PLANLAMA *2014;24(2):64-66 doi: 10.5505/planlama.2014.65365*

VIEW / GÖRÜŞ

ICT in Urban Planning, About Sustainable Feature of The Smart City

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INTRODUCTION

After industrialization, urban places have become very important for human residence. Recent researched have proven that more than half of the world population lives in places that can be defined as 'urban' or 'districts' (Schuurman, Dimitri; Baccarne, Bastiaan; De Marez, Lieven; Mechant, Peter, Dec 2012). Therefore, urbanization can be considered as one of the most important results of industrialization. During urbanization, urban areas began to change as a response for changing living conditions and growing population. Consequently, cities began to exploit and make the maximum use of the natural areas to suffice the rising living standards of the people. However, this caused ecological, environmental and regional problems such as urban sprawl, the loss of green space, loss of biodiversity, the increase of abandoned and polluted lands, distressed urban areas, high traffic of streets, inadequate infrastructure and threatened the ecosystem. In parallel to these changes, in 1987, the terms of sustainability and the report of 'our common future' drew attention and made people focus on environmental and development issues. The report 'Our Common Future' gave a major impetus to the global, regional and national environmental policies (ANDRA´ S SCHUBERT,ISTVA´ N LA´ NG, 2005). In this case sustainability's target is to meet the economic, environmental and social needs of community without harming to the living conditions of future generations. In this statement, three components of sustainability have gained importance. These are economic, social and environmental.

Sustainability plan is important for protecting urban areas and preserve them for future generations. Nowadays, the concept of sustainability constitutes the city planners' main agenda. The concept of protecting natural resources and sustainability of cities has been important all over the world. Apart from these multilateral changes of urban areas, globalization and economic pressure forced most of the cities in the world to keep up with these changes. Globalization and industrialization of 21st century have been made the complex systems of cities even more complex. In 21st century, the existence of new technologies brought different facilities to global cities. New media and ITC created broad and wide communication networks between cities and caused the cities to adopt these innovative means along with the sustainable strategies. Smart city concept appeared as a direct consequence of these changes mentioned. In order to improve the quality of life of its citizens, cities are also convinced to use ITC solutions that would foster sustainability. With this opinion, the smart city concept has drawn enormous attention and nowadays, in the global competitiveness arena, most of the cities around the world try to transform themselves into smart and green cities.

SMART CITY DESCRIPTION IN THE LITERATURE

Urbanization causing increasing traffic jams, environmental pollution, swallowing up the natural resources, and increasing social inequality caused more attention of the concept of smart city whose origin can be traced back to the Smart Growth Movement of the late 1990s (Paolo Neirotti, Alberto De Marco,Anna Corinna Cagliano, Giulio Mangano, Francesco Scorrano, June 2014).

Received: October 19, 2014 Accepted: January 29, 2015
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TMMOB
Şehir Plancıları Odası

According to the definition of Caragliu et al., a smart city is only smart when investments in human and social capital and traditional (transport) and modern (ITC) communication infrastructure fuel sustainable economic development and a high quality of life, with a wise management of natural resources, through participatory governance (Jung Hoon Lee,Marguerite Gong Hancock, Mei-Chih Hu, 3 October 2013).

This means that for a city to be smart, it needs to comply with some criteria. These criteria have been defined by a survey conducted by the Vienna, Delft and Ljubljana Universities. They can be classified as: smart economy, smart mobility, smart environment, smart people, smart living, and smart management (Auci, Sabrina; Mundula, Luigi, Sep 2012).

According to this definition, smart economy is an aspect that could be linked to a spirit of innovation, entrepreneurialism, flexibility or labor market, integration in the international market and transformability. Smart mobility refers to a local and supra-local accessibility, ITC availability and transport systems that are modern and sustainable. Smart management is related to participation in decision-making processes, transparency of governance systems, availability of public services and quality of political strategies. Smart environment can be understood in terms of attractiveness of natural conditions, lack of pollution and sustainable management of resources. Smart living involves the quality of life, availability of cultural and educational services, tourist attractions, social cohesion, healthy environment, personal safety and housing. Smart people can be linked to level of qualified population and social capital, flexibility, creativity, tolerance, cosmopolitanism and participation in social life (Alberto Vanolo, 2013).

Smart city concept is an unclear concept with various definitions such as 'digital city', 'information city', 'ubiquitous city', etc. Digital city is the oldest concept of smart city's definition. Interacting of these digital city inhabitants with information of a city and also with each other in virtual public space, with organizing and sharing digital information of city is the most important character of these cities. Similarly, the information city collects information from localities and delivers it to public via the internet (Jung Hoon Lee,Marguerite Gong Hancock, Mei-Chih Hu, 3 October 2013). These two city concepts try to connect community by using online services to meet the needs of different masses, such as governments, ordinary citizens, social groups and businesses.

According to Jung Hoon Lee (2013), ubiquitous city is another term that can be defined as the extension of digital or information city, which is making data that is ubiquitously available through an embedded urban infrastructure through embedded streets, bridges and buildings (Jung Hoon Lee,Marguerite Gong Hancock, Mei-Chih Hu, 3 October 2013). In accordance with these definitions and the other definitions in the literature, it is understood that a Smart city is a comprehensive description that comprise different sides of the city such as, people, living, buildings, energy, transport and mobility, government, management and economy. But one of the key matters of all these concepts is to enhance the quality of people's lives.

On the other hand Smart City concept, is discussed in two different areas; urban policies and urban planning areas. According to Vanolo (2013), firs in the 1980s the frame work of New Urbanism in planning area, originated which the idea of smart growth was one of its major results. Smart growth was a planning strategy with the aim of planning more compact cities with the purpose of soil conservation. At the political area, smart growth also was a political idea of grass roots movements in the 1990s (alberto vanolo, 2013).

So although Smart City has different definitions which some of them have individual elements and characters that cause seen them separate from each other, but all of these concepts stay on an important issue which is technology based solutions of todays cities problems. For example, in digital city collecting and publishing vast amount of real and digital information of actual physical city in virtual space need fairly heavy technology network infrastructures. Communication infrastructures with innovative online services are technological features of the information city to connect different parts of community. Similarly, using equipments in streets, bridges and building of the ubiquitous city for getting environmental and energy data of the city can take place only with high-end technologies. The greatest feature of the Cities which are known as smart cities is, trying to meet their citizens, governments and businesses needs and cities problems with innovative and technological services and also integrating between society and communication technologies. With three components the concept of the smart and sustainable city will be successful. These components are cooperation between the public, private sector and universities. The main role of universities is to produce knowledge, to train trained manpower, also is collaborating with companies in the technology field. public institutions have facilitating role in the development of innovation and technological support mechanisms (Bilge Armatl? Köro?lu, 2012). So many cities worldwide integrated ICT solutions with planning smart city as new stategic development planning. In summary, which important in ecological and technological urban areas such as Eco-Viikki (Finland), Dongtan (China), is energy and technology efficient urban planning or achievement of smartness (alberto vanolo, 2013) with advanced technology and more green city. So smart city can not be considered independent from technology. Well, is it conceivable that, technological urban planning, as a sustainable urban planning?

SMART CITY OR SUSTAINABLE SMART CITY

Since the term of Smart City is continues of the term of sustainable development in recent years, here there is an important question of "Will these technology based solutions really improve the economic, social and environmental sustainability

of the cities in the future?", The first step to reach more sustainable cities is to reduce the energy use and greenhouse gas emission in cities. According to Anna Karmes, reducing green house gas emission should be involved in six sectors of the city: energy, transportation, agriculture, building, manufacturing and consumer services (Anna Karmers, Mattias Höjerö Nina Lövehagen, Josefin Wangel, 2014). Smart city using ITC and technology based solutions for its problems. Sustainable development of a city depends on different aspects such as its local context factors, geographical location of a city and economic situation of it. So how cities are developed and managed is important for sustainable development and in order to reach much smarter and greener cities there should be use most ecological solutions for more reducing carbon footprint of today's cities. As described before the concept of smart city, combine modern technology factors within conventional framework. Since common and conventional framework of cities and traditional urban planning solutions can't answer cities sustainable needs for today and future generations, wonder if producing urban-based ITC solutions which use lots of energy resources will provide cities sustainabilities?

CONCLUSION

Planning of smart cities is in the agenda of policy makers and urban planners because they agree on the concept of smart city which helps cities better use of their resources with regard to sustainability. But how will cities' performance be with this pervasive use of ITC? Because of the different aspects of the city influence the planning process of creating a smarter and greener city 'What is the exact guideline of planning smart sustainable city for city managers?' And 'Are these simultaneously data of all areas of the smart city impact peoples freedom', are some question in the case of smart city and sustainable smart city definition because of its preliminary stage.

Despite all these questions, it is a fact that central and local governments of the cities all around the world try to become both smarter and greener. This tendency looks more like competition among cities which encouraged with companies on the market for ITC solutions. Even though this can be a way of revitalizing economic opportunities in global competition market, designing more green and sustainable cities should be the vision of the urban managers that public and private sector actors are in coordination with each other, than the case of competition with other cities.

For Anna Kramers et al., it may be with using ITC solutions by dematerialization, demobilization, mass customization, intelligent operation, and soft transformation (Anna Karmers, Mattias Höjerö Nina Lövehagen, Josefin Wangel, 2014) that the problems of cities will be solved in a distant future. Anyway we shouldn't ignore the possible negative impacts of these technologies within this process of being smart and green city. In addition to this criticism, we should consider the impact of gathering data of real time city and synchronism and connected with society on peoples freedom with increasing control and authority and declining democracy, beside the increase of safety.

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