

CONFERENCE
PROCEEDINGS

**3RD INTERNATIONAL
ACADEMIC CONFERENCE ON
PLACES AND TECHNOLOGIES**

EDITORS
EVA VANIŠTA LAZAREVIĆ
MILENA VUKMIROVIĆ
ALEKSANDRA KRSTIĆ-FURUNDŽIĆ
AND ALEKSANDRA ĐUKIĆ

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Eva VaništaLazarević, Milena Vukmirović, Aleksandra Krstić-Furundžić, Aleksandra Đukić

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PLACES AND TECHNOLOGIES 2016

KEEPING UP WITH TECHNOLOGIES TO CREATE COGNITIVE CITY
BY HIGHLIGHTING ITS SAFETY, SUSTAINABILITY, EFFICIENCY,
IMAGEABILITY AND LIVEABILITY

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TOWARD THE ULTIMATE SHAPE-SHIFTER: TESTING THE OMNIPOTENCE OF DIGITAL CITY

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ABSTRACT

Supported by the latest flows of creativity and innovation, contemporary cities have gradually become multileveled interfaces between material and digital realms of urban reality. The process of technological upgrading continuously reinforces an assemblage of generated spatial segments, providing a connecting web for redefined urban landscapes. Composed of tangible and intangible urban segments, they are exposed to numerous environmental and social challenges of the 21st century - from global warming to social injustice and inequality. Searching for the best solutions, the concept of digital city and the framework of creative city have been highlighted and analyzed by different authors, but their efficiency and success have to be tested and verified by generations to come. Considering the current condition, this paper will inter-relate the digital and creative/innovative urban platforms in order to define possible areas of multidisciplinary crossover. The merging of ideas and tools, perceived as a new opportunity for increasing the resilience and adjustability of urban environment in the age of climate change, will be discussed on a level of information networks and their influence on urban space and community.

Keywords: City, digital space, global networks, local practices, urban environment

INTRODUCTION

The increasing speed of contemporary life has instigated numerous processes in our cities which tend to redefine a very core of urban existence, as well as a traditional perception of space and time relations. The interaction between society and technology has become extremely intensive, fostering the development of augmented reality, overlapping realms and interlinking elements of material and virtual settings. Therefore, it is not surprising that the evolving simultaneity of our digitalized epoch has been a focus of attention of many authors, especially during the last two decades (Aurigi and De Cindio, 2008; Bucher and Finka, 2011; Drewe, 2000; Fusero, 2009; Graham and Marvin, 1996; Mitchell, 2000, de Waal, 2014 etc.). Due to multiplying technological and environmental changes, which influence our behaviour, needs and mutual interaction, the inherited urban patterns and typologies have been modified. Nowadays, they follow demands of

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connectivity, accessibility, flexibility, mobility, efficiency and environmental correctness, imposed and transmitted by global networks. In this context, the concept of digital city has been suggested and promoted in many urban nodes, either as an overall development model, or as a support for current urban processes and problems. For example, the comprehensive definition by Laguerre describes the digital city as 'a set of virtual practices or repertoires that are undertaken in a sustainable manner by individual residents and groups of a particular city for the purpose of interacting, simulating, explaining, reinforcing, monitoring, neutralizing, criminalizing, expanding (locally or globally), processing, transacting, or undermining any political, social, economic, religious or communicational aspect of the daily activities of the urban community'(Laguerre, 2005:1). Obviously, the digitalization creates an expanding sphere of information exchange through which cities and their society observe, control, evaluate and manage their vital systems. At the same time, the emerging software/applications/gadgets/tools represent another driver of progress, providing means for improving general urban performances and environmental quality.

ICITY - UNDER THE SPELL OF DATA

The contemporary cities, pervaded by ICT networks, generate a new experience of physical locations. The importance of data has been recognized in different aspects of urban life, adding a new dimension of spatial perception in which a concentration of information is more important than a number of inhabitants (Vidler, 1992), while visibility of urban elements depends on the amount of data describing them. The ICT networks, as the latest infrastructure of so-called urban media, are used in order to detect changes, analyze them and, consequently, improve efficiency, safety and sustainability of urban spaces and processes. Urban media, as defined by de Waal (2014), could be used as so-called 'experience markers' and/or 'territory devices', recording events in the space and/or influencing the experience of a place.

Coward and Salingaros (2004) focused their attention to the relation between cities and information networks, interpreting cities as information systems and comparing them to other complex information systems - from computers, to biological organisms and the human brain. According to them, a dynamic city form should evolve and change heuristically (as a response to experiences) and a possible method for this process could be fractal loading, in which every high-level exchange of information simultaneously conducts exchanges on many smaller levels. The role of information networks would be to improve urban functionality by increasing the efficiency and complexity of information exchange, without necessity to adjust to existing spatial modules. Mitchell (2000) also proposes a digital - 'smart' upgrading of existing spatial structures, within an overall intelligent adaptation and automated personalization introduced by the concept of e-topia.

Nowadays, ICT networks support digital augmentation of spaces, opening new perspectives of perceiving and understanding urban environment, mediating experiences and practices and creating new and flexible spatiality (Liao, Humphreys, 2014). Simultaneously, the current level of the interaction between ICT, city and society has a significant impact on the further development and design of technologies, stimulating the ambiguity of the contemporary reality.

DIGITAL(IZED) ECOLOGY

One of the biggest challenges for the cities of the 21st century represents the process of climate changes and a whole set of environmental issues triggered by our carbon-intensive behaviour. The digital flows have an important role in climate mitigation and adaptation, especially on the level of public communication of climate change and on the level of urban systems, their efficiency, accessibility and low-carbon outcomes. The ICT networks, consequently, serve as channels of knowledge and exchange, directly or indirectly influencing behavioural patterns and changing the level of our climate/environmental awareness.

The digital level of cities incorporates a number of roles related to environmental problems and is capable of detecting actual condition (via sensors) and making it instantly visible and available

(via networks). In general, these data are transmitted and displayed via two types of interfaces - personal (smart phones, notebooks, tablets etc.) and public (wi-fi nodes, urban touch-screens, info-beamers). Representing a specific kind of membrane between tangible and intangible reality (Okabe, Ito, 2006), they convey information on urban resources, processes and activities, which might influence our decisions, perception and attitude in physical space. Nowadays, there is a number of software, web-services and applications dealing with environmental conditions, transportation, urban services or resources. All of them testify about the potentials of the digital city concept - especially in activities focused on efficiency, minimisation of the carbon footprint, communication and cooperation between all levels of governance and stakeholders, identification of potential risks, management of complex ecosystems and interaction within formal and informal social networks.

DIGITAL BOOSTERS FOR THE CREATIVE CITY

The competitiveness of contemporary cities, which defines their position and power in numerous global hierarchies and networks, is closely related to the level of creativity and innovativeness of all aspects of urban life. Therefore, the overlapping and merging of the concepts of creative and digital city certainly represents one of preferred development paths toward the future city. According to Landry (2005), the foundation of the creative city is influenced by several factors: personal qualities, will and leadership, human diversity and access to varied talent, organizational culture, local identity, urban spaces and facilities, networking dynamics. However, the most important among them are political will and appropriate organizational culture which means that both governmental and other stakeholders should recognize the need for creative city - as a model which stimulates and generates new ideas and approaches. Simultaneously, the existence of a digital platform, as an interface between stakeholders, has already become a necessity in developing and exchanging knowledge, especially in the area of climate/environmental awareness. In general, the first precondition for a creative city could be found in human diversity and access to varied talents which foster understanding and learning. Therefore, Landry emphasizes the role of the history of tolerance, sense of security and high accessibility in shaping and boosting the creative potential. According to him, the creative city also depends on the pattern of social capital practiced within wider community and it has become obvious that the digitalization of media represents an important factor in this process.

In general sense, the theory of social capital discusses types of social networks in a community, distinguishing ego-centric and socio-centric position. The first approach describes social networks which are used to achieve personal interests. The second one, socio-centric approach, is oriented towards achieving common interests. Because creative city depends on network dynamics, the benefits should be used towards common sense. For example, communicative action, practiced in collaborative urban design and planning theory, assumes divergent networks of communication leading toward common sense (Habermas, 1989). According to Healey (1997), collaborative planning integrates soft and hard infrastructure through procedures and protocols of communication that enable wider participation and representation in decision-making process.

In the area of socio-centric theory of social capital there are various thoughts about the purpose of the network and groundings they are built on. Closed theories are based on social norms that are practiced in community, while social practice is constant and traditional. On the other hand, developmental theories are open and include both traditional and new values. Both kinds of theories can have positive or negative externalities towards environment, regarding the values they promote. The relation between social capital and networks is also very important. Considering this, Woolcock and Narayan (2003) define three levels of social capital - bonding, linking and building partnerships, while Grootaert and van Bastelaer (2002) relate these levels with the levels of governance and the development of cognitive and structural elements (Figure 1).

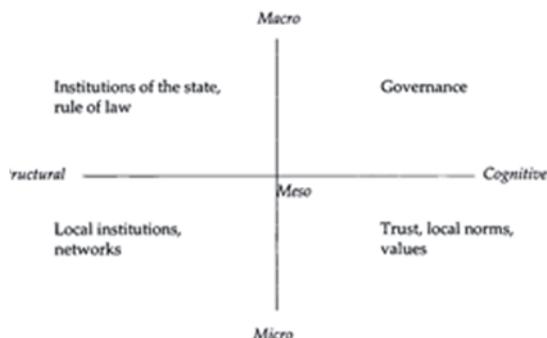


Figure 1: Forms and scopes of social capital (Grootaert, van Bastelaer, 2002).

The contemporary cities and their communities need to develop all three levels of social capital in order to ensure consensual solutions and digital infrastructure facilitates this process - increasing the accessibility of data and efficiency of their processing, speeding up interchange between actors and creating a stimulating setting for innovativeness in different spheres. At the same time, the process of education has a crucial importance for identity issues in a creative city - especially in preserving traditional values and generating new ones (Đukić, Mrđenović, 2015). Therefore, digitalization of different communication networks can support constructive and transparent dialogue which might lead to creative solutions of emerging problems. This kind of virtual interaction connects digital communities in a digital(ized) urban environment, which potentially could contribute to developmental social capital and greater creativity.

Considering the features of the creative city and its digital support, the relationship between them was analysed via a survey conducted among a group of students, which attended the course 'The future of city' at the University of Belgrade - Faculty of Architecture during 2014/2015. During the survey, digital networks were also used to foster creativity in accordance with theoretical guidelines, testing the omnipotence of the digital city and using its potential/elements/flows to booster the creative city. The questionnaire was posted on Facebook and answers and comments reflect the students' understanding and perception of this specific crossover between imagination (i.e. creativity and innovativeness) and electronic flows which should occur in the city of the future:

- Digital city can create a new persona because it is totally open to new ideas and ventures;
- A new city should use the latest technology and be fully adjusted to the modern era;
- Digital and creative city represent a kind of freedom, where everyone is doing what they love and what is best;
- Digital city is accurate, efficient, without obstacles and limitations, the virtual world that we create in our sole discretion, in a parallel realm;
- Digital city is a new innovative way of functioning of the modern environment (Questionnaire, 2015)

According to the survey, several links between the digital and creative city can be distinguished:

- A. The digital city is a kind of social network where each person can re-create identity;
- B. The creative city uses possibilities of digital technologies (collecting and processing of data, solving problems for contemporary life, transparency);
- C. The digital city enables functioning of a creative one by including all available resources, young people as well, in creation of sustainable systems;

- D. The digital city, unlike the creative one, is inhuman;
- E. The creative city has specific contemporary identity shaped by artists - using the technology and multimedia content of the digital city;
- F. The creative city is oriented towards technology - invented and launched by creative people;
- G. The digital and the creative city represent a free space, in which everyone practices individually preferred activities;
- H. The creative city is more human, although it uses all available technologies for faster and more efficient development.

Obviously, the information provided by questionnaire reveal that there is a prevailing opinion that the creative city plays a crucial role in the process of bonding i.e. the building of trust among people in order to re-create their identity (A, E). Furthermore, all other phases of developmental social capital are linked to both creative and digital city. For example, we cannot have transparent institutions, as a condition for good governance, if we do not provide accurate, adequate, reliable information using the benefits of the digital city (C). Simultaneously, linking people through networks is more efficient and easier via application of digital technology (H). (Figure 2)

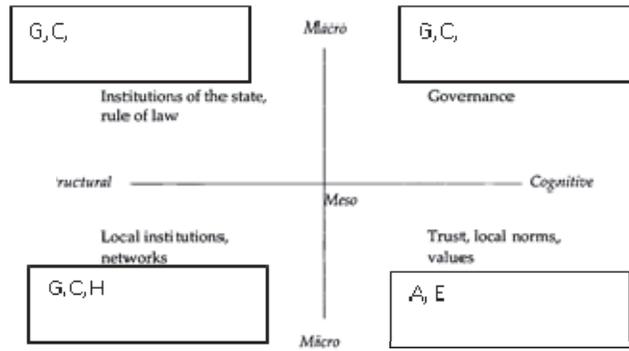


Figure 2. Creative and digital city in relation to forms and scopes of social capital (based on Grootaert, Bastelaer, 2002).

The insight into the perception of the crossover between the digital and creative city, although very rudimentary and conditioned by the age and a level of knowledge of the participating students, clearly shows that the merging of human creativity with digital 'carriers' and 'processors' of information should be stimulated. Raising the awareness about the potentials of both realms (material and electronic) we directly and indirectly increase our understanding of environment and its (im)balance, paving the way for eco-friendly innovations which would improve current condition caused by global warming.

CONCLUSIONS

Even though our lives are saturated by technology and digital media, it is evident that their role in further urban development has become inevitable. The ICT flows, perceived as valuable supporters of new environmental trends and facilitators of all urban activities, integrate data and high technology with urban systems and society. Consequently, they create a dynamic setting for innovation and creativity which should provide solutions for accumulated urban problems and respond to detected anomalies of contemporary cities. Meanwhile, the urban shape is definitely shifting - both in material and digital realm - following new imperatives already included in various documents, strategies and visions which underline the importance of smart and creative

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solutions in a low carbon economy. In that context, information and communications technologies are carriers of change, providing new experience and behavioural transition via continuous interaction between all urban entities and their personalized or summarized experiences.

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