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The Rationale of CyberParks and the Potential of Mediated Public Open Spaces

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Abstract. Cybertechnologies are changing the world, both in terms of sociability and subjectivity, and consequently how people experience the city, appreciate urban landscape and nature, along with the way people interrelate to each other and with the space. The penetration of ICT into urban landscapes has increased the open space typology, adding a concept of ‘cyberpark’ to it – the public open space where nature, society, and cybertechnologies blend together to generate hybrid experiences and enhance quality of urban life. A cyberpark evolves through different ways of the implementation and use of digital technologies into a new type of a connectable, real-time responsive, sharing and integrating public place, in which, the physical dimension of a space becomes a more dynamic and blurred form of interaction. This calls for understanding such hybrid spaces as more than a simple new spatial unit of urban tissue. This chapter proposes a conceptual framework for a better understanding of interweaving between physical and virtual spheres in public open spaces and addresses the results of the COST Action CyberParks. It explores, in terms of policy-making, urban planning and design, the numerous challenges and opportunities created by digital and mobile technologies. The efforts of this work are thus centred on the potential of ICT to increased possibilities for new uses and elements or even types of urban open spaces, as an important added value to the quality of life, inclusiveness, responsiveness and attractiveness of the city. In critically addressing opportunities, the chapter shall seek to question and challenge, the more ‘traditional’ understanding of what makes a good public place. In doing so, it shall attempt to provide pointers towards a re-conceptualised view of urban space design/production and (planning) control/guidance.

Keywords: Public open spaces · Digitally mediated spaces · Hybrid spaces · Urban landscape · Urban design

1 Digital Technology and Urban Landscape

The rapid and pervasive development of digital and mobile technologies is drastically influencing everyday life of the average citizens, changing behaviour and interests. The digital development, as stated by Castells (2004) is not limited to a technological paradigm but comprises a broad process of computerisation of thought, knowledge, culture and social organization, and these in turn affect the physical and social urban landscape. The proliferation of smartphones and ubiquitous Internet access are changing the way people work, learn and communicate. These also reflect in the way people use, perceive and experience the city, along with the way they spent their leisure time. It seems that people, especially the young generation, are attaching a growing importance to be permanently connected, as the studies of Bocci and Smaniotto (2017), Menezes et al. (2017) organised within CyberParks evidence. Young generation growing up in the digital age are linked to social media, smart phones and apps, and they use and perceive them almost as new, additional senses. No doubt that technology yields the enormous benefits that were not available in the recent past but also confronts urban development with new societal and spatial design challenges. Furthermore, new technologies are opening new opportunities for the production and management of urban spaces, creating new forms of use as well as for research on public open spaces.

The CyberParks Project addresses the need for a conceptual framework for the production of mediated public spaces in urban development - different approaches and concerns are tackled in this book. The Project coined the term cyberpark to define a new aspect of public open spaces, now intertwined in diverse ways by technologies. This intertwining creates a dynamic environment and gives rise to the phenomenon of mediated open space - where physical and the digital coexists and complement each other. The cyberpark concept defines a digitally mediated public open space as space where nature, society, and cybertechnologies blend together to generate hybrid experiences, opening new possibilities of use and enhancing quality of urban life. To be responsive as possible, a cyberpark is often characterised by the use of sensor technologies in a connectable space, accessible to the public through ubiquitous technologies used in sociable and sharable ways¹. A cyberpark thus enables to cross borders and to extrapolate the real world with the virtual world. It creates new ways of immersion, use and management of public open spaces, and by adding new angles of perception and involvement. By attaching a meaning to the public spaces, a cyberpark contributes to the mutation of a space into a place. In this respect, a number of key issues relating to spaces, public spaces and places need to be addressed as a background frame.

2 Public Open Spaces in the Core of Research

The work in a multidisciplinary atmosphere and tackling different aspects of the digital development, as in CyberParks, make the call to create a common ground for understanding. Although it is not the intention to widely discuss a series of issues, there are

¹ This definition was developed by Working Group 4 (Designing CyberParks).

terms that merit further assessment to be understood in the scope of the Project and this book. In CyberParks, urban landscape is considered as a complexity of various aspects, forming different visible features of a city, as a result of land take by humans. It includes a vast variety of natural, semi-natural and man-made/artificial environments. From CyberParks' perspective the special focus has been on publicly accessible spaces. For the project use the public open space is understood in its broadest sense: It is a type of land use, the unbuilt space or space free of large built structures, planned, designed and managed in public interest with particular purpose, in general by a city council. The adjective *public* connotes a space that is generally open and accessible to people on equal terms. The typology of public open spaces includes spaces for mobility, recreation, for the merit of their environmental benefits, and to address ecology and biodiversity, and public health. Among them are streets and walkways, squares, plazas, market places, parks, green spaces, greenways, community gardens, playgrounds, waterfronts, etc., each one playing different but vital roles in a city. A city with a wide range of open space typology is more likely to be able to open different possibilities for use and to fulfil equivalently the different needs, preferences and expectations (responsiveness) of different users' groups (inclusiveness), and welcoming atmosphere for all, not only in physical, but also in psychological and social senses, forming territorial identity and image (Šuklje Erjavec 2010). Henceforth, the term *public spaces* will be used, independent of different connotations and features they might have.

Public spaces are widely recognised as a crucial aspect of sustainability and people friendly development of cities and play a relevant role for the quality of urban life. There is a consensus that the creation of healthy, attractive and sustainable urban environment not only depends on the presence, distribution, interconnection and accessibility to open spaces, but also their usability in terms of attractiveness, responsiveness, and inclusiveness. A growing body of research indicates their environmental, social, cultural and economic values and benefits (GreenKeys 2008). For CyberParks, the social quality of an open space is in the centre of attention, as they allow people to gather together, in planned and serendipitous ways, to interact with other people, with the community and the environment. An open space enables people to be in public, to practice sociability on neutral ground, in green spaces to contact with nature, providing them the ground for a variety of every day and occasional activities and experiences. An open space is thus the place for communication, interaction, connection and encounters, for inhabitants and visitors, as well as place to express cultural diversity. The social interactions are important for defining a sense of place, for contributing to people's physical, cultural, and spiritual well-being (Šuklje Erjavec 2010), for the personal development and social learning, and for the development of tolerance (Larice and Macdonald 2013). This is an interesting line of thought as it suggests, as Amin (2006) argued that the free and unfettered socialising in an open public space encourages forbearance towards others, pleasure in the urban experience, appreciation for the shared commons, and an interest in civic and political life.

Public spaces can be regarded as the soul of a city. Their qualities validate the assumption that they reflect the attention and care by councils of the public realm. As it is in public spaces that some of the best and the worst characteristics of urban life and society are created, observed and reproduced (Šuklje Erjavec 2010). In fact, one of the main factors that determines the appropriation of a place and the resulting people's

behaviour in this place, is the intrinsic connection between urban design, and more in particular the design of public spaces. Carmona et al. (2010: 106) aptly pointed out, that human behaviour in the public realm is largely influenced by the amenities and facilitates provided. The design and elements provided in a public space provide opportunities for staying, doing activities and interactions - enhancing community life, or alternatively their absence does not enact such actions. If public spaces are not located where people need them, if they are not safe and easy to access, if do not meet the needs and expectations of people no one will use them. How can people value an old tree if there is none there, or stay and enjoy the sunshine if there no benches to sit? Such aspects are relevant if the call for getting people to be outdoors, and to lead to an active and healthy lifestyle is to succeed. Quite conversely and for sure not future-oriented is the development in several American cities as Crawford (2017) reports, where benches are being teared out from the urban landscape as an effort to not offer opportunities for vagrancy and crime, so homeless people and loiterers cannot settle. Such development, that could be called anti-design is for sure bad for publicness and urban life.

Such development made raise to tackle the concern on inclusiveness. No doubt, urban societies are facing concerns due to expanding social diversification, what blurs and dilutes the concept of cohesive society (Holland et al. 2007), and this makes the design of public places meant to be for all in such society more difficult and challenging. Inclusiveness has to do with offering adequate and balanced opportunity for all in the appropriation of public spaces. In fact, the concentration of unwanted, disadvantaged and vulnerable groups in public spaces creates a sense of insecurity and entrapment, turning communication often difficult, as different social groups use different languages and have different attitudes and frameworks (Madanipour et al. 2014). And these also make interactions more difficult.

Different appropriation patterns of children, teenagers and adults, diverging expectations of women and men regarding public spaces, as well as dissimilar aesthetic preferences depending on social groups (Löw 2015) put pressure on the design, production and maintenance of public spaces. In Western Europe, inclusiveness calls above all for making public realm more age-friendly. Tackling such differences should however be at the same time taking the challenge for creating new opportunities. This includes the analysis of practices of negotiating the urban environment, what in the end leads to shaping civic and political culture. This argument endorses again a wide range of typology of public spaces, as the more different spaces (with different sizes and features) provided, the more opportunities people have to appropriate and enjoy, enlivening in this way the urban environment. Jacobs (1961) also recognises that “cities have the capability of providing something for everybody, only because, and only when, they are created by everybody”, and this “created” must be a result of deliberated, pro-active urban policy.

CyberParks is addressing potentials of new digital technologies to open new opportunities for improving inclusiveness of public open spaces from several aspects. Another paramount issue related to the public space is the place-responsive concept. It is related to the inclusiveness, as a public space being inclusive should meet the need, preferences and expectations of users but also introduces a dynamic time-change frame for a nowadays rapid changing society. Responsiveness is another aspect considered a

crucial in CyberParks. It addresses the people friendliness of the urban landscape and it should go beyond recreation (Turner 2004) creating “places” for new needs and activities, new way of uses and experiences (Thompson 2002). Therefore, a public space with its own logic and dynamism, must be able to cope with changes over time, and has accordingly to be able to respond to these changes. The technological advancements are undoubtedly developing a new wide range of possibilities of real time and place responsiveness, in different ways, aspects and intensities, challenging open space planners, designers and managers to use them within their co-creation processes and design solutions.

CyberParks’ understanding of public spaces indicates a complex and multi-faceted perspective, blending the physical characteristics of the space with attached values, memories, stories, art, etc. The addition of such attachments, be them individual or collective, is the enabler of turning a space into a place (the aforementioned mutation). While space is related to something abstract, devoid of a substantial meaning, *place* refers to how people are aware of, and attracted to a certain piece of space. A place is thus the result of a process of identification between people and a space, which holds a creative tension between deep experience and critical awareness.

Such broader perception of public open space as a cumulative and undivided resource is the vital basis for its strategic planning, design and management, and now to be enhanced by technology. For the sake of clarity and simplicity, and because it best captures what people care most about, CyberParks adopted the concept of public open space as drawn broadly to recognise the intersection of built-social as well as virtual environment and their influences in the socio-spatial practices. Thus, the typology of public spaces addressed by CyberParks encompasses both physical space and the virtual meeting places in form of social media, those however devoted to public spaces concerns.

3 The Potential of Digitally Enhanced Public Spaces: Cyberpark’s Added Values

In a mediated public space, as CyberParks advocates, technology is at the same time the fuel that drives a paradigm shift to combat the previously mentioned threats. This raises the questions, which are also simultaneous challenges: What are the possible benefits of enhanced public spaces? How cyberpark’s value differs from a non-mediated public space? How to respond with innovative solutions that are smart and interactive, while helping and attracting people to establish an active and healthy lifestyle? Is it necessary to develop new elements, equipment or new design approaches? The answers take the production of open spaces out from previously easily demarcated planning sciences, to an interdisciplinary domain, where it can benefit from synergies. As already noted, use of ICT as a part of public open space development is a challenge to (re) invent, experiment, stimulate certain processes, programmes, usages, and social interactions within public spaces, these opportunities are explored in the forthcoming chapters.

Public space getting mediated, is developing a new layer of use, perception and functioning, is becoming a place of extension and emplacement, i.e. a finitely real

public space is becoming by grids and networks enhanced. The penetration of ICT makes more than a clear-cut distinction of the physical to the virtual world, it transforms the public space in dualities, as open and isolated, universal and particular, juxtaposed and disaggregated, collective and individualized, raising heterotopias, the places of otherness (Patricio 2017). The point is that the interrelations between digital technology and cities are being mostly discussed within technology-driven visions, smart cities policies with particular emphasis on digital infrastructure, urban data, energy and mobility issues are playing a decisive role. Increasingly, however, more authors emphasise the importance of people-oriented aspects, especially if the goal is to improve inclusiveness and responsiveness of urban fabric. Backed by a people's centred approach CyberParks concentrates the efforts primarily on opportunities and positive aspects of the technology pervasiveness. Equitable use, flexibility and innovation in appropriation of public spaces, design applications, perceptive information, sensitive (senseable) environments are issues that guided the Project. It collected and systematised several examples of the penetration of technology into public spaces, these are available in the Pool of Examples². With the Pool CyberParks seeks to increase the understanding of the benefits of technology to enhance places in order to achieve an added value (i.e. new outdoor experiences, new possibilities of use, new types of spaces).

A growing body of research is concerned with the challenges and threats of technology. Reports about technology addiction, interpersonal communication and interaction difficulties, loneliness in a hyperconnected world, sedentary life styles, etc. increasingly call our attention, reminding that people are losing the contact to each other, with the environment and nature, and becoming prisoner of technology³. Yet, it is a positive aspect that technology (still) needs user's engagement. Technology meets sooner or later face to face with people, and what people do (or don't) retains ultimate, as this ensures often that technology works (or not). However, some authors recognize missing of the required "user engagement", some of the mentioned reasons are: technology gap/divide (the society is not ready for this new technology or people do not have access to it), reward (people are unable to see the point of this new technology, it is not clear the immediate reward for using it), trust (the lack of trust on the provider or the share/use of data, cybersecurity). These issues raise the ultimately question, of the value of the technology if it doesn't help to make cities more inclusive, and public spaces more responsive. Thus, development and use of the technology cannot be isolated from social and cultural spheres and influences. It must be re-regarded as a tool or (a set of tools) only developed to facilitate, support and enable a sustainable way of life. In fact, the growing technology pervasiveness is creating new forms of social interactions and practices, mediating experiences, transforming (sensory) experiences and opening novel possibilities of engagement, resulting in more awareness on the environment conditions and quality of life. What seems for the

² The Pool is available at www.cyberparks-project.eu/examples, and enables the searching, navigating and adding new examples.

³ Kristen Houghton: "Prisoner of Technology Escapes" in her blog on Mar 27, 2015. https://www.huffingtonpost.com/kristen-houghton/prisoner-of-technology-es_b_6541452.html.

moment, to be a superficial interaction, could become the embryo of bringing more people, especially the young ones (the future users of public spaces, and decision makers) more intensively and more connected with the places. To achieve this need calls to build sustainable digital-physical bridges.

Another issue to consider is that even “good” technologies will do little good if they are misapplied or even mature too late to help avert unsustainable and hostile urban environment. This is further exacerbated by the exceptional speed of the development of technology, which is very difficult to harmonize in time with changes in society and possible paces of spatial planning and development. Studying and building a theory on the planning, environmental and social impacts of ICTs, as well as their political, economic and cultural contexts, is not an easy task. Technical and technological progress is breath-taking, and the pace keeps accelerating, but this in turn, results in new interrelations and interactions of people to and in public spaces.

To understand really the nexus people, places and technology it is important to understand the difference of the time-change frame of each of the 3 factors in the nexus. The space itself is the most permanent element of the three thus providing the frame of physical reality. It also requires, especially in the form of greenspaces that are also very dependent of natural processes, a long-term planning and strategic development approach. Processes of deliberate change of place to meet new need and values of society are usually very slow, always little behind. Urban development reality shows that time is needed for the society to transform new needs and opportunities into demands, values and decisions. The gap in the dynamics to react to changes in the nexus people, places and technology is one of the greatest future challenges to be addressed and solved in the future of cyberparks development. Public spaces can be the stress-resilient factor against the volatility of the technological advances. Thus, the linchpin remains the space.

CyberParks, identifies the technology as a great enabler for engaging with people, recognises also that technology alone is never the solution. It cannot replace the “traditional” aspects that are important for people in the use of public spaces as social cohesion, mental and physical activities and contact with nature. However, the use of technology as a supporting tool for increasing attractiveness, variety, inclusiveness and responsiveness of open spaces may be of great added value for their quality and important step further to the sustainable and people friendly cities in the future.

It is the contention of the discussion to position the cyberpark, the hybrid space, not only as a key for a more sustainable and inclusive development, but mainly for opening opportunities towards making urban development interactive. Yet, the real public space demand and play a major role. Being locally rooted they offer a common ground for transforming the use and production of public spaces based on co-creation and interactive activities. Social media, for example, supports in a low-priced way the interaction with a broad range of people, and this can result in increased interest in civic and political life in the community. Additionally, ICT and mobile devices increased the ways with new tools and methods of analysing the human spatial behaviour (Aurigi 2013). These goals increase perspectives but also show the multi-faced character of a public space.

4 Approaching the Cyberparks Concept - Overview of Chapters

The first part of the book aims at broadening perspectives; it addresses different background aspects related to the cyberpark concept. The chapters provide multidisciplinary arguments and views for a better understanding the challenges of interaction between new digital technologies, public open space design and people for future urban development. In the chapter 1.2 **Heterotopic Landscapes: from Green Parks to Hybrid Territories**, **Catarina Patrício, Christoph Breser and Konstantinos Ioannidis** discuss the cyberpark concept from philosophical aspects. They look at public spaces beyond their physical manifestation, through the principles of the heterotopia and the non-place theories. The authors alert that a cyberpark by combining the physical dimension and image with an information layer result into the hybrid construct, and point out that a hybrid-place that contains the super modern potential needs to be further explored.

The estimated impact of new technologies on the future urban development is further explored in the chapter 1.3 **Cybercities: Mediated public open spaces - is it a question about interfaces**, **Stefan Zedlacher, Anna Khromova, Eva Savina Malinverni, and Preben Hansen** argue that the key focus of adding technology to public spaces must be the quality of the interfaces. In a mediated space, so the authors, the place itself is covered with information about itself, its history, as well as advertising, marketing, etc. They point out that in cyberspace the ICT is opening the possibility to provide personalised information and real time responses. In this context, the interfaces become of paramount importance, on different levels, changing also the role of the urban planner. On the other hand, **Aleksandra Djukic, Thanos Vlastos and Viera Joklova** in the chapter 1.4 **Liveable Opens Public Spaces – from Flaneur to Cyborg** discuss the aspects of quality of public open spaces, their cultural aspects and questions of functionality, social role and liveability. The authors address the challenges of the future development and needs of future urban society with the special focus on the walkability of place.

The last chapter addresses aspects of multidisciplinarity and the understanding of cyberpark by experts. **Paschalis Arvanitidis, Konstantinos Lalenis, Georgios Artopoulos and Montserrat Pallares-Barbera**, in their chapter 1.5 **Exploring the concept of cyberpark: what the experts think** discuss an analysis on how the concept of a cyberpark is differently perceived by the participants of the CyberParks Project, as they have a wide range of expertise background. The authors address the commonalities and differences of experts' views regarding both the mediated and the not mediated public open spaces. This chapters contributes to further delineate the scope of a cyberpark, mapping out its characteristics and dimensions.

5 CyberParks' Key Findings

Strengthening the link of the nexus people, places and technology, aiming at increasing the quality of environment is the linchpin and hallmark of CyberParks. The interaction between people, places and technology raises a series of conceptual complexities, extrapolating the socio-spatial knowledge in place. The experience in CyberParks shows that the potential for a transdisciplinary research with a people's driven approach has still significant potential for the future. On the one side, there is a wealth of evidence that engaging people provoke real and sustainable changes in quality of life and in the urban environment (Šuklje Erjavec 2010; GreenKeys 2008). On the other side, technology is enabling new forms of space appropriation and attachment. As Smaniotto Costa et al. (2017a, b) acknowledges, in the process of appropriation, technology can be the fuel that keeps the attachment in motion, generating innovative ways not only of use but also the production of public spaces. Further, as the authors state, technology is shaping and will continue to shape people's perceptions and social interactions, and probably the emergence of social and political thoughts, which will reflect not only in the way people use urban spaces but also on their needs and requirements regarding the design and quality of these spaces. This in turn, stresses the role of governance, as the decision-making and participatory processes must be updated to a mediated world and real-time information systems, as further discussed in the forthcoming chapters.

On the flip side, the lure for technology and the fast-paced technological innovation we are experimenting nowadays calls for being attentive and be aware of the risks of a growing reliance in technology - especially for social interactions and the provision of personal data. Although accessing technology brings lots of reward and huge benefits the ultimately satisfying answer to the question what the impact of the mediated space is to transform the urban environment more inclusive and responsive cannot be answered yet. The mediated space and cyberpark are issues therefore that will be on our minds for a long time to come. Among the rewards the technological innovation is bringing about as tackled in this book, the hyperconnectiveness enables the development of new process, methods and tools of co-creation, amalgamating the dual reasoning of local and global. Public spaces call for a devoted approach to the environment where they are attached and to a process riddled with conflict. It is in such duality that the real and the virtual worlds blend, both in their symbolic function and social significance. Even in the mediated space there is a constant negotiation of space, now aggregated with digital inputs, meanings and significances.

The blur of global and local calls also for being attentive to place attachment, which is the emotional bond between people and place, and is a main concept of place-responsiveness. This calls for local programmes responsive to the users, addressing the social dimension of technologies along with environmental resilience, further addressed in this book. This places high demands and calls for creating a learning environment. A place-responsive approach should provide the space for outdoor education programmes. CyberParks demonstrated that this is viable and sustainable achievement and fits well with research needs. Public open spaces bear material and immaterial features, also the mediated space consists of both – more precisely physical and virtual

dimensions. The material and immaterial features are not inseparable but once technology intertwined the space, technology becomes itself also a spatial dimension, which is not fully explored yet. Today and even more so in the future public spaces have to meet the needs of people and be able to accommodate changes. Technology can be a key to success.

CyberParks' pledge is for more nature and not less technology. The mediated places also need people – real people sharing and interacting in the same space, and not the remote presence of them. Therefore, the call of CyberParks is towards a multi-disciplinary perspective on preparing the urban environment to be more inclusive, responsive, and with them more sustainable and resilient. These issues are the common thread, that running through the whole CyberParks Project are reflected in this book.

These findings are preliminary in nature and are intended to provide a starting point for further investigation in a field across disciplines. CyberParks casted its net far and wide in a bid to capture insights of relevance, drawing on evidence from across a range of disciplines and policy arenas. Further studies could include investigation via self-reporting measures that involve subjects as social justice, co-creation and social reporting. This would need to be supported with a broad policy context associated with funding. Getting research funding is a perennial obstacle, especially for exploratory issues. However, further research should endeavour to establish a relationship between the locational of support structures, public appropriation of these structures and the relationship with quality of life. It may also be viable to investigate the different types of digital structures and to determine which are more attractive to the public, more sustainable, responsible and inclusive.

CyberParks, as an exploratory project, delivers with this book key findings that reflect the brief period covered by the Project. There remain more questions than answers regarding the experiences and consequences of the penetration of technology into public open spaces. CyberParks should be reviewed in some years ahead.

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