta le proprie risorse in modo intelligente, efficiente ed efficace, per diventare economicamente avanzata ed autosufficiente dal punto di vista energetico. ...taking shape new paradigm for the modern city, the "*smart city*" as "*intelligent city*".

c) After the models of urban sustainability represented by the "green city" and the "creative city", in response to problems of congestion, pollution and physical degradation of modern city. "A Smart City is a city well performing in six characteristics, built on the 'smart' combination of endowments and activities of self-decisive, independent and aware citizens: mobility, environment, people, living, governance, economy": this is the most complete definition dictated by the Report of the European Smart Cities, in line with the new European vision for the future development of global cities (Horizon 2020 Urban Forum, Digital Agenda - Strategy 20.20.20, Decree Digitalia, etc.)<sup>3</sup>.

d) The new dimension that completes the process of smartness ensuring the development of a city in terms of *SENSEable City* is the *equity*: a city should not just be smart, but its smartness must cover all the inhabitants! If the "*smart city*" is a city where investments in human and social capital, in the participation processes and in the technology infrastructure, are directed to sustainable and competitive economic development, ensuring a high quality of life and providing for the responsible management of natural and social resources from a shared governance, "the *SENSEable city*" is the which encourages dialogue between the different elements that make up the urban life, and that encourages more informed and fair decisions about

---

<sup>2</sup> Vogelij J. 2011, Some thought about Smart Cities, Soest, NL.

<sup>3</sup> Giffinger R., Fertner C., Kramar H., Kalasek R., Pichler-Milanovic N., Meijers E.(October 2007), Smart city – Ranking of European medium-sized cities, Centre of Regional Science of Vienna.

their urban environment, with a new approach to the urban planning and an efficient use of networks. The transition from a Smart to a SENSEable city is, therefore, allowed by a new dimension of analysis, the “equity”. The equity is, in fact, the dimension that completes the process of “smartness” of a city in terms of ensuring the development SENSEable City.

As well as Caraglio and Del Bo (2009) have written, the availability and quality of the ICT infrastructure is not the only definition of a smart or intelligent city. Other definitions stress the role of human capital and education in urban development. Berry and Glaeser (2005) and Glaeser and Berry (2006) show, for example, that the most rapid urban growth rates have been achieved in cities where a high share of educated labour force is available. In particular Berry and Glaeser (2005) model the relation between human capital and urban development by assuming that innovation is driven by entrepreneurs who innovate in industries and products which require an increasingly more skilled labour force [8]; [4].

To arrive at a definition that brings together different criteria of analysis and the previously mentioned aspects, a few years ago the Vienna University of Technology - in collaboration with the University of Ljubljana and the Delft University of Technology - gave birth to a research on European medium-sized cities (with population less than 500,000 inhabitants). Later, this research became the ranking instrument of approximately 1600 city of EU27, plus Iceland, Liechtenstein, Norway and Switzerland.

This project, called “European smart cities”, was born as part of a wider project ESPON 2013 (ESPON Project 1.1.1) and showed not only a final ranking of 70 cities, but it has remained a reference model to identify factors that make cities “smart” (Carta M., 2013). In this context, smart cities can be identified and ranked along six main axes or dimensions, that are: *a smart economy; smart mobility; a smart environment; smart people; smart living; and, finally, smart governance* (Fig.1). These six axes connect the traditional theories of urban growth and development, with the modern aspect of sustainable development of a city. Then, a middle city can be defined as “smart” when investments in human and social capital and traditional (transport) and modern (ICT) communication infrastructure fuel sustainable economic development and a high quality of life, with a wise management of natural resources, through participatory governance [8].

Cohen’s vision of smart city is inclusive of all of these dimensions, even if the quality of life is the central element: “*Smart cities use ICT to become more intelligent and efficient in the use of available resources, with the effect of reducing costs and energy consumption and at the same time, improve the delivery of services and quality of life citizens, reducing the ecological footprint and developing innovative and sustainable economy*” [14].

At the base of the study, several regional and global rankings theme of innovation, environmental sustainability, quality of life and digital governance<sup>4</sup>.

---

<sup>4</sup>In detail, the sources used by the author for each dimensions: The Brookings Institute and Europe’s biggest Startup cities (*1. Smart Economy*); Siemens Green City Index, List of membership of Cities Climate Leadership Group (C40) and Local Governments for Sustainability (ICLEI), the Carbon Disclosure Project for Cities. For some cities, this dimension has been integrated with the Resilient Cities ranking (RC) developed by the same author on the basis of efforts by the city in this field (*2. Smart Environment*); The Worldwide E-Governance Report 2011, The City Data Sets-Data

But even this interpretation seems still limited. In fact, if a smart city is a city that knows how to exploit their human capital so that there is a creative and qualified context for economic development, other factors that are not exclusively linked to economic growth seem very important.

## 2. How to redesign the contemporary city: the new challenges

At the end of the twentieth century, the crisis of the economic model based on Fordism and the development of the tertiary sector impress a further acceleration to the city's transformation from an industrial city to a city of services, resisting the loss of its functions redesigning itself, individually and as part of the overall urban system.

The recent and rapid changes that have transformed the economy, especially in the last century, inevitably have started processes of urban transformation which, however, have succeeded and sometimes superimposed in a convulsed and often unregulated drawing of the cities, both in developed countries and in the other ones. In a few years, we have seen the transformation of the industrial cities in cities of services up to the current forms of conurbation and urban agglomeration, that have had as a single common factor to extend and subtract more and more space to a more rarefied urban space.

During the nineteenth century, the economic production function of the city takes on a prominent role on all other and the city became central to the development of national economies. This is the moment in which cities are beginning to grow and to expand in the suburbs. Thus, the economic and industrial development, the increase of population and the increase in urban population are linked, throughout the century, with a double thread in a cumulative growth. This was much more evident in the cities of the northern hemisphere (especially in North American and European ones) where the possibility of work related to the localization of mineral deposits formed a precise condition for regional development and industrial cities, which have designed the space, according to precise geographic forms, opposing workers' quarters to bourgeois ones, in an urban pattern of well distinguished areas.

But the industrial city has its beginning and its end, leaving its inheritance. The twentieth century was especially the century of the city and the suburbs. Far from growing and multiplying according to an idealized model of rationalist "modern city" rethinking existing cities, in most cases the suburbs have come to be arranged "like wildfire" around antique and nineteenth centers, laying the foundations for the development of the current shapeless metropolis and megalopolis [12].

The current urban transformations require us a further reflection. In fact, since 2009 for the first time in human history, the urban population has been surpassed the one established in the rural area and, according to a report from the Worldwatch Institute, by

---

Catalogs, The City Protocol. For some cities, this dimension has been integrated with the IDC Ranking (3. *Smart Governance*); Mercer Quality of Living Report (4. *Smart Living*); The Eurotest - Quality Safety Mobility, Siemens Transit Ranking, The Emerging Markets Trade Association (5. *Smart Mobility*); The Economist Global Competitiveness Rankings. (6. *Smart People*).

2050 the 70% of the Earth's population will live in the city, a percentage that in industrialized countries will rise up to 84%, by the middle of the twenty-first century [29].

The uniqueness of this stage is that these changes have not resulted in the reduction or containment of urban development of the city, which continues to grow, mutate and diversify its forms. The cities that have developed and grown in the industrialization have dilated and have become territorial systems of various types in which the flows of the industry are only one element of the complexity and, through agglomeration and conurbation, they have developed over more and more vast areas.

This was due to phenomena of various kinds: the relocation of production and services, a more and more intensive use of the car and finally to the phenomena of peri-urbanization that have pushed people to migrate to places where a greater *well being* is guaranteed, or to places where the “capability set” of goods and services and access to them is retained by the citizens and, at the same time, living conditions in terms of environmental quality are better [31].

Cities are today junction points between global flows of people, goods, information and finances. For this reason it becomes necessary to balance the local with the global, because through local policies can achieve tangible results, which can then be replicated on a large scale.

Learning from nearby towns such as Landry says, is one of the most important forces to bring best practices and results possible. Are recognized two resources essential to the city to allow its rebirth:

- the mobilization of its population, its intelligence, inspiration and its creative force;
- the ability to combine new resources to seek new ways of collaboration and the connection between different actors.

Today, the city must be able to prove to be self-sufficient for success. Must be able to create an agenda with common objectives, to grow in an integrated way and share the same vision. New public-private cooperation and new strategic directions that allow integration between Hard and Soft infrastructure, to create the development of a sustainable urban environment.

The nascent concept of Smart Cities seems to indicate the main routes and necessary to be done in order for a city to become sustainable, competitive and self-sufficient.

The conformation of the same European city with a long history and an urban design unique in the world, it needs today in the twenty-first century to be re-seen, re-designed and re-designed to cope with the serious problems of climate change .... The city today is considered the artificial ecosystem for excellence in which you can deal with the problems related to climate change and the urgency of the effects caused by years of excessive consumption of resources, which have led the city to have to find appropriate tools for the least possible impact on the territory.

The city is defined by Landry as a living organism that consumes food, water, energy and produces waste. This system to feed and regenerate needs of glass, plastic, concrete, brick

### The paradigm of the modern city: SMART and SENSEable cities

The contemporary city now occupies 2% of the Earth's surface, is home to 50% of the earth's population, consumes 75% of the total energy and it is because of '80% of CO emissions. Based on the above numbers, cities are seen in perspective, as the places you will find solutions to problems facing the company and will have to accept challenges regarding climate change, globalization and sustainability. The biggest challenge is to maintain and improve the standard of life of the growing number of the population with a ratio of 1/10 of CO<sub>2</sub> emissions we produce today.

But the city can not be strictly sustainable, because it is an area of high concentration of fuel consumption and environmental impact; it is a "predator" organism of external resources, that stresses the energetic and environmental imbalance. The city depends on the outside (the rural area in peripheral systems or the entire world in the case of "global cities") and consumes resources for its own development.

We know that in 2030, five billion people will live in cities, and it is clear that the "human overhead" can not be supported by the urban centers as well as designed until now and the need for smart cities and smart communities can not remain much longer concepts that are prerogative of a restricted array of experts, but will instead become a shared concept for improving the quality of life and for adapting it to the future needs of urban housing. Therefore, the development of tangible and intangible infrastructure can not be addressed only to the economic and political efficiency but rather they should promote social inclusion, quality food and good life. Neither a smart city can be identified simply as a green city. A smart city not only encourages the use of bicycles, urban green or waste recycling, but invest wisely on more items such as mobility, environment, people, liveability, governance and economy.

So, a smart city is not a project but the beginning of an overall process of *sensing* and *actuating* for the transformation of the city, where there are particular needs of citizens, active and passive actors in the process.

Then, what is a city today? Contemporary cities share a number of distinguishing characteristics: high density of population, a population size significantly different from that of rural area, a complexity of cultural, social and economic functions, being centroid of power and services, being creative and dynamic environments and places of contradictions and conflicts [21]. In urban areas also remains the need to provide services such as housing and education at an affordable cost, clean water, good air quality, social environment without crime, an efficient transport system, energetic sustainability and rational use of resources.

Therefore, it becomes necessary to solve these problems in a defined border of the city, and put a solution to the current uncontrolled spatial development of the same.

In particular, environmental issues have become central to economic development and their solution must start from urban areas. In fact, the cities are responsible for the majority of pollution, producing up to 70% of the total emissions of carbon dioxide, even occupying a residual portion of the earth surface. These problems appear more acute in developing countries, where the increase of the urban population are higher



than in industrialized countries and it is expected that in the coming decades there will be 95% of the world's urban population growth<sup>5</sup>.

Migrations from rural area combined with population growth cause the formation of megacities, ranging to be consolidated with a sprawl. Today, these cities are inform agglomerations, a collection of non-places that do not encourage the meeting, communication, without which the groups retire into their shells.

In Europe, the threats to sustainable urban development are taken into particular consideration and are addressed in an integrated approach, taking into account both of environmental issues and of those social, economic, cultural and political ones.

In fact, since 1999, through ESDP European Spatial Development Perspective (ESDP)<sup>6</sup>, the EU has been beginning to lead to programs focused to an integrated territorial development, primarily oriented to territorial balance and cooperation between the cities of the local territorial systems.

Today, the end of a period of steady economic growth causes stagnation and economic decline in many cities, particularly in those ones that are not European capitals and in the old industrial cities of Western Europe. That is leading to the gradual withdrawal of the welfare state in most European countries. So, in the framework program for research and innovation "Horizon 2020" the aging population, the low-density urban sprawl, that threatens sustainable development and that makes the service more expensive difficult to secure, the over-exploitation of resources, the lack of public transport networks, the risks to biodiversity and, finally, the issues related to the protection and maintenance of the land, threatened by the widespread hydrogeological, are all considered central problems [16].

However, for some years first in the world and then in Europe, the researchers have been beginning to analyze the modern city through the paradigm of the *smart city*. The main feature of the smart city seemed to be on the role of ICT infrastructure, although much research has also been carried out on the role of human capital, the social and relational capital and the environmental quality as important drivers of urban growth [5].

### **3. The European Initiative FP7-ENERGY-2012-SMARTCITIES for an integrated planning sustainable of resource**

The smartness at the European level is mainly read in the environmental and energy key, so much so that both in the Strategic Plan for the Energy Technologies of 2007 (European Commission, 2007), and in the resulting Technology Roadmap (European Commission, 2009), there is precise and explicit reference to the smart city and a specific budget dedicated to this axis [19].

---

<sup>5</sup> In Africa and Asia the most significant change will be, because is estimated that in 2050 a total of 86% of the increase in urban population will record [11].

<sup>6</sup> Approved by the Informal Council of Ministers of Spatial Planning of European Commission in Potsdam in 1999.

### The paradigm of the modern city: SMART and SENSEable cities

And also, in 2012, the European Commission launched a specific initiative for the development of smart cities of the Old Continent: "Smart Cities and Communities European Innovation Partnership". This program has provided € 365 million for innovative ideas and demonstration projects within the energy, transport and ICT in urban areas [9]. These policy (initiatives) are then witness to a European commitment to the sustainability of our cities, especially viewed in terms of technological innovation, in order to reduce the load of greenhouse gases and to improve the quality of the life of the citizens.

Though, all this is directed at a fair balance in the development of a city, it is still insufficient and we need to continue to question the meaning we want to give to smart option in the city and, therefore, to understand the implications.

The concept of Smart cities is in the Annual Programme of Work of 2012, drawn up by the European Commission; it focuses on the theme of cooperation between countries and EU Member States and is part of the Seventh Framework Programme for Research and Technological Development (2007-2013). The program has a budget of 50 billion euro and aims on the enormous potential existing in the field of research and innovation, seen as key factors for competitiveness, employment, sustainable growth and social progress.

The Seventh Framework Programme (FP7) is divided into ten themes; the initiative of Smart Cities is inserted inside the theme 5 on energy policies. The need to adapt more sustainable energy systems, less dependent on imported oil and based on a mix of different energy sources, in particular renewable energy, is the primary objective to address the European challenge towards greater security of energy supplies and to start working concretely on the issue of climate change, in order to increase the competitiveness of the European market.

The energy theme of the Seventh Framework Programme of 2012 focuses on the implementation of the Strategy Energy Technology Plan (SET-Plan), one of the pillars of European energy and climate policies. Most of the topics supports the SET-Plan European Industrial Initiatives (EII) Technology Roadmaps and implementation Plans. The Roadmaps specify the research and indicate the needs for the next ten years, with the aim to accelerate the growing market of the most promising technologies in the area of solar, wind, bio-energy, smart grids, the Carbon Capture and Storage and smart cities. The focus of the implementation dell'EIIs was the result of a concentration of activities, objectives and priorities decided by mutual agreement, by industry, Member States and the European Commission. An important element of the initiative is to encourage the integration of FP7 projects with national and regional projects more relevant, to establish models of interventions that facilitate the sharing of knowledge and the dissemination of results.

In FP7 was reinforced research on energy efficiency to achieve results. In this section you enter the policies related to the Smart Cities and Communities, as the issues of energy efficiency and climate change objectives are cornerstones for FP7. The new area dedicated to the Smart Cities and Communities, is part of the Activity 8 (Energy Efficiency and Savings), whose objectives can only be achieved through a holistic approach and with special attention to new technologies. In addition, the innovative parts of the work program also strengthen the cohesion of the non-

technological aspects, such as the involvement of users, through the active participation of citizens, the development of methodologies already tested and industrial leadership. It is, therefore, of a cross-sectoral approach between different public and private sectors in different fields of action.

Among the multiplicity of EU policy in support of the theme Smart cities, the notice Smart Cities and Communities officially marks the start of funding dedicated to the research and implementation of projects on cities.

The Initiative FP7-ENERGY-2012-SMARTCITIES Smart Cities and Communities is part of SETPlan and includes a number of topics related to energy, such as energy efficiency, power networks, the production of renewable energy and other issues related to urban electricity, heating and cooling, transport, waste and water management.

The arguments challenged focus mainly on the energy dimension, as is expected from 'Energy-efficient Buildings-(EeB) Public Private Partnership, which is clearly aimed at identifying technical solutions, economic and financial implications for improving the energy efficiency of city and neighborhoods; in this way it supports the initiative Smart Cities.

The Initiative also concerns the theme of Transport, provided by the 2012 work program, which is also included in that of the Smart Cities and Communities.

European cities are different in terms of size, morfologiaeconomica, organizational structure, climate, and geographical proximity to transport networks and also for sustainability objectives achieved; Initiative, therefore, aims to promote and replicate successful solutions already tested, valuing models of cities with similar structural conditions and with the same ambitions. To get

a potential replication of interventions, at least three cities in the United States and or Associated Nations must team up to propose a project under the call FP7-ENERGY-2012-SMARTCITIES. The European Commission will allocate funds to evaluate the proposals on the topic and will assess also the cities by the degree of engagement used in the reduction of greenhouse gases in an innovative and integrated, because it will represent, if successful, a model replicable.

he issues related to the call FP7-ENERGY-SMARTCITIES refer to urban planning and the role of energy strategies as a basic requirement for the success of the project. It speaks specifically of "Strategic sustainable planning and screening of city plans". It 'the first action dedicated to a urban planning as a basis for the construction of the Smart Cities; it aims to create strategic models of sustainable planning to direct the flow of energy efficiency of different sectors and in different cities throughout Europe and intend to support the city with innovative and ambitious projects, which provide integrated urban planning.

The outcomes expected from the planning will have to demonstrate that the integrated approach follows an economically better result than the individual project; and this will allow the exchange and dissemination of the results of the Indicators of Key Factors. The initiative embraces a long-term and refers to an urban planning can manage, direct and govern energy policies. For the first time you refer to a sustainable urban planning in energy policies that also collects policies initiated earlier. The call smart Comminuties Cities and lets start a new urban experimentation, able to give

new perspectives to the cities that decide to adopt energy policies aimed at sustainable integrated planning of resources.

The city certainly is a complex system and, therefore, difficult to control and initiate concrete policies, such as the one just analyzed, is certainly complicated. But this is the challenge that today's Smart Cities in general offer, ie be able to give a new vision of the city system, through improved resource management and supervision upstream of the choices of urban development.

Today there is much talk of sustainable city, town to zero CO2 emissions; it speaks of a city capable of exploiting the resources it has available in an intelligent and sustainable, to be able to win his biggest challenge: reducing the level of pollution.

This new requirements have created a stream of innovations for the city, since it allows interaction, exchange of information, ideas and projects. Born for this reason the classification of the cities that represent a more creative milieu, where there are the pre-conditions for the generation of flows, ideas and intentions.

According to the vision of Landry, interventions that can be made within a city are two different groups: Hard and Soft infrastructure. The Hard Infrastructure constitute the link between buildings and institutions; important is their physical location as containers and cultural services, together with the system of transport, health and attractions in general. Landry defines this infrastructure similar to a network of poles and lines that draw and interconnect the city. The Soft Infrastructure refers to the systems of associations, social networks, connection and human interaction, styling and encourage the flow of ideas between individuals and institutions. This occurs through relationships face-to-face or through ICT that facilitate a wider network of communication for the development of goods and services. The ability to generate cash creative and expand the administrative boundaries to a metropolitan area, it is now necessary to have a greater awareness of the development of a new concept of the city: a city subway organic. The interest is focused so soft infrastructure to consider the city a complex system generator changes.

The debate on sustainable development has encouraged innovation networks, which affect the city predominantly through targeted actions for sustainable buildings, transport and management of existing resources. The networks have become the nervous system of the metropolis. Studying them we can better understand the places where we live.

#### **4. Smart strategies for innovative methods and planning practices**

Today, the urban planning is facing a new theme to be treated, in fact, that of the Smart City is a concept to be studied and analyzed to develop as much as practically possible objectives that a process of evolution of the practices could bring. Cities must find the right balance between local resources and policies aimed at the realization of smart strategies for re-thinking methods and innovative planning practices.

The action of the city integrates all levels of planning, from the Metropolitan to the regular one, so as to prepare strategic development intelligent and shared city. To concretise a malleable concept, elusive, unpredictable and often rhetorical which is to Smart city, cities must find the right balance between local resources and policies aimed at the implementation of strategies for re-thinking methods and innovative planning practices. The Smart City concept can be defined as a concept opportunistic mobility: opportunistic because it may serve to give a jolt to the city, the way to lead their expansion, their development and resource management; mobility as potentially able to mobilize resources, both economic and financial, creative and human capital. The opportunities are often obvious, though still little concrete.

Jan Vogelij<sup>7</sup> analyzes some characteristics for the definition of smart city, with particular attention to the conditions of the urban environment: the intelligent use of space: consider the abandoned areas for reuse and the opportunity for the city to regenerate parts of the city itself. A smart city is relatively dense, with a mixity of uses that connects different activities.

The concept of Smart City can generate success precisely because it is able to maximize the technological applications to improve the functional efficiency of the social, economic and physical.

Applications for smart design: in a smart city it comes to safety, health and social inclusiveness as characteristics essential for a well-designed urban environment. There are not only plenty of public spaces and meeting, but also private spaces and contemplative to encourage the exchange of ideas, views and opinions.

It is important to be able to stimulate the minds of the community for future innovation in the city. It is also essential to initiate processes of cultural regeneration, but at the same time we need to enhance the story of a city, to be considered as a value. The past of each area offers possibilities of natural and cultural assets that can be used as future urban development. "A smart city connects the past through the present with the future".

The effectiveness of the above issues stems from intelligence interweaving of cities and population policies to its actual development.

The concept of Smart city embodies the holistic view of things, according to which the sum of the parts is greater functional / different from the sum of the performance of the parts taken individually.

Vogelij states that the strong point of the Smart Cities is to have an integrated planning, cooperation between different sectors that are the key elements to counteract the problems of planning today, such as the fragmentation of the different administrative parts of the city in the first place and the city physical as a result of policies and projects after.

Today we are facing a very important transition, which takes into account enormously sustainable development, which, in recent years, has been the center of the project dimension and sees the transaction from traditional urban planning based on the principle mechanistic in solving problems related to the city, to an organic vision of the urban and metropolitan. The utopian vision of cybernetic thinking,

---

<sup>7</sup> Vogelij J. 2011, Some thought about Smart Cities, Soest, NL

### The paradigm of the modern city: SMART and SENSEable cities

characterized by "horizontalisation of human relations," see today in the Smart City for his first job. The development of nanotechnology, renewable energy and biotechnology, is instead a strong element of the thought of a new city, being carried off the dualist view to approach the thought anticipated by Jacobs, and that is to consider the city in terms of system complex, that is, as a system of different processes, generators of changes and consolidations. From the moment you move the center of gravity from the infrastructure hard to soft infrastructure, capable, that is, to close the gap, improve the quality of life of citizens, new ways of seeing and thinking to design the city and its metropolitan area.

Focus on Smart City concept means using the word itself as a tool to share the same vision of the future. Means sharing perspectives development and ideas that lead to success. It is an essential tool to achieve concrete actions from different perspectives. From the interview with the expert in Spatial Planning, Jan Vogelij.

The Smart City concept can be defined with two main verbs: make use of the available resources of the city to enhance the strengths and work on weaknesses to solve problems that relate to the specific case.

The concept of Smart City can be, therefore, a tool that is part of the urban planning and helping to address sustainable development strategies and long-term technological innovation, in order to improve the quality of life of the inhabitants.

Amsterdam is an essential focus that acts as the glue between definitions, sectoral experiences on the one hand and policy and practice dictated by the European Union on the other, where he finds himself concretely action, policies and long-term vision of a transition process called Smart city.

The approach adopted by the inter-scalar Structure Plan 2040, from the local to the energy strategies and program of actions designed for the realization of the vision Amsterdam Smart City aims, in fact, the exploitation of the resources that the city and its metropolitan area have.

Point to the existing city as the central hub of the future development, identify in areas already built the potential to attract population and working class, introducing sustainability in the parks to give breath to a dense city, converting the brown fields in areas of new construction and be able to connect this with the surrounding metropolitan area seems certainly be a winning strategy.

The novelty of the new structural plan 2040 are the energy issues: strategies to prepare the city to the new era after the fossil. The strategic plan focuses on energy strong themes of energy conservation and use of alternative energy sources as keys of metropolitan development.

In Italy, the pilot projects presented to the call of the European Smart cities and Communities refer to certain neighborhoods or areas, believed to be particularly interesting to accommodate advanced technologies, specific actions and measures of innovation, aimed at achieving the objectives established in Europe: CO2 reduction, development of new integrated systems, new public-private relationship, awareness.

The Smart City concept is beginning to be acknowledged and made official during the agreement SMAU (International Exhibition of Information & Communication) - ANCI (National Association of Italian Municipalities), establishing the "Italian

Observatory on Smart cities", and above all with the introduction by the Ministry of Education of the strategy Smart City as a strategy for the entire country.

The main objective of the observatory founded by the SMAU-ANCI is to sensitize the public administration on the issue of Smart Cities and try to facilitate a meeting between government and the private sector. L 'Observatory aims to understand how, through the support del'ICT, we can improve the quality of life in urban spaces, in terms of mobility, energy policies, and waste services to citizens.

Many cities are working on a follow-up to the EU directive, which, through the Communication to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions COM (2009) 519 final "Investing in the development of Low Carbon Technologies (SET - Plan), "stimulates Smart cities to set up projects in order to improve the quality of life of citizens, engaging in a decisive way and on all fronts on the problems of climate change.

According to reports NetConsulting, Italian cities are now forced to chase the new concept of Smart City to not lag behind other European cities and to start, so, economic recovery, absolutely necessary today to raise the conditions of the citizens and give them concrete answers. The difference lies in the meaning of city !!! Referring only to the urban area, and with only a few exceptions to the entire metropolitan area.

During the first Conference organized by ANCI, at the Chamber of Commerce of Turin, the Minister Francesco Profumo, a prominent member of the national government at the conference, introduced the theme of the Smart cities as a national strategy. "The central issue to work on is the metropolitan area" - said the Minister, who stated, then, want to "build a bridge with Europe and wanting to give an important role to Italy within a international scene, as a new frontier for the development of intelligent communities. "The Minister stressed that investment in intangible infrastructure must be conspicuous and manufactured using innovative agreements and partnerships between public and private, and said that the Smart City was introduced in the National Digital Agenda as a priority for the economic development of the country.

Cities like Genoa and Turin are working to build long-term strategies: Genoa in a vision perhaps more infrastructure, but always linked to improving the lives of citizens; Turin aims at a strategic vision to help the metropolitan capital of Turin to find a vocation to reintegrate in the competitive circuit.

Bologna is opening up to a smart planning of metropolitan area, with a social approach to the term in the broad overview of the Smart city, not forgetting the importance of making a city of Bologna to more vocations, which looks to the complexity of the city. Piacenza will be careful in designing a "model Smart city" for the medium and small cities, using the city as a laboratory for experimentation.

With this in heterogeneous, little tangible and above all too little of the governed Smart cities Italian, it triggers the Ministry of Education that seeks to enable resources to experiment with approaches Smart cities and Smart Communities in the Italian regions. city. The Smart City is a tool to re-evaluate the central role of public service to the city, to stimulate synergies between public and private actors, and is an

indispensable tool for re-put the issues of planning and management "intelligent" city in the foreground.

he Planning plays a predominant role then for the future "city". The role of urban policies and strategies for long-term planning that will think, will have to meet the new requirements of sustainability, efficiency and offer to create a new application. Today the phenomenon Smart city imposes a time for reflection, to understand how the planning practices are changing and what are the real needs of the urban environment and the population that lives. The technologies will certainly help the Italian system to have a significant development, but will also be the economic, financial, human, creative strategy to enable the Smart City. For this reason the Italian urban planning today is having to study a new phenomenon to get the right reading of the whole city and the many vocations that it presents. Based on the route taken, we can say that the Smart city is certainly an opportunity to re-think the contemporary city in an innovative way, with systems of resource management in the city, aimed at improving the quality of life with respect to which the 'processing of integrated strategic planning is a key requirement for sustainable development of the city.

## References

- [1] AA.VV. (2012), Smart Cities nel mondo, CITTALIA-fondazione ANCI ricerche
- [2] AA.VV., (2012), Smart Cities in Italia: un'opportunità nello spirito del Rinascimento per una nuova qualità della vita, ABB e The European House-Ambrosetti: <http://www.abb.it/>
- [3] Annunziato M. (2012), La roadmap delle Smart Cities in «Energia, Ambiente, Innovazione», n.4-5(1): 33-42
- [4] Berry, C. R.; Glaeser, E.L. (2005). The divergence of human capital levels across cities. *Papers in Regional Science* 84: 407-444.
- [5] Berthon B., Guittat P. (2011), Ascesa delle città intelligenti in «*Outlook*», 2-2011. Accenture: <http://www.accenture.com>
- [6] Camagni R. (2002), "On the concept of territorial competitiveness: sound or misleading?" *Urban Studies*, v. 39, n. 13, pp. 2395-2411.
- [7] Campbell T. (2012), Beyond smart cities. How cities network, learn and innovate, Earthscan, Londra-New York.
- [8] Caragliu A., Del Bo C., Nijkamp P. (2009), Smart cities in Europe. Paper presented at the conference III Central European Conference in Regional Science, CERS.
- [9] Cardone M. (2012) La rivoluzione delle smart city è in corso, QualEnergia.it, <http://www.qualenergia.it/articoli/20120802-la-rivoluzione-delle-smart-city-in-europa-e-negli-usa>
- [10] Carta M. (2011), "Città Creativa 3.0. Rigenerazione urbana e politiche di valorizzazione delle armature culturali" in Cammelli M., Valentino P.A. (a cura di), *Citymorphosis. Politiche culturali per città che cambiano*, Giunti, Firenze, pp. 213-221.
- [11] Centro Regionale di Informazione Nazioni Unite (Unric) (2012), *Città, 18 giugno 2012*, <http://www.unric.org/it/rio20/28161-citta-18-giugno-2012>
- [12] Ciorra P. (2010), *La fine delle Periferie. Nascita e morte della periferia moderna*, [http://www.treccani.it/enciclopedia/la-fine-delle-periferie\\_\(XXI-Secolo\)/](http://www.treccani.it/enciclopedia/la-fine-delle-periferie_(XXI-Secolo)/)
- [13] Citalia (2011), Smart cities nel mondo, Roma: Citalia e Fondazione Anci Ricerche.



- [14] Cohen B. (2012), "The Top 10 Smart Cities on the Planet" in [www.fastcoexist.com/1679127/the-top-10-smart-cities-on-the-planet](http://www.fastcoexist.com/1679127/the-top-10-smart-cities-on-the-planet)
- [15] Cohen B. (2013) "The Top 10 Smartest European Cities". Fonte: <http://www.fastcoexist.com>.
- [16] Comunicazione COM(2011) 808 della Commissione al Consiglio, al Parlamento Europeo. Programma quadro di ricerca e innovazione "Orizzonte 2020"
- [17] Crivello S. (2012), Competitive city and sustainable city: some reflections on the relationship between the two concepts, in «*Sociologia urbana e rurale*», n. 97: 52-67
- [18] Deakin, M., (2007). From city of bits to e-topia: taking the thesis on digitally-inclusive regeneration full circle. *Journal of Urban Technology* 14 (3): 131–143.
- [19] De Luca A. (2012), Come (ri)pensare la smart city, in «*EyesReg Giornale di Scienze regionali*», 2, (6): 143-146.
- [20] Giffinger R., Kraman H., Fertner C., Kalasek R., Pichler-Milanovic N., & Meijers E. (2007). Smart Cities - Ranking of European medium-sized cities. Vienna: Centre of Regional Science. <http://www.smart-cities.eu>
- [21] Greiner, A., Dematteis G. (2012), *Geografia umana. Un approccio visuale*, Torino, UTET.
- [22] Harvey, D. (1989), "From Managerialism to Entrepreneurialism: The Transformation in Urban Governance in Late Capitalism", *Geografiska Annaler*, 71, (1): 3-17.
- [23] Hollands, R. G. (2008), *Will the real smart city please stand up? Intelligent, progressive or entrepreneurial?*, *City*, 12, (3): 303-320.
- [24] Komninos. N. (2002). *Intelligent cities: innovation, knowledge systems and digital spaces*. London: Spon Press.
- [25] Komninos. N. (2011), *Smart Cities are more competitive, sustainable and inclusive*, *Cities. Brief*, n.2.
- [26] Kotkin J. (2009), "The World's Smartest Cities". Fonte: <http://www.forbes.com>.
- [27] Papa R. (2013), *Smart Cities: Researches, Projects and Good Practices for the City*, in *TeMA Journal of Land Use Mobility and Environment*, Vol.6, n.1 (2013).
- [28] Peck J, Tickell A (2002) Neoliberalizing space «*Antipode*», 34, (3): 380-404
- [29] Potter G. (2012), *Urbanizing the Developing World*, <http://vitalsigns.worldwatch.org/vs-trend/urbanizing-developing-world>
- [30] Ratti C., *Smart city, l'onda può partire da noi*, Avoicomunicare (Telecom) Interview, <https://www.avocomunicare.it/blogpost/ambiente/smart-city-l-onda-puo-partire-da-noi>
- [31] Sen, Amartya K. (1985), *Commodities and Capabilities*. Oxford: Oxford University Press.
- [32] Soja E. W. (2010), *Seeking Spatial Justice*, Minneapolis, University of Minnesota Press.
- [33] Sassen S. (2011), "Who needs to become 'smart' in tomorrow's cities", keynote speech at the LIFT Conference "The Future of Smart Cities".
- [34] Schaffers H., Komninos K., Pallot M., (Eds. 2009), *Smart Cities As Innovation Ecosystem Sustained by the Future*. Internet, Fireball White paper. Available via: <http://www.fireball4smartcities.eu/>.
- [35] Shapiro Jesse M. (2006), *Smart Cities: qualità della vita, produttività, e gli effetti di crescita del capitale umano*, vol. 88, n ° 2, pp. 324-335.
- [36] Woods E., Bloom E. (2011), *Smart Cities, Intelligent Information and Communication Technology Infrastructure in the Government, Buildings, Transport, and Utility Domains*, Executive Summary, Pike Research, Cleantech Market Intelligence.