Reconsidering the Planning and Design of Urban Public Spaces in the Information Age: Opportunities & Challenges

Urban public spaces have a considerable influence on the picture of cities and are of great importance for the urban culture and city life. Traditional urban public spaces including streets, squares, and parks have two major social functions: instrumental and expressive. The former role ensures a physical link between buildings and land uses and sustains the marketing, manufacturing, administrative, and transportation activities of the cities. The latter facilitates a link among people, facilities, communication and interaction, thus serving to bind together the social order of local community by creating a locus for randomize social interaction, including recreation, conservation and entertainment.

The trend from "traditional" urban public spaces, such as squares, parks and streets to "new" semi-public spaces -like city malls- is considered as a worrying trend by many commentators of urban studies: "Privatization", "commodification" (Madanipour 1996), "militarization" (Davis 1992), "Disneyism" (Sorkin 1992; Zukin 1995) and " the fall of public man" (Sennett 1992). According to Sudjic (1999), the airport, alongside the museum, and the shopping mall, is one of the key public spaces that serve to define the contemporary global city. The experience of being in public space, in where the entertainment and consumption value is preeminent, has gradually begun to being into a 'closed' and 'guarded' space. Moreover, within the home-based entertainment and consumption networks of internet-related service industries, techno-individuals have also gradually started to prefer the secure environment of home to traditional outdoor spaces. Boyer (1996) suggests, the so-called public space experience has started to change, and now it can be able to carry out many public functions in the shopping malls and the Internet's semi-private and secure environment. In reality, from the beginnings of modern industrial periods on, there are several reasons in the background of this story: the fact of weakening civic usage possibilities of the public spaces and the disappearance of political representation, the conversion of public squares to traffic nodes or transition areas (Bilgin and Boysan 1996), the state of turning users of public spaces to the passive viewers (Sennett 1992), and 'speed' that changes our spatial understanding (Virilio 1994).

The intensive use of Internet and related digital technologies have clearly affected almost every important sphere of urban life and with no exception that of urban public spaces. In consequence, grounding the possible effects of information and communication technologies (ICTs) from macro level to urban level have started to become a cutting-edge area for urban planners, designers and managers in recent years. In this sense, the diffusion of urban technologies into the urban public spaces has been emerged as a new challenging area for discussion. The core objective of this paper, therefore, intends to explore the role and meaning of urban technologies within mechanisms that constitute the public spaces today. What is more, with a particular interest on city making perspective -both virtual and physical spheres-, the paper aims at standing on the question of how current opportunities and challenges posed by the urban technologies in the transformation of contemporary urban public spaces can be taken up for urban planners, designers, and managers.

The paper has four parts. First, it describes the context of contemporary urban public spaces and their challenging areas, which is currently under transformation by various impacts of the information age. Second, the paper scrutinizes the current transformation of public spaces within the framework of new technological paradigm. Discussion in this section will also be extended by comparing the "qualities" and "tensions" between electronic and physical public spaces. In section three, we document the worldwide cases utilizing urban technologies in reconstructing the city image as well as major public spaces. Finally, the paper concludes with emerging opportunities and challenges for urban planners, designers and managers in (re)considering the urban public spaces in the information age.

Urban public spaces of global cities

Cities have always been regarded as the fulcrum of human communication, the place of possibilities and opportunity, either economic or political (Graham and Marvin 1996). Calhoun (1986: 341) argues that one of the most important social characteristics of cities is the provision of public spaces in which relative strangers can interact and observe each other, debate and learn politically, and grow psychologically from diverse contacts (quoted in Aurigi and Graham 1997). But there is also a group of urban researchers who associate the contemporary "crisis" of the public spaces to the increasing role of electronic communication technologies in everyday life (Graham 1996; Castells 2000; Aurigi 2005).

The current 'crisis' of public spaces emphasizes the following common characteristics of the emerging 'post-modern' city: increasing privatization of public space; increasing control of access and use; control of behavior through either design or use of surveillance cameras and/or security guards; increasing race and class segregation and exclusion, emergence of a 'dual-city'; use of design themes that break connections with local geography and history; emphasis of consumption and leisure (as opposed to production and service); high connectivity via a network of telecommunications technology; elimination of a need for face-to-face interaction, diminishing importance of propinquity for social interaction; uses' homogenization, users, and design features in the downtown public realms across the globe; periodic contestations of these environments through civic disobedience, riots, or individual criminal or otherwise abnormal or unacceptable activities (Sancar and Saygin 2000). The traces of transformation occurring on the public spaces should be explored particularly in metropolises and the process of metropolitization that affected intensively by global forces. In this sense, the usage of the public spaces in metropolises as well as the changing perception of users can possibly be investigated under four main headings:

(1) 'Non-places have got possession of traditional public spaces': Places defined by Marc Augé (1995) as "non-places" such as shopping centers, airports, holiday villages, theme parks are closely related to the process of metropolitization and to the collapse of traditional public spaces. For Augé (1995: 77), "if a place can be defined as relational, historical and concerned with identity, then a space which cannot be defined as relational, or historical, or concerned with identity will be a non-place". To him, non-places are being produced by 'super-modernity' and they do not integrate earlier places like traditional public spaces. In non-places, relations are 'simulated', its identity is 'created', and its historic fact is disappeared within a constant perception of the 'present'.

(2) 'Public spaces have become traffic nodes by the process of weakening its civic usage possibilities'. While the certain effects of urban technologies in the public spaces were not on the agenda, Sennett (1992) had characterized street as "dead-space", and identified it as only a means of reaching inside. We see today formerly urban squares as traffic nodes by the fact of weakening its civic usage possibilities: anyhow they have been lost its functions one by one and then appeared as "void" that filled either by new buildings or by traffic. Therefore, in the near future if an unexpected politicization act are not to be materialized, traffic in this decisive battle will definitely win over civic usage (Bilgin and Boysan 1996).

(3) 'Public spaces have been depoliticized, transformed into personal experience area'. In the study of Hanna Arendt (1994), there is a story of losing the political action under the investigation of Greek Polis as an example by which we can be able to cross-examine the present public space and try it out. For Arendt, now, the process of being political have been decomposed from that of being the "action" quality and reduced to owner's rights by perceiving it like property. As a result, people have been inactivated by losing the necessity of doing in. Sennett (1992) explains this story of inactivation process and isolation with the logic of commercialization and "commodity fetishism" accelerated in the 19th century. He then highlights, the act of coming away to the public space became both "personal" and "passive"

experience. Spaces like theaters, mass transportation vehicles and large department stores are places where passive individual viewer was born. Someone without getting in touch with others preferred to see the state of remaining alone in crowd as freedom. Getting closer within the metropolitan space and accumulation in buses and mass areas do not sign an emotional proximity, only call out anonymous and distance of individuals remained alone in crowd. Ahiska (1992) argues, the public spaces in metropolis are open themselves to individuals or groups but never exist for them. In this sense, the metropolitan public space is a "void" that filled by the different things, a void that will not be used but just passed through.

(4) 'Speed has altered our spatial understanding'. It may be called that the form and organization of metropolis or metropolitan regions are not spatial but a vector of time, because in metropolis time is spatialized by squeezing it. Living in metropolis, therefore, requires a continual movement: it is possible to miss something when we stop in a moment (Ahiska 1992). Experiencing metropolitan space is therefore relevant to speed: people, vehicles, things are perceived as continual "flows". Paul Virilio (1986) connects this condition to the state of "speed" by understanding technology as a political, ethical and metaphysical problem. Since computers, telephones, TVs and highways are vectors of speed, it does not then remove "space" but tend to change our understanding of space.

Understanding the role of urban technologies in the transformation of public spaces

In this section the role of urban technologies in the transformation of urban public spaces is scrutinized through the 'reflections', 'qualities', and 'tensions' within each other.

Reflections of new electronic communication paradigm on urban space

Like new information and communication technologies (ICTs), all the indications of transformation highlighted above are largely metropolitan-based. In consequence, there are two basic reflections of electronic communication paradigm, effective in understanding the transformation of the metropolitan space: The first, while the communication space of a person is growing to spread up to the whole world, the physical space are shrinking without necessarily getting individuals or groups out of a building in which so many mixed activities and events gathered together. In other words, the vital urban activities like working, recreation and entertainment are incorporating whilst boundaries forming these areas are blurring (Akcan, 1994). The second is the problem of 'scale' that appears to perceive the metropolitan space with the "time-space compression" (Harvey 1990).

Modern urban settings have been traditionally designed according to fixed zoning planning principles, where each area has a specific and exclusive function in the organization of the whole urban system. Advances in ICTs bring about elements of further complexity in this oversimplified urban conception. Major urban functions and activities (i.e. working, education, recreation, shopping) have been blurred almost in any place in the new post-modern urban scene (flexible, decontextualized, enclaved, and fragmented). As Page and Phillips (2003) state, many intense users of ICTs choose urban locations for diverse mix of uses among urban functions. However, for most of the cases traditional zoning policies of master plan approach do not allow a full mix of uses. Such places resist traditional planning approaches because they are so changeable and subject to so many external forces.

Ritzer (2000) explains the process of mixing of urban activities in the case of consumption activities. For him, shopping and entertainment, gambling and shopping, tourism and consumption gradually start interfering. In the process of separating functions, the traditional public spaces then started to lose its basic activities like walking, eating something, recreation, or talking against the highly specialized centers like restaurants, sports halls, and shopping malls. Now a single building complex can be able to house more than all the mentioned activities in its structure. Consequently, fragmented urban structures acquire a

new kind of "wholeness" with the mixed-use building complexes that are connected to each other with powerful communication and transportation infrastructures. Areas that remain outside of these premium networks are then called with depression and decay and largely attract the attention of commercialized urban renewal and regeneration projects.

Another dimension we have to deal with is the problem of "scale". In recent times we come across with a "scale problem" that required by the electronic communication paradigm. Virilio (1986) argues, the city is no longer a geography by itself; it is everywhere with today's telecommunication, and therefore it is a "world-city". With the time-space compression, urban spaces are now started to be (re)shaped by somewhat distant effects. Moreover, the near-distant perception has also been altering because of new electronic communication paradigm. People connecting virtual cities are able to shape their lives and relations provided with global communication networks. "Glocal", in this general sense, has been shaped and will be reshaped by "tensions" constituted by this problem of scale.

Qualities of public space within the framework of emerging virtual space

The borderline between reality and virtuality becomes blurred. Our everyday life is determined by the constant split between real space and virtual space. The discussion on the emerging realm of the virtual public space may introduce a different viewpoint on our current understanding of public spaces in the information age. In this section, thus, we will employ the timeless qualities of urban public spaces to compare with the emerging virtual ones.

Accessibility

City's public spaces must be accessible to all groups of people with various ages, gender, and ethnic background. These spaces should neither be separated with the physical barriers nor allocated for the use of any particular groups. Exclusion from public space largely refers to exclusion from the urban social life. Social exclusion refers the degree of access and use of a wide range of services and participation in society (Winden 2001). The contribution of ICTs to the removal of social exclusion in public spaces is highly controversial so far. Access to the Internet, for instance, is an important problem in itself. The globally networked economy is highly dynamic and selective, links up and connects to a network what is valuable, and this disconnects from the network what is not valuable (Castells 2000). The uneven distribution of Internet infrastructure and online services has created the problem of equal access and use. This trend sharpens when adding unequal capabilities of people (i.e. gender, age, education, income, or language proficiency), cities and countries (developed/ underdeveloped or democratic/autocratic) in reaching the ICTs. There is the problematic construction of access for both physical and virtual spaces that needs to be scrutinized.

Ownership

Public spaces in the city are not owned by any individuals or groups. However, they always imply the struggle between public and private property upon the urban scene. Public efforts throughout the history preserved the integrity of the public spaces from the encroachments of private property (Kostof 1992). In the liberal capitalist city, private ownership is sanctified. The invasion of one's private territory is strongly resisted by its owner. In new semi-public urban spaces like shopping centers the ownership is in private hands whilst still providing access to their customers. In the Internet, "hacking" refers to an invasion of one's privacy and condemned by cyber laws. But, in reality, through a simple search with web browsers people are able to get lots of intelligence about the topic they want to achieve. In the seamless integration of physical and virtual public spaces the problem of "ownership" and the blurring boundary between private and public should be underlined.

Public Control

Public control of use in physical public spaces handled through public agencies and by people themselves. The concept of "eyes on the street," a term coined by Jacobs (1961) in 'The Death and Life of Great American Cities', refers to such kind of control that is done by citizens and residents of the street. The control function of people has been substituted by electronic cameras in new semi-public spaces. In shopping mall, for example, security cameras monitor our every movement while we are walking and watching shopwindows. The virtual space, in this sense, can be seen as the ultimate layer of this control revolution. ICTs make it possible to live in a quite internalized world of cyberspace in which the life is highly individualistic and transacted in the privacy of one's own room. In this private world, everything has created according to one's own interests. According to Bauman (1993) others may exist in this individualistic world only when provided an entertainment value. In this ultimate aesthetic space, entertainment value should pervasively be enhanced. In high-tech world of the individualistic self, technology enables a territorialization of private, semi-public and private spaces by variety of tools of control like swipe cards.

Friendliness

Public spaces can be physically accessible in principle but can be hostile and unwelcoming to outsiders. According to Lynch (1981) public spaces should be welcoming to members of the community that they serve. The quality of friendliness in the virtual public space, on the other hand, resembles an issue of interface design. Working examples of virtual public spaces have user-friendly computer interfaces and easily organized information and themes.

Tensions in the public space: Impact of technological paradigm

Tensions in the public space can be discussed under the typology defined by Aurigi (2005) to explain them forming both physical spaces and virtual spaces (visibility vs. invisibility, physical vs. virtual, whole vs. fragments, and client vs. citizens). This debate can be extended by adding two additional categories (publicity vs. privacy, global vs. local) that are highly influential in shaping the urban public spaces today (Velibeyoglu and Gencel 2001).

Visibility vs. Invisibility

ICTs are largely invisible (Batty 1990; Graham and Marvin 1996). Neither the technological elements, nor the traffic upon them can be seen. Given that, much of the information constituting the network traffic is private in nature and not measurable (Salomon et al. 1999). The invisibility effect of ICTs has been enlarged with the emergence of wireless networking through small, mobile, and personal wireless 'terminals', such as GPRS (General Packet Radio Service) and 3G mobile phones and PDAs. This invisibility thus masks the clear understanding of the use of ICT in the public urban scene (Aurigi 2005). Among the broad categories of new ICTs that are rapidly diffusing into public spaces, display technologies so far have the greatest visibility above all. Their commercial and media effect has already altered the scenery of the biggest metropolitan public spaces of the world.

Physical vs. Virtual

In his seminal work "City of Bits" Mitchell (1995) describes virtual space by analogy through public spaces of the physical city "…Its places will be constructed virtually by software instead of physically from stones and timbers, and they will be connected by logical linkages rather than by doors, passageways, and streets". The perceived gap between virtual space and physical space is often bridged via metaphors of the city and its parts. In fact, most of the metaphors and symbols using to describe digital cities are derived from an analogy with the physical public spaces: agora, streets, and electronic highways. This analogy between

the city and the ICT discourse implies different understandings of one's mind. For example, the metaphor of information highway implies the efficiency of regulated and purposeful transport that refers to an economic understanding of the virtual realm. On the other hand, information highway as a navigation field refers to a democratic understanding including values of free speech and so on (Hempel and Dienel 2003).

In recent decades the 'substitution effect' of new technologies has been concerned by many urban planners and designers and considered as a serious threat to the most conventional urban patterns and functions within urban public spaces. For example, online delivery of many urban services has been blamed to disrupt the liveliness of the street. But today we see that the effects of virtual organizations are complementary rather than the substitutional. As Sassen (2002) outlined there is today no fully virtualized firm or economic sector. Even finance, the most de-materialized and globalized of all activities, constantly operates between physical and virtual space. To many critics of urban and communication studies virtual city has been emerged as parallel to the physical ones (Graham and Marvin 1996).

Integrated vs. Fragmented

Physical and digital ways to live in the city merge in an increasingly seamless way (Boyer 1996). The reflection of the city image in virtual cities and government portals, nevertheless, gives a sterile picture of the city that excluding the contradictions, and social collisions of the urban public spaces (Robins 1996). Rather, as Alessandro Aurigi states (2005), the virtual space presents "a tidy, harmonious, and rather unproblematic whole, and have not directed at increasing social cohesion by widen decision-making processes and offering opportunities for different fragments within the city".

Client vs. Citizens

New public spaces capture the people as "consumers". Similarly, technological initiatives generally identify people as "clients", or "end-users". The new semi-public spaces like shopping malls or the Internet -as a virtual public space- have raised new questions on the user of public spaces. Sudjic (1999) exemplifies this divide in the case of airports: "Thus while an airport appears to be a public space, it is in fact experienced entirely differently by different groups of people as a series of different private spaces…The airlines have added yet another layer by offering their most valued customers…away from the democratic scrum of the main halls, with their noisy commerce, and their back packers, and slumbering migrants". Similarly, in the service oriented world of cyberspace the information, people, and sections are accessible only in certain circumstances. This liberalistic encapsulation of public administration and market economy challenges the basic qualities of public space which is equally accessible by all and shaped by its citizens.

Publicity vs. Privacy

Many traditional open spaces are now being replaced by private and regulated ones. Mostly we prefer going shopping malls, corporate plazas, and commercial theme parks for shopping, business, entertainment and like. There is a shift from traditional street and squares to theme parks. Here the former is considered truly public, but can we consider the latter as public space? Rise of such privatized and packaged environments can be associated with the themes of postmodern urbanism that explain the cities as centers of consumption and the spectacle of festivals and events. Boyer (1996) indicates the commercialization of city space and architectural forms support and promote the circulation of goods. Unlike from street, corridors of shopping malls are designated for mass consumption. There is no time for stop and have a rest. This new "streetscape" is based on privatized consumption and surveillance. The more recent one, Internet, as an idea of new virtual public space, is mostly privately owned like the cable network and satellite systems.

Consequently, a variety of new control mechanisms is under private leadership. The notion of publicity is thus highly questionable within new virtual and physical public spaces of today.

Global vs. Local

Due to the uniqueness of the place ICTs' effects on urban scene is expected to differ in local level. Development of ICT infrastructure (public/private), production (ICT clusters, R&D centres) and consumption networks (ICT-based service industries) are highly diverse in different urban and national contexts. Therefore there are no universal solutions to introduction and use of ICTs at local urban settings. Centralizing and decentralizing forces of ICTs create a major urban form debate for the future of sustainable cities. In this sense, tackling with "the end of meaning of the localized space" is one of the major issues for urban sustainability in the information age (Castells 2000).

The aforementioned tensions in public spaces enabling by new technologies are still on trial and some of the trends are contradictory. However, one thing is obvious that more public functions could be done in semi-public spaces like in shopping malls or over the Internet. These new semi-public spaces are mostly in private hands that brings high security and control. Segregation and therefore the trend of "privatopia" is gaining significance. This threats the traditional public space that gets empty and looses much of its functions. On the other hand, the articulation of new technological space with more traditional ones creates new opportunities and challenges in the fast-changing public spaces of competitive cities. The following section will illustrate the experiences of recent technology-led urban public spaces in the perspective of city competition.

Diffusion of Urban Technologies into Public Spaces: Cases

The entrepreneurial approach in city management has brought a new focus that produced a promotional image of the city involving many image-enhancing tools and initiatives like urban technologies that refers to the integration of ICTs into the analysis, control, and formulation of policies and strategies regarding urban space (Firmino 2006). In the notion of 'city competition' and 'entrepreneurial' urban planning, urban technologies have become an important part of images of cities as well as changing urban public spaces.

Urban technologies are more and more diffusing into urban public spaces. However, the pace of diffusion is highly uneven and largely metropolitan. Among them, digital display technologies (i.e. such as LED boards, plasma screens, information terminals) have highly visible in the central public spaces of world cities, while remaining uneconomical for others (Townsend 2004). Therefore, the cutting-edge cases are selected to stimulate our conception of urban public spaces throughout the effects of urban technologies.

NEW YORK – Times Square

Times Square, perhaps the most typical example of central public spaces symbolizes the power of new media and display technologies. In the surrounding areas, it has been shaped a huge entertainment district by finance, media and entertainment conglomerates (Davis 2004). The branding of urban public space by multinationals has also influenced the control of activities on space. Two notable exceptions in Times Square, however, offer more than the same boring advertisement on screen concept: Lehman Brothers Building and Reuters Building (Townsend 2004). The former offers a media face that is linked with online weather, news, and stock-market-services. This media face uses this data and changes according to the latest developments at the stock-markets for example. Therefore, the building becomes a sensor of global qualities, a window that connects the virtual space with real space in a real time, and a hyperlink that content edits the building (Bauer 2004). Similarly, the media face of

Reuters Building presents live news and photos selected without human intervention by as sophisticated content management system (Townsend 2004).

Another remarkable point beyond the development of Times Square is the set of zoning guidelines put in place by New York's Department of City Planning and the desire of New York's former mayor Rudolph Giuliani who coined the corporate identity of the place. The regulations require large illuminated façade signs for all new development, no reduction in signage is permitted on existing buildings. The result, according to Townsend (2004), is a 'planned chaos' with a few notable exceptions discussed above.

TOKYO- Shibuya Crossing

Japan is today very advanced in the world regarding the use in wireless technologies. The widespread of mobile phones are affecting the way people communicate, interact, and socialize. Shibuya district in Tokyo is the place where the mobile phone users higher than any other place on earth. Shibuya is also known for the enormously high number of media-surfaces, digital screens and neon-signs. It is a dense and vibrant commercial district comprising the latest developments in fashion, entertainment and digital technologies. The image of Shibuya with its metro station, pedestrian crossing, high rise buildings (i.e. Q-Front Building) and neon-led electronic advertising boards has reminded us futuristic panoramas of science fiction movies. The urban context of the public place is not only determined by the height of high-rise buildings or population density, but also with the other things like the high volume of information, potential for communication, and mobility of its users (Bauer 2004).

As 24-hours commercial space, Shibuya has been invaded by the combination of three new technologies: display and expression, wireless communications, and automated positioning. For example, GPS receivers embedded in mobile phones has become a navigational tool giving the mobile phone users an 'ubiquity' to obtain information about location, places, and nearby location-based services (Townsend 2004). Despite the great density of people in urban public space the consumption value determine the flow of information in this space. Therefore, the masses are stimulated by offers, not the needs and they cannot influence the texture that surrounds them (Bauer 2004). The hegemony of combined digital technologies here describes the context of the public space based on visual images and displays not for two-way communication and social interaction.

Others: Melbourne- Federation Square, Rotterdam- Schouwburgplein

Federation Square is Melbourne's most crowded public place surrounded by a mix of attractions including museums, visitor centre, restaurants, cafes and bars, and over 2000 events held annually. One can take a virtual trip in Federation Square via virtual reality software (acmipark designed by selectparks) using a model of a real world public space. It is an experiment in the design of a virtual public space that is envisaged as a kind of public space waiting for a community to define its meaning (Stuckey 2006). Federation Square is an example of multi-modal public space with a mixture of distinct architectural features and embedded digital elements (such as big video screen or electronic display surfaces) that provide a variety of activities to visitors. In the façade system of the individual buildings people can have their text messages displayed up in scrolling LED screens launched by a GSM provider. The Schouwburgplein, like Federation Square, is at the heart of the city and surrounded by commercial, cultural and recreational uses. The design idea is to create the 'active void' that is envisaged as the 'city's stage'. The Schouwburgplein gives a 'sensory', an interactive experience of a public space. The configuration of hydraulic lighting elements, for example, can be interactively altered by the inhabitants of the city.

Conclusion: Opportunities and Challenges

As exemplified in the cases, digital-led commercial media screens, internet kiosks, and large public-displayed urban screens has penetrated rapidly into most valued urban public spaces of global cities. However, some opportunities and challenges provided by these technologies need to be discussed for reconsidering the planning and design of urban public spaces:

Amalgamation of physical and virtual as an opportunity

We need to extend the definition of urban public spaces capturing the new dematerialized spheres like the Internet. This holistic conception of public space should include both spatial and aspatial processes: borrowed by Graham and Marvin (1996) "an amalgam of urban places and electronic spaces". The amalgamation process and blurring of boundaries between virtual and physical can be interpreted as a new opportunity in reshaping the changing urban public spaces today. The dematerialization of architectural walls into screens, for example, is a one possible new development between the inside and outside, material space and digital space, surrounding the urban public spaces.

Urban public space as an (inter)active void, enabler of the events

Many cities around the world use events to promote urban life. These events transform the normal routine of the city and can be used to create new opportunities in the revitalization of urban public spaces. New generation digital communication and display technologies has the promise to allow 'reprogrammable', 'interactive', 'customized', and 'sensory' and 'real-time' configuration of public space as event space. However, the excessive use of technological tools and the too much programming of space questions the working qualities of public spaces. Moreover, as some urban scholars (Castells 2000: Graham 2002; Southern 2002) suggest, urban technologies tend to reinforce rather than break down processes of socio-spatial polarization in cities as well as urban public spaces. To them, the application of new technologies are augmenting the power of the most powerful; strengthening uneven development; supporting the ability of the more able socio-economic groups to selectively bypass the local scale; and promoting the international information-led market place.

As Sennett (1990) indicates a place works best if it draws people who stay even when nothing is being programmed. If a solid foundation to build on, programming can draw different types of activity such as cultural events and performances. The exploit to opportunities of new technological tools we need to reconsider the meaning of the urban public spaces in the future of our towns and cities. The task of urban professionals, therefore, should re-connect social, economical, geographical, and cultural fragments of the contemporary city. In this sense, the metaphor of "weaving" that prescribes no specific or formal strategies beyond the notion of the city as a connected structure has a promise in the development of analytical methods and urban design sensibilities promoting the creation of public space that is not rigid and over designed but is flexible an reprogrammable enabling various virtual and physical events. The urban professional might then be conceived not as the skilled craftsperson designing the total space, but instead an enabler, an information designer, and a weaver that carefully creates interfaces between urban public places, events, and people. If public spaces can be considered as an active urban void and allowed to construct its identity by their users, it would be created an opportunity for the sustainability of these spaces in the future.

Regulating technology-led urban public spaces

The impacts of the relentless amount of floating images and information on the building and its surrounding public space should be reconsidered. Does the visibility of technological landscape mean the vanishing of the architectural style? Public space is exploited by

branding and the image of urban space is used by companies which interests to take the attention of the masses and place their products. Experiencing urban space is, therefore, meant to become experiencing brands. Even the latest interactive and customized urban technologies have covered by this issue. Therefore, the regulation of new technology-led public spaces seems to be a challenge for the city administrations and professionals. On the other hand, when new urban technologies have become technologically available and economically feasible new actors also added to them: advertising and media companies, telecommunications service providers, and individuals using technology. Urban spaces are emerging through the negotiation of these actors. Digitally augmented individuals or groups, according to Townsend (2004), are the first sign of interactive urban public spaces who provide their own infrastructure for interacting with, navigating, and recording the urban environment. Accommodating these individuals or groups, therefore, will be an important challenge of urban professionals in the information age.

Technological control of urban public space

New semi-public places (i.e. shopping malls) and the emerging virtual realm (i.e. the Internet) are heavily criticized in the privatization of the public realm. The most important motive behind this assumption is the exclusion of the "otherness" due to the fear of crime (Zukin 1995). Through urban technologies one can possibly find an opportunity to escape the real shocks of the urban life, a world of phantasy, within a safe tele-mediated distance. Urban scholars (Bauman 1993; Robins 1996; Aurigi and Graham 1997) have highly skeptical about the substitution of the real world with the emerging virtual one. Similarly, urban technologies have been used to control the environment of new semi-public urban spaces: business plazas, urban skywalks, shopping centers and so on have been designed to separate the more privileged to the others. This erodes the systems of traditional urban public spaces like boulevard, square, and urban park that have been previously used to connect people from various social groups and status and now largely a transition zone to give access to the controlled estates of packaged environments. The technological control of urban public spaces has currently legitimized and supported under the notion of 'public security' whilst creating a new question of oppressive control of the state over the masses. Therefore, the mechanisms of the mediating digitally-led urban public scene should be clarified.

What is next for designers and planners involved in public space making?

The failure of urban professionals towards understanding urban technologies has a number of reasons: Firstly, the invisibility effect that has been discussed previously (Batty 1990). Secondly, the knowledge gap among planning researchers and practitioners due to the level of complexity, uncertainty and novelty of these technologies (Salomon et al. 1999). Moreover, a serious gap in mentality that is in the conception of new technologies as a part of infrastructural development that are very 'technical' and far from the worries and issues of urban planners (Maldonado 2004). Lastly, the treatment of urban technologies on a 'cosmetic level' that is primarily in local disputes over the placement and design of technological devices (Townsend 2004).

When the installation of urban technologies becomes more widespread and integrated with physical infrastructure, city managers' and planners' attention should shift towards the filling their knowledge and expertise gaps. Urban planners need to think hard both how to grasp and interpret the complex changes that cities are going through in the information age, and how to turn this understanding into action, successfully addressing the problem of setting strategies for the managing of the coming knowledge city. The complexity of amalgamation of virtual and physical spaces in the settings of urban public spaces needs a multidisciplinary and collaborative approach of urban planning, management and design.

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