Vis-à-vis Communication? Digital and Physical Spaces of Interaction in the Contemporary City

Aleksandra Stupar, Aleksandra Đukić

(Associate Professor Dr Aleksandra Stupar, University of Belgrade - Faculty of Architecture, Bulevar kralja Aleksandra 73/2, 11 000 Belgrade, Serbia, stupar@afrodita.rcub.bg.ac.rs)

(Associate Professor Dr Aleksandra Đukić, University of Belgrade - Faculty of Architecture, Bulevar kralja Aleksandra 73/2, 11 000 Belgrade, Serbia, adjukic@afrodita.rcub.bg.ac.rs)

1 ABSTRACT

ICT is an important social medium which influences the concepts of space and place. It allows creative participation of users who act as consumers of places, active contributors in the process of urban design or critics. The first phase of the ICT development in cities was focused on providing and assuring low-cost Internet access which would enable free connectivity within a community, at home or work (Loader and Keeble, 2004). Gradually, the relationship between ICT, community and cities has been continuously analyzed and elaborated emphasizing new topics and targeting design and meaningful application of ICT within communities. Simultaneously, the role of digital networks and flows has been recognized in many fields of urban reality, fostering civic engagement (Pigg, 2001) and supporting a sustainable social, cultural or economic development of cities and their spaces.

Nowadays, people interact in both physical and virtual realm, gathering formally or informally in order to exchange information and knowledge, disseminate practice and experiences, or erase different kinds of limitations. While the main role of open public spaces is to provide social contacts between people, remaining the place where they can rest, recreate and enjoy the environment, e-networks have opened additional channels of communication and diffusion. Allowing an extended (spatial and temporal) community upgrading and interchange, the digital surrounding has become a new tool and a setting for contemporary activities demanding continuous development and synchronization with global challenges and needs.

Considering the ambiguous nature of modern cities and their public spaces, the paper will tackle several questions. What is the future of open public spaces? Can virtual space take on the role of the physical one? Could we use social networks as additional and dynamic tools for fulfilling the main tasks of open public spaces? What are the recent innovations introduced into cities in order to support increasing number of communication modes? How they affect urban modelling - both on the physical and the virtual level of urban life?

2 INTRODUCTION

During the second part of the 20th century, the role and importance of open public space became a focus of attention for urban theoreticians and practitioners. Furthermore, its neglected role of a social driver was significantly emphasized during the 1990s in a number of regeneration projects in contemporary cities. In general, open public spaces could be defined as central places of community in civilized society, which are dependent on a certain level of shared experiences and expectations of users (Crawford, 2000). Crouch (1998) describes open public spaces as links connecting nodes of activities and events, which stimulate experiences and memories. They could be very diverse - depending on users and their needs and backgrounds, but even different roles and meanings of public spaces connect people, especially during large events (celebrations, demonstrations, parades etc.). Therefore, one of the aims, which should be achieved by designing a 'successful' open space, is to establish a framework that stimulates gathering of people, their contacts and communication. At the same time, a public space could be described as a place where one observes other people while being observed by others. In the digital era, this interpretation has slightly changed and adjusted to an increasing interaction between people and technology. Consequently, Chen (2009) underlines the fact that "if you are not seeing data, you are not seeing", while architectural theorist Anthony Vidler (1992) describes contemporary city as a concentration of data transfer and information, which is more important than a number of inhabitants. Adriana de Souza e Silva (2006) gives another insight into urban reality of the 21st century, pointing out that contemporary cities represent hybrid spaces where borders between urban physical and digital space are blurred by ICT. Obviously, the role of ICT and importance of their networks should be reconsidered since they have become indispensable ingredients of urban life. Creating an autonomous realm, information networks are included in all urban performances,

acting a unique drive for further development. Nowadays, information exchange is diverse and multiple - from a perception of the environment and improvement of urban performances, to communication and movement of individuals, groups and goods. The digital form enables better (and instant) detection of changes, increases the efficiency of data transmission and analyses, and provides a better understanding of urban processes, their potentials and setbacks. The role of ICT networks has been recognized in the process of climate adaptation and mitigation too, providing new channels of knowledge and exchange, as well as new models of behaviour. For example, Mitchell (2000) envisioned the development path of a green city with smart elements which follows several basic principles applicable at different scales - dematerialization, demobilization, mass customization, intelligent operation and soft transformation. His concept of e-topia proposes life with a minimized production of waste, all enabled by ICT networks. E-reinforcement also leads to an intelligent adaptation, automated personalization and the creation of efficient, responsive markets for available resources, while soft transformation influences remodelling/adaptation of existing spatial structures.

The duality of public spaces has become a reality causing numerous changes in urban typology and redefining spatial, social and technological demands. Nowadays, public space should provide a safe and secure environment for spontaneous manifestations of social life, especially for citizens within local community (Rossi, 1982). On the other hand, the nature of digital space gives an illusion of freedom and safety, because its user can choose a preferred 'group', define and establish 'borders', select a 'protection' and express her/his opinion.
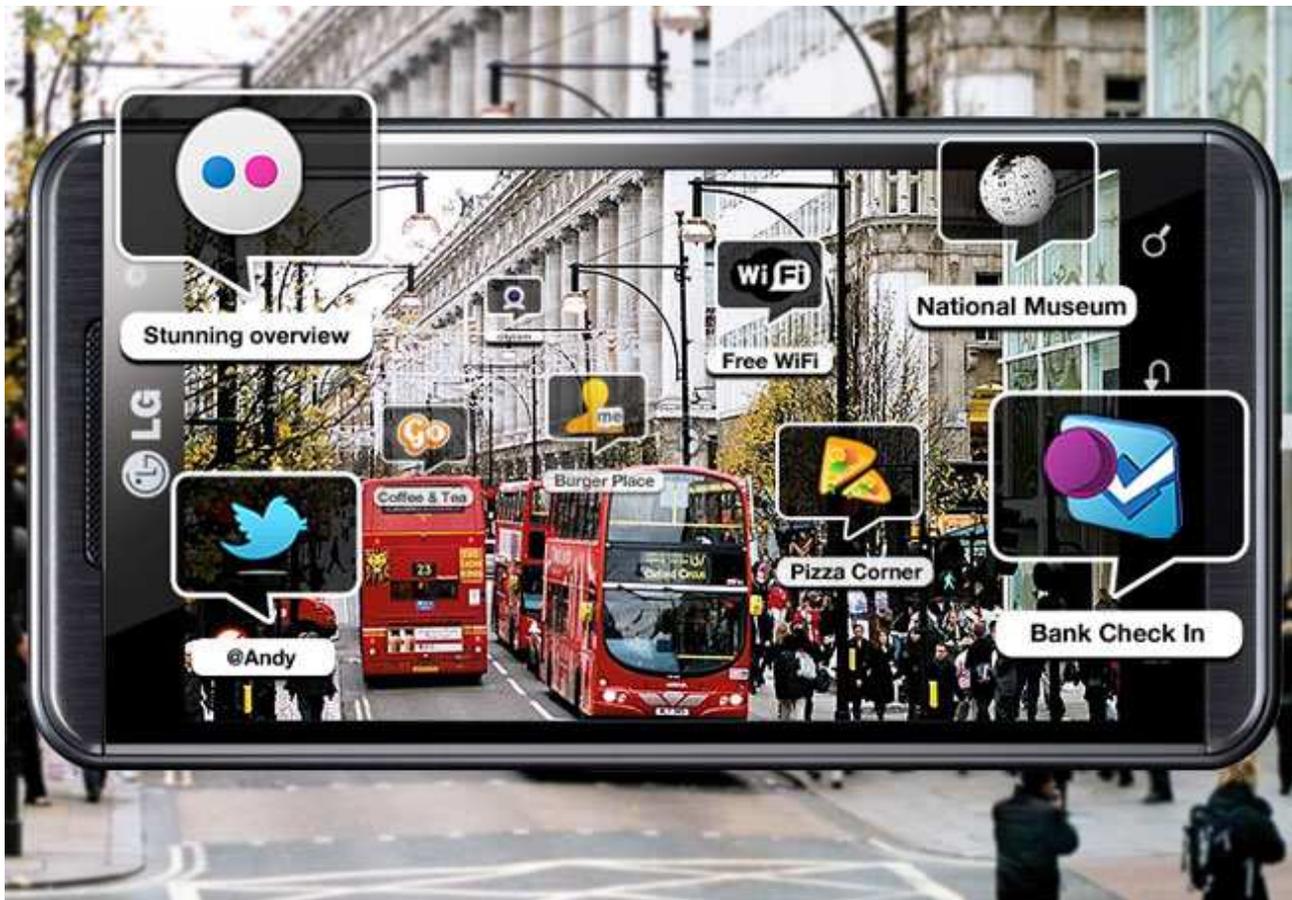

Fig. 1: Augmented reality of urban space. (Source: http://mashable.com/2011/05/10/lg-optimus-3d-augmented-reality/)

3 CREATING A CYBER-CITY?

Searching for the best and most efficient solutions which would allow us to synchronize and totally utilize physical and digital realm of our existence, the concept of cyber-parks has appeared, providing the overlapping of real and virtual spaces. In general, a cyber-park represents an open public space where people spend free time and which provides numerous social interactions. However, in order to fulfil that role in a contemporary urban environment, such a place should be covered with ICT networks. Creating an intelligent environment, it provides interactions between users of physical space and their digital portals (mobile

phones, laptops, tablets) through wireless network. Consequently, a virtual relationship between physical space, its augmented reality, other users and applications becomes a necessity (Figure 1). Defined as three-dimensional, real-time and interactive technology that mixes real and virtual environment, the augmented reality changes the user's view of material world (Azuma, 1997). Information could be accessed without leaving the place and they could be also overlaid three-dimensionally on real place, enabling manipulation, examining physical objects and/or receiving additional information about them.

There are numerous cases which successfully use this principle. For example, the BlocParc in Paris has applied digital space into physical one through intelligent urban furniture projects. The digital upgrading of open public spaces started during 2014 and continued in 2015. The urban furniture is made of large blocks of reinforced concrete which could be used as tables, planters and straight, curved or connected benches. Designed as a meeting place, urban furniture also acts as a communication medium, providing a digital link with the user, without a need to download an application. One of the aims emphasized by the local community which implemented the project was to develop the 'connected urban furniture' for enhancing residents' interactions. As a result, three out of seven BlocParc blocks have NFC chips embedded in them. Passing pedestrians can hold their smartphones close to a chip to automatically activate their browsers and open preferred web/information pages (Figure 2). Each bench has six tags: emergency card, intelligent and multimedia entertainment, transport, social and local information. They can be customized and have a diverse and unlimited content defined by a person who uses the furniture. Pedestrians can use geo-location or get targeted promotional offers or they can approach information about culture of the place, local interest, historical items, event animations, as well as games and videos.
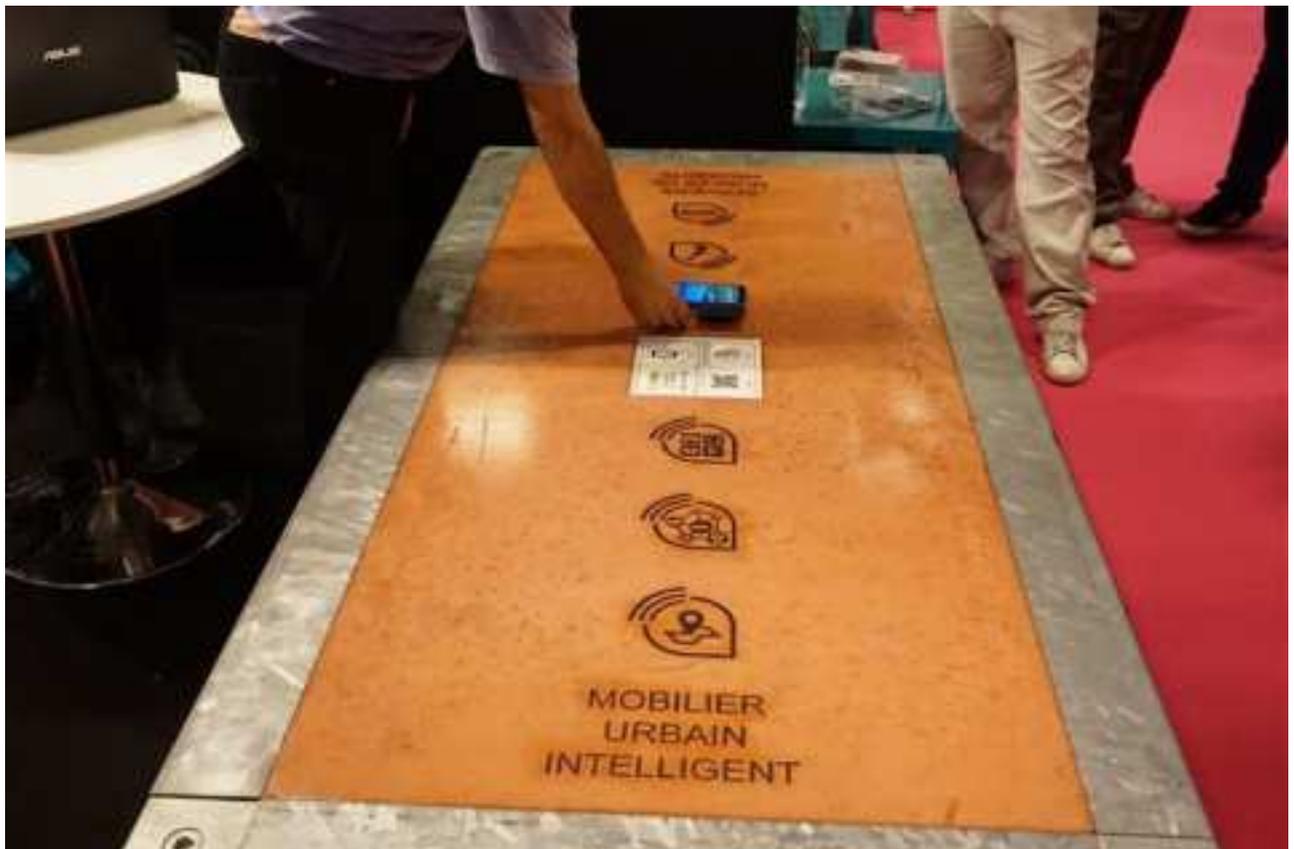

Fig. 2: BlocParc - intelligent urban furniture. (Source: http://www.blocparc.fr/tag/paris/)

Another interesting example connects urban public spaces on several levels via ICT. To promote its travel service, the railway company SNCF teamed up with the advertising agency TBWA Paris creating an ad-campaign called 'Europe, It's Just Next Door'. In an amusing and creative way, it sends pedestrians to other European cities—simply by opening brightly coloured doors with the names of cities. The interactive doors were positioned across various tourist locations in Europe and all around Paris. Each door hid full-bleed LED Screens which are connected live to other parts of Europe, transmitting specific cultural attractions. When opened, the doors displayed real-time events happening in those cities (Figure 3). Consequently, pedestrians in Paris were able to open a "door" containing a digital screen and take part in characteristic activities in

Milan, Barcelona, Genève etc. Similar campaign was set up for promoting the train connecting Lyon and Brussels. This time, the digital portal was incorporated in a three-meter high big white cube, which was placed in a public space of both cities. The pedestrians were invited to stick their heads into a cube in order to be 'teleported' into a street scene in another city. Simultaneously, they were able to interact with the mayor and his official marching band or to chat to their counterparts in Lyon/Brussels.

Fig. 3: Interactive doors placed in open public spaces of Paris. (Source: http://designtaxi.com/news/361896/In-Paris-Interactive-Doors-Transport-Pedestrians-To-Other-European-Cities/?interstital_shown=1)

Fig. 4: Strawberry Tree - multipurpose urban furniture for facilitating the use of portable devices. (Source: http://www.innovationfund.rs/portfolio/the-strawberry-tree/)

Another approach in combining digital and material reality is focused on using a new kind of urban furniture as a support for ICT in open public space. The good example of this practice represents the so-called 'strawberry tree', which is the first public solar charger for mobile phones. It was designed in Serbia five years ago, the first one was installed in the centre of Obrenovac in 2010 (Figure 4), and since then it has become a part of many squares and parks in different cities. Two devices have also been set up in Bosnia and Herzegovina. The Strawberry Tree uses pure energy of the sun converting it into electrical energy. The

derived electrical energy is stored in in-built accumulator batteries and then used for charging small portable devices on public places. During the night hours it uses cost-effective and energy efficient light system.

4   CYBER-PARKS (DIGITAL SPACE) VS. OPEN PUBLIC SPACE (PHYSICAL SPACE)

The space could be considered as more abstract term than the place. It describes broader three-dimensional realm in which we live (Harrison, Dourish, 1996). 3D Google maps, Bing maps, birds eye and streets view of cities enable us to simultaneously exist in several places or visit them without leaving the current position and 'real presence'. The advanced ICT supports and intensifies augmentation of spaces, broadening information about specific places and experiences (Aurigi, De Cindio, 2008; Brewer, Dourish, 2008; De Souza Silva, Frith, 2010). The digital augmentation provides users new ways of perceiving and understanding a certain environment, moving through, annotating and enacting (Graham at al., 2012). Furthermore, ICT mediates these experiences and practices, creating new and flexible spatiality (Liao, Humphreys, 2014). Therefore, research has shown that users sometimes apply augmented reality to demonstrate their own power on/in a public place by virtually changing it, posting comments and alerts. Following this trend, it is possible to modify current asymmetric approach in urban designing, opening and extending the possibilities for public participation and interactive changes.

Digital systems have also become important reinforcement of our climate/environmental awareness, due to their capability to detect environmental data (via sensors) and make them instantly visible and generally available (via networks). Using two basic types of interfaces - personal (smart phones, notebooks, tablets etc.) and public (wi-fi nodes, urban touch-screens, info-beamers) users receive information on urban resources, processes and activities which might modify their choices, behaviour and attitude in physical space. Numerous companies and/or non-profit groups (e.g. IBM, Cisco vs. MySociety, Open Knowledge Foundation etc.) create software, web-services and applications dealing with environmental conditions, transportation, urban services or resources, which have an impact on our relationship with environment. Therefore, some cities use their own meteorological networks to provide accurate information about weather, its influence to general condition of environment, as well as to increase the awareness about climate change and carbon footprint (e.g. 'Urban EcoMap', an interactive web service provided in San Francisco and Amsterdam, displaying environmental footprints for each zip-code area).

Obviously, the existing technology, with its various applications and manifestations, becomes a vital ingredient of urban culture. The specific urban situation has an important influence on the design of technologies and their performances, intensifying the interaction of city, society and technology, but also stimulating and promoting urban and technological innovations. The parallel world of technology has already established the substitutes for a number of mundane life-supporters and anchors. According to Paul Drewe (2000), these 'pairs' are:

bookstores - bitstores

stacks (in libraries) - servers

galleries - virtual museums

theatres - entertainment infrastructure

schoolhouses - virtual campuses

hospitals - telemedicine

prisons - electronic supervision

banking chambers - ATMs (automated teller machines)

trading floors (stock exchange) - electronic trading systems

department stores - electronic shopping malls

work (in offices) - telework

at home - @ home

The ambiguity of the contemporary reality has been further elaborated and reflected in public space. Therefore, each one of overlapping realms (digital and physical) provides certain advantages and limitations, which might complement, coexist or negate each other. Their characteristics, listed and compared in Table 1, clearly display almost unlimited possibilities which could be achieved in a hybrid public space. It would

incorporate elements of both 'realities', but preserve their uniqueness given by their essential qualities. Consequently, open public spaces should remain nodes of urban cultural identity, while evolving and multiplying performances of cyberspace will reflect level of achieved cyber-culture, as an inseparable ingredient of contemporary, technologically advanced network society.

Digital space	Physical public space
Global identity	Local identity
Belonging to virtual groups	Belonging to local community/groups
Predicted encounters	Possibility of sudden and unexpected encounters
Group identity/cyberculture	Social identity/cultural identity
No possessing?	Sense of "possessing" of physical space
Unlimited - no physical limits despite the distance (limited within the group/ possibility for expansion)	Limited in physical context / no possibility for expansion
Contacts through smartphone, tablet devices	Direct contacts between users, touch
Augmented, virtual reality	Real place
Hybrid identity	Symbol of city/identity
Contacts within hidden groups/possibility for separation	Contacts within groups, but transparent
Only for users with ICT tools	For everyone
Possibility for hiding (identity)	Transparency
Talking/chat/social contacts between strangers, "being more visible"	Social contact are usually between acquaintances
Happn, app-based dating scene	Possibility of spontaneous meetings
Social contacts on everyday base despite the distance	Social contacts are usually not on everyday base and they are conditioned with distance between individuals
Virtual game	Experience game
Affordable information 7/24	Hidden information

Table 1: Digital space vs. physical public space

5 CONCLUSION

Although modern technology could cause confusing feelings and distort human perception, it is evident that its power directs our world towards the augmented and fast-changing future. Our lives are already over-exposed to technological wonders and the challenges initiated by their proclaimed omnipotence are multiplying every day. Nevertheless, the material features of physical world still represent anchors of our urban identification, providing tangible setting for our activities and dynamic urban processes. Therefore, it is evident that digital alternatives cannot completely replace physical nodes of gathering, interaction and intellectual exchange, but they have to be integrated into traditional and new urban functions and spaces (Drewe, 2000). Supporting the new economy of presence and creating systems of interlinked, interacting, silicon- and software- saturated, smart, attentive and responsive places (Mitchell, 2000) contemporary cities should achieve a high level of heuristic changeability on all levels. The open public spaces, traditionally considered as nodes of social contacts between people, as well as places where people come to see other people and to be seen, will certainly follow this course of development and upgrading. Consequently, the multiplying social networks will be just one of many elements of open spaces of the future, which will demand a complex architecture of existing and emerging networks - created by and for people.

6 ACKNOWLEDGEMENT

7 REFERENCES

Aurigi,A., De Cindio, F. (eds.): Augmented Urban Spaces, Ashgate, London, 2008;.
Azuma, R.: A survey of augmented reality. In: Presence, Volume 6, Issue 4, pp. 355-385, 1997.
Brewer, J., Dourish, P.: Storied spaces: cultural accounts of mobility, technology and environmental knowing. In: International Journal of Human-Computer Studies, Volume 66, Issue 12, pp. 963-976, 2008.
Chen, 2009.
Crawford, M.: The World in a Shopping Mall, In: "Variations on a Theme Park: The New American City and the End of Public Space", Sorkin M. (edit.), Hill and Wang, pp. 3-30, New York, 1992.
Crouch, D.: The Street in the Making of Popular Geographical Knowledge. In: Images of the Streets, Fyfe N. (edit.), Routledge, London and New York, 1998.
De Souza e Silva, A.: From cyber to hybrid: Mobile technologies as interface of hybrid spaces. In: Spaces and Culture, Volume 9, pp. 261-279, 2006.

De Souza e Silva, A., Frith, J.: Locative mobile social networks: mapping communication and location in urban space. In: Mobilities, Volume 5 , Issue 4, pp. 485-506, 2010.

Drewe, P.: ICT and urban form. Urban planning and design – Off the beaten track, Design Studio "The Network City", Faculty of Architecture, Delft University of Technology, 2000.

Graham, M., Zook, M., Boulton, A.: Augmented reality in urban places: contested content and the duplicity of code. In: Transactions of the Institute of British Geographers, Vol. 37, Issue 4, pp. 165-185, 2012.

Harrison, S., Dourish, P.: Re-plac-ing space: the role of place and space in collaborative systems. In: Proceeding of the 1996 ACM conference on computer supported cooperative work, Boston, MA, ACM Press, pp. 67-76, New York, 1996.

Liao, T., Humphreys, L.: Layer-ed places: Using mobile augmented reality to tactically reengage, reproduce and reappropriate public space. In New Media and Society, Sage, pp. 1-18, 2014.

Loader, B. D., Keeble, L. Challenging the Digital Divide? A literature review of community informatics initiatives. Joseph Rowentree Foundation, York, 2004.

Mitchel, J.: E-topia: "Urban life, Jim - But not as we know it", MIT Press, Cambridge, MA, London, 2000.

Pigg, K.: Applications for community informatics for building community and enhancing civic society. In: Informatics, Communications & Society, Volume 4, Issue 4, pp. 507-527, 2001.

Rossi, A.: The Architecture of the City, MIT Press, 1982.

Vidler, A.: The architectural uncanny: Essays in the modern unhomely, MIT Press, Cambridge, MA, 1992.

http://www.creativereview.co.uk/feed/october-2013/30/europe-is-just-next-door