

Urban and technological developments Why is it so hard to integrate ICTs into the planning agenda?

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1 INTRODUCTION

Recent definitions of theories and concepts attribute social and cultural aspects to the shaping and organisation of space, and deny the idea of space as an aseptic container where social interactions simply take place. However, new elements also need to be taken into account in the struggle for the comprehension of contemporary urban society; elements related to the latest developments of ICTs.

The aim of this paper is to critically discuss some of these prominent notions of urbanity which consider not only the social and cultural aspects of space, but also the articulations of its virtual and physical characteristics. We explore and relate concepts of recombinant space, and cybernetic or symbiotic urbanisation, with the understanding that these are an inherent part of the constant and unstoppable process of actualisation of our cities. According to this standpoint, we argue that the so-called ‘virtual city’ is only one of the elements that characterise the contemporary city, which is an ‘augmented’ city itself.

In this sense, a few questions need to be considered: what kind of places can be considered under the lens of the ‘recombinant’ space concept? How are physical and virtual spaces reacting to what has been called symbiotic (or infinite) urbanisation? How can we define the city under these cybernetic relations between physicality and virtuality? What is the augmented city within the scope of these concepts? And finally, what is the relation between virtual cities and symbiotic urbanisation?

We address these questions in three steps. First, we discuss the way in which ICTs are challenging traditional notions of space, territory, region, and city, introducing the way the activities of architects, designers, planners and city-makers are equally being challenged by these technologies. In the second part we deal with many of the new concepts responsible for the re-conceptualisation of urban space, and the idea of an augmented space and city. The alternative views of recombinant places, cybernetic or symbiotic spaces, are knitted together to enhance our understanding of the process of contemporary urbanisation. The third part draws some conclusions and suggests directions for the contextualisation of urban technology within the evolutionary process of urban space.

2 SPACE AND THE RAPIDLY-CHANGING WORLD OF ICTS

The transformations imposed by new telematics technologies or ICTs have been threatening all concepts about space, time and cities, and this in turn affects notions about region, nation state, place, boundary, distance, concentration, decentralisation, physicality, virtuality, and territoriality, just to name a few.

Different concepts that underpinned urban society and urban studies in the past are called into question by new spatial relations directly influenced by new technological, economic, political, social and cultural paradigms. These paradigms are however dominated by a simultaneous complexity and vagueness.

According to Michael Batty, the uncertainty about the relation between ICTs and cities ‘is increasing at a faster rate than our ability to adapt research methods to these new circumstances’ (Batty, 1990).

With no stable reference-point to facilitate understanding of the new conditions of space and time, metaphors are often used rather arbitrarily to fill the conceptual gaps left by a lack of consistent and grounded studies of ICTs and cities.

Expressions like tele-port, cyber-space, cyber-café, super-highway, web-sites, to name but a few, are common labels for what is thought to be a new dimension of space. The indiscriminate use of metaphors only makes things more complicated, and may even block the development of more comprehensive theories and concepts. In other words, as Graham argues:

“Too often [...] the pervasive reliance on spatial and technological metaphors actually serves to obfuscate the complex relations between new communications and information technologies and space, place and society. In the simple, binary allegations that new technologies help us to access a new ‘electronic space’ or ‘place’, which somehow parallels the lived material spaces of human territoriality, little conscious thought is put to thinking conceptually about how new information technologies actually relate to the spaces and places bound up with human territorial life.” (Graham, 1998)

The possibility of communicating with virtually anywhere in the world within seconds or even fractions of seconds – overcoming the friction of distance for economic transactions and human interactions – poses a powerful challenge to the comprehension of space and its relation with time. According to Skeates (1997), paradigms of the organisation of space and territory are ‘under threat’. Yet according to him, many of the terms which refer to space are being misused.

“We are beginning to understand that there has been a shift, a break with the past that means that we can no longer use the term ‘city’ in the way that it has been used to describe an entity which, however big and bloated, is still recognisable as a limited and bounded structure which occupies a specific space.” (Skeates, 1997)

Many of the previous theories of urban studies rely on notions of space and time strongly dependent on physical distances. There are still references to distance as a strict space and time condition when it is said, for instance, that Newcastle is at five hours' drive from London. Yet catching a train from Newcastle to London would entail a different way of referring to the 'distance'.

However, what if there is no need to travel from one place to another – for actually 'being there'? What if it is possible to do those things in London in a matter of minutes or seconds without physically leaving Newcastle? This is what, according to some commentators, is happening with distance (see for example Skeates, 1997; Crang, 2000; Ezechieli, 1998; May, 1998; Sikiaridi and Vogelaar, 2000; and Baker, 1999). Harvey (1989) calls this phenomenon 'space-time compression', where distance is said to be increasingly shrinking by the development of more efficient technologies of communication. This immediately affects perceptions and concepts of space and time, as the two start to converge into one single entity:

“Traditionally architecture was place-bound, linked to a condition of experience. Today, mediated environments challenge the givens of classical time, the time of experience [...] Architecture can no longer be bound by the static conditions of space and place, here and there.” (Peter Eisenman, 1991 quoted by Crang, 2000)

These tendencies in the organisation of space, and its perception in relation to time and distance, also contribute to the complexity and vagueness of the new paradigms. Scholars are now starting to understand this new reality and to formulate more comprehensive theories, while, to date, just a few people would be able to follow these ideas in the planning and governance fields.

Traditional concepts can no longer fully explain the current interplay of space and time. Euclidean theories of space based so much on linear and logical arrangements of the territory according to modernist industrial ideas seem to be exhausted within urbanism and geography. Hierarchical space concepts like region and national state are also seriously challenged by the new patterns of territorial organisation. Theories like Christaller's central place or Webber's industrial location – very much centred on rational and hierarchical behaviours of people, institutions and places – seem unable to cope with current complexities of relations between different actors and interactions.

The simultaneous complexity and vagueness of ICTs often generate confusion about their use, application and comprehension; especially regarding the future of built urban space. And if we do not understand space and the elements that constitute it, how can we plan and manage it? The challenge for urban planning as well as local governance is mainly based on two broader aspects: the transition from the industrial to the networked city; and the fragmentation and disconnection of ICTs and planning.

1.1 From the industrial city to the networked city

Perhaps the biggest and most important dilemma for planners and planning departments is a transition from traditional practices in urbanism and planning (strongly centred on technical and design sciences) to a broader model increasingly committed to social sciences and qualitative research and instruments. It is exactly the same transition that cities and concepts of space and time are now experiencing, but in a more specific perspective.

The challenge here is to understand that the subject of urban planning is being transformed, to find the best way to comprehend and analyse it, and to re-think the methods and instruments for intervening in it. This is a hard task, without doubt, especially considering the current levels of co-involvement between planning practices and notions of linear Euclidean space. Planners still seem to refer to cities as aseptic external containers for urban life. The idea of space as a social entity is not taken into account in the majority of the cases. Graham and Marvin (1996) attest:

“The conceptual and policy-making frameworks built-up since the nineteenth century to deal with the physical, geographical, social and environmental aspects of the industrial city still tend to underpin – at least implicitly – a large proportion of urban analysis and policy-making.” (Graham and Marvin, 1996)

ICTs are seen as no more complex than any other technical element, with no account taken of the implications they might have upon the complex chains of political and social relations in the city. In general, planners seem to have been reluctant to recognise that new technologies have profound relations with the spatial organisation of our cities. Planning is very rarely involved in more strategic urban actions with regards to the implementation of ICTs. Is this because planners are not interested in combining strategies of urban technology? Or is it because people and other departments responsible for such strategies do not see planners as key players?

Phenomena like decentralisation, centralisation, and urban enclaves (Ezechieli, 1998) are faced as normal spatial behaviours and treated with methods and instruments such as zoning strategies, transportation efficiency, development projects, and so on. Drewe (2000) prefers to call planning into question by asking: 'how can the urbanism of networks be changed into a sustainable network urbanism?'

Therefore, the transition from the modernist to the post-modern city is a crucial and necessary step forward for planning towards the networked city, where planners, as I will argue, have a fundamental role to play.

1.2 The 'distant' worlds of ICTs and planning

Planners and planning departments are increasingly losing their importance within contemporary public administration, as exaggerated reliance on technical and design practices continues to fragment the public treatment of space.

This process is being affected in such a way that only urban design, transportation and infrastructure issues are entrusted to planning departments, with little or no consideration of social and cultural implications. Koolhaas and Mau (1995) argue that planners and, in fact, urbanism are outdated, and that both failed to keep pace with the rapid modernisation of urban space. Ultimately, they argue, planners simply cannot cope with the complexity of the contemporary city.

This seems very contradictory when compared with the important role that planners should be playing. In fact, the point is that, while hardly working on their daily activities, planners have been acting more as technicians than as social scientists because of limited

resources, restricted conditions and a general unawareness of the concepts and consequences linked to the development of ICTs in cities.

Many studies (Graham and Dominy, 1991; Spectre 2002a, 2002b; Aurigi, 2003; Firmino, 2004) show that 'proactive' planning initiatives related to ICTs, tend to appeal to the ill-grounded utopianism of technological deterministic approaches. This, in turn, tends to create more distrust and scepticism from other municipal departments and civil servants about the involvement of planning in urban-technological strategies.

Distinct departments in the city have, obviously, different notions about ICTs and their influence on urban affairs, which leads to a weakened planning department that forms a smaller part of an administrative structure that may itself be fragmented.

So perhaps planning and planners are not to blame; alternatively, no-one may be to blame. Can organisational fragmentation in fact be traced to the variety of visions and interpretations? Can such variety be the cause of the fragmentation of the very notions of space, time, technology and governance themselves, reflecting on the process of policy-making?

The consequences of such a fragmentation may be on the one hand a failure to understand the city in the light of the transformations brought about by the development of ICTs, and, on the other, neglect of the complex economic, political, and social and cultural relations present in the urban space on the part of planners.

The contemporary city has new elements that need to be considered in the arrangement of urban space. Planners and planning officers are still trying to catch this momentum. Commentators like Koolhaas and Mau (1995) maintain that new methods, instruments, organisation, and indeed a new urbanism have to emerge to cope with the complexity, flexibility, and new concepts inherent in contemporary urban space:

"If there is to be a 'new urbanism' it will not be based on the twin fantasies of order and omnipotence; it will be the staging of uncertainty; it will no longer be concerned with the arrangement of more or less permanent objects but with the irrigation of territories with potential; it will no longer aim for stable configurations but for the creation of enabling fields that accommodate process that refuse to be crystallized into definitive form; it will no longer be about meticulous definition, the imposition of limits, but about expanding notions, denying boundaries, not about separating and identifying entities, but about discovering unnameable hybrids; it will no longer be obsessed with the city but with the manipulation of infrastructure for endless intensifications and diversifications, shortcuts and redistributions – the reinvention of psychological space." (Koolhaas and Mau, 1995)

1.3 Governance, planning and regulatory changes

Within the sphere of public administration there is, obviously, a diversity of opinions and visions as to what ICTs and virtual cities might be. The picture of the development of ICTs is not a unitary one, either in government or in planning.

However, interestingly, studies by Aurigi (2003) and Firmino (2004) show that some visions have been more common than others. Economic models that emphasise the entrepreneurial and commercial sides of public initiatives seem to be a very common driver. Infrastructure and 'visible' elements of ICTs, then, gain more relevance than those elements and infrastructure which cannot be seen. Invisibility plays its part on the way ICTs are generally interpreted by planners and local authorities.

Perceptions and interpretations as to what ICTs and the virtual city are, are therefore usually vague, fragmented, and embedded in standard technological deterministic discourses. Infrastructure is thus often the first step towards planning, governance and regulatory shifts, immediately followed by administrative improvements. Local authorities clearly perceive the potential of cables and fibre optics to facilitate the delivery of services by both providing internal communications and facilitating communications between themselves and its residents:

"Cable is perceived as potentially playing a valuable role in both community and economic development. However, there are real fears that the commercial imperatives driving the development of cable will mean that this potential will not be exploited." (Graham and Dominy, 1991)

Back-office reformulations through a massive introduction of telematics equipment, networks, and new practices tend to lead most of the public initiatives. Businesses and city departments are reformulated to improve communications between them and access to common databases. At the same time, spaces are created for 'public customer services' with the help of the Internet for delivering the same or part of the services and information. In sum, Intranets and websites/portals on the Internet along with (mainly) cable infrastructures constitute the state-of-the-art developments in the public sphere.

Other tools are also part of the package, such as CCTV coverage and Geographical Information Systems (GIS). These initiatives are normally considered as public top-line actions 'towards the 21st century'. In reality, this all seems very fragile compared with what the private sector is doing at the same time.

Governments everywhere tend to adopt the discourse of building a new relationship between citizens and authorities, between governments themselves and common residents through better ways of communication and improved systems and services. This type of initiative looks like the right choice, but the speed of changes and the passivity of local authorities when compared with the aggressivity of the private sector show how public initiative tends to be handicapped in the attempt to construct a more democratic virtual city:

"While these technologies are seemingly attractive given their inherent power to deliver existing services more efficiently as well as provide new services, they also represent a potential for creating a fundamental change in the nature of government as well as change in the relationship between the government and the governed. These changes may not always be what we expect and may not always be for the betterment of our society." (Baker, 1999)

Part of this handicap comes from an extremely limited power to deal with regulatory issues, as well as certain commercial, industrial and business aspects of cities. One can even say that to some extents, local authorities have been privatised, which for Monbiot (2001), is a ‘corporate control of the means of government, as well as its implementation’.

The fragmentation between urban issues and telematics technologies appears to come – at least from the point of view of control and management – from the POTS/PSTN era (respectively Plain Old Telephone Service and Public Switched Telecommunications Networks), when local authorities had very limited or no power over telecommunications networks. Urban planners and policy-makers could not take part in the telecommunications decision-making process at this time, as it was nationally or regionally standardised.

The shift from public PTTs (Postal Telegraph and Telephone) to private operators of telecommunications was also the first signal for local authorities, urban planners and urban researchers to pay more attention to ICT issues. The regulation of telecommunications now tends to follow market forces rather than collective interests. Furthermore, knowledge levels between the public sector and ICT operators as regards the specific technologies and systems involved tends to be asymmetric. Faced with a new competitive scenario, and without a proper understanding of the telecommunications impacts, the question is how planners and local authorities can have any sort of public control over it, or know what it is used for and by whom.

According to Castells (1989), this current manifestation of global technological development as an intensification of capitalist forces leaves little margin of manoeuvre for local governments and democracies:

“In the end, even democracies become powerless confronted with the ability of capital to circulate globally, of information to be transferred secretly, of markets to be penetrated or neglected, of planetary strategies of political-military power to be decided without the knowledge of nations, and of cultural messages to be marketed, packaged, recorded, and beamed in and out of people’s minds.” (Castells, 1989)

Mixed initiatives such as partnerships are a common way found by local authorities to conciliate both public and private interests in the attempt to amplify their power of intervention. Obscure contracts and deals without close public inspection may open, at least, strange possibilities for the private sector to gain control of what was supposed to be exclusively public:

“The overwhelming importance of the economic imperative in cities means that the increasing emphasis of urban governance is on public-private partnerships oriented towards an explicit economic development agenda rather than the social, redistributive one that characterised the post-war period (Healey et al., 1995) [...] the talk is now to reinvent government more along business lines and to use telematics innovations as the new mechanism for delivering services with minimum costs and maximum flexibility.” (Graham and Marvin, 1996)

1.4 ICTs as economic leverages

The invisibility of ICTs causes planners to be especially anxious to produce physical results. They normally need to translate to politicians and local authorities what is invisible and virtual into something visible and tangible.

Invisibility along with technological power, high-standard private innovations and market representativeness make ICTs a powerful symbol of inventive and proactive management, control and commitment to the future. This is, at least, the way politicians seem to look at new information and communication technologies.

The very term ICT is full of meanings due to a number of possible interpretations one could have for what ‘information and communication technologies’ may represent. At the same time, it is also a key term for current governance and planning practices. The symbolic meaning is so powerful that even ‘fake’ projects are built to exhibit a high-level use of ICTs in the attempt to attract companies, business people, funds, or simply attention. Graham and Marvin (1996) prefer to call it a ‘cosmetic reason’:

“In fact efforts often have to be made to increase the visual and physical impact of telecommunications in cities, as when prominent satellite dishes are developed to boost the image of high-tech office development and teleports. In one case, for example, such a dish has been proposed purely for cosmetic reasons, even though no satellite facilities were actually technically required.”

This happens when ICTs become a commodity and their economic status is externalised as globalised, ‘super-capitalist’ instruments. The hidden competition between local authorities and the private sector, and between cities themselves to attract inward investment clearly exposes this economic connotation of being proactive with regard to urban-technological policy-making. In the end, every initiative related to new technologies ‘allegedly’ seeking more democratic ways of governance is threatened by the purely economic and commercial imperative of ICTs. Thus, in many public administrations, ICTs are symbolically dealt with as a sophisticated commodity.

Graham and Dominy (1991) verify that most British cities and, especially what were at that time assumed to be the advanced cases of Edinburgh, Manchester and Sheffield, were motivated to deal with telecommunications issues mainly by economic reasons, chiefly to enhance the access to the Single European Market. Over ten years later, Firmino (2004) showed an almost unchanged situation while surveying more than one hundred members of TeleCities (a consortium of European cities dealing with ICTs as a public matter), and in the case studies of Newcastle upon Tyne (U.K.) and Antwerp (Belgium). ICTs were still pictured as a powerful economic leverage, with little or no consideration for social and cultural issues.

2 CONCEPTUALISING CONTEMPORARY URBAN LIFE AND THE IDEA OF AN AUGMENTED CITY

Conceptually speaking, there have been few efforts to break the traditional modernist/industrial paradigms of space and time that govern perceptions of the city, urban, and region.

The most noticeable advance in notions of space may be the inclusion of a powerful social/cultural aspect to the construction and organisation of spaces and places. According to these ideas, space cannot be analysed or even understood just as a physical entity, separated from time and, consequently, separated from social aspects of particular communities or societies.

The urban milieu seems to function as a symbiotic space where elements from other periods in urban and social history intermingle and interplay with new functions and elements introduced by the emergence of information and communication technologies in the process of the actualisation of space (Santos, 1997).

These new notions of space and time, all point in the same direction. They are all abnegations of the vision of space as an aseptic stage for urban life and human interactions. They reinforce the need to consider that this ‘stage’ interacts with urban life and with time, in a complex and dialectical process of construction and reconstruction in different economic, social and cultural aspects. This is made even more complex and non-linear by the emergence of the multi-layered space enabled by ICTs.

Reflecting on the association between space and society is a fundamental step if we wish to understand the relations between space and technology, as technologies are themselves part of a process of socio-technical construction (Bijker, 1987). What can be learnt from this association is that the only way to make sense of the trinomial space, time and technology is through the comprehension of the political and social relations behind these elements.

Furthermore, new concepts of space and time directly affect the way to approach and understand the city and the urban, with important consequences for previously well-established ideas of region and the national state. Facing the threatening ideas of aterritorial cities (Painter, 2001), unbounded space, and virtual cities, these concepts seem to still exist and to be now underpinned only for political reasons and administrative conventions. In this sense, the so-called phenomenon of ‘distance-shrinking’ seems to be dominating discussions about space and time:

“The idea of telecommunications as ‘distance-shrinking’ makes it analogous to other transport and communications improvements. However, in so doing the idea fails to capture the essential essence of advanced telecommunications, which is not to *reduce* the ‘friction of distance’ but to render it entirely meaningless. When the time taken to communicate over 10,000 miles is indistinguishable from the time taken to communicate over 1 mile, then ‘time-space’ convergence has taken place at a fairly profound scale. Because all geographical models and our contemporary understanding of geographical relationships are based, implicitly or explicitly, on the existence of the friction imposed by distance, then it follows that the denial of any such friction brings into question the very basis of geography that we take for granted.” (Gillespie and Williams, 1988 quoted in Graham and Marvin, 1996)

2.1 Pervasive technology

Telematics technologies have been represented and interpreted as the most pervasive and ubiquitous set of technologies ever. To name this symbiosis between electronic and traditional elements Mark Weiser (1991) coined the terms ‘embodied virtuality’ and ‘ubiquitous computing’, which also diverges from the well known virtual reality. While the formers attempt to conceptualise the physicality of ubiquitous computing, the latter tries to explain the virtuality of our physical reality. The difference is a significant one, in that embodied virtuality and ubiquitous computing articulate the incredible pervasiveness and power of ICTs of ‘melting into air’ and blending with other things of our daily lives:

“There will be profound ideological significance in the architectural recombinations that follow from electronic dissolution of traditional building types and of spatial and temporal patterns.” (Mitchell, 1995)

A concrete example of this phenomenon of technological embodiment is shown on a story published by BBC on September 2004 (“Barcelona clubbers get chipped”), where clients of a night club in Barcelona were getting a microchip implanted under their skins for access to VIP lounges and a debit account for the bar. VeriChip is the company offering this sort of high-tech service of identification and information access through RFID, or radio frequency identification (figure 1).



Figure 2: VeriChip, radio frequency identification. Source: www.4verichip.com.

According to Cuff (2003) embodied virtuality has four major implications for the way we perceive and interact with space. First, comparing with Bentham's panopticon and George Orwell's big brother, she argues that contemporary urban space is now part of an extremely controlled environment which she calls 'enacted environment'.

Secondly, Cuff highlights the issue of visibility or, in the case of ICTs, invisibility, where what "was solid and opaque becomes transparent, yet what makes the hidden accessible is itself invisible" (Cuff, 2003).

The third implication concerns conflict between public and private matters. The argument is that surveillance and control redefine our perception to what is public, private and, what she calls, semi-public. Shopping malls are a classical example here, where controlled and private-owned places become popular symbols of public spaces.

Finally, and directly linked to these issues of public and private spaces, the fourth implication relates to notions of civility or public life, which are said to be affected by the increasing security and surveillance of the urban space. North-american's policy against terrorism is the example here: the so-called 'Patriotic Act' is said, by civil and human rights organisations, to be seizing many civil rights and civil liberties (freedom of expression).

Cuff calls this increasingly controlled and surveilled space cyburg, and argues that "if cyberspace is dematerialized space, cyburg is spatially embodied computing, or an environment saturated with computing capability." (Cuff, 2003). This notion of a cybernetic or symbiotic space directly relates to what Mitchell (1995, 2000, 2003) and Horan (2000) have called, respectively, 'recombinant architecture' and 'recombinant design'. These concepts are used to reinforce the idea of an existent space being (conceptually) melted by new paradigms and recombined with the new elements of information and communication technologies. The notion of a hybrid, symbiotic, cybernetic urban space is, therefore, totally embedded in the term 'recombinant'.

It is however crucial to note that the notion of recombinant space denies the technological deterministic ideas of replacement and physical substitution as if virtual environments, spaces, interactions, transactions and remote communication were replacing face-to-face interactions and physical public places. Rather than substituting anything, today's symbiotic or cybernetic city is seen, under the lens of recombinant space, as a consequence of the coexistence of virtual and physical layers of the same space, or the articulation of traditional and electronic elements of the city.

The notion of space has already crossed the frontiers of the physical territory by considering space as a social by-product. Moreover, this notion now has to incorporate the complexity of virtual, remote and distant interactions. This is what concepts such as 'cyburg' and the 'recombination' of space are trying to do.

2.2 The augmented space

Scholars, researchers and practitioners, such as the architects Marcos Novak and Lebbeus Woods are quoted by Crang (2000) as formulators of new ideas of cities and new visions of architecture and urbanism. Novak, for example, coined the terms 'liquid architecture' and 'transarchitecture' to try and envisage a new approach to designing the complex relations between the physical space and networks of interactions in cyberspace:

"The architect Marcos Novak offers one way of thinking through these issues in his projects to create, first, a liquid architecture of cyberspace, which he suggests offers an 'augmented space', that is thinking through what worlds of information might be shaped like, and, second, a 'transarchitecture' of their intersection with material world [...] Novak suggests that both mean redefining the urban field by challenging three deeply embedded assumptions of urban studies. First, that space is three-dimensional and shared between actors. Second, space is either solid or void. And, third, you can only be in one place at one time." (Crang, 2000)

Woods is referred to by Crang (2000) as someone whose work claims the existence of a parallel city, or even parallel cities, called 'centri-cities'. Centri-cities would be made of complex interactions and differences. As Crang puts it:

"From the mid-1980s he [Lebbeus Woods] produced the idea of 'centri-cities', formed of overlapping interference wave patterns expressing life in a multi-polar urban city. Urban multiplicity stands in opposition to the classical city – where the acropolis represented the single centre of authority that worked hierarchically through the polis [...] Instead of utopian monologue producing the hierarchical city (organized around the one principle) he looks for a heterarchical city of dialogue that is necessarily incomplete and incoherent." (Crang, 2000)

There are other innovative ideas by which the concept of 'city' is challenged by assumptions that consider urban space to be completely unbounded and atterritorial, stimulating new ways to interpret and act upon urban space. Some commentators defend the idea of a networked city (Batten, 1995; Drewe, 2000; Townsend, 2003) as an evolution of the concept of the polycentric city – which is in turn already an alternative to Christaller's 'central places' theory. According to this idea, "dealing with networks as central concepts means dealing with mesh or web, sectoral topological subdivision, attraction, contact, orientation, territorial dynamic and hierarchy related to a network" (Drewe, 2000).

Rather than trying to establish a single definition or concept for the contemporary city, it is important to recognise that new elements play now an important role in the configuration of urban space. We need to understand the new rules, the new elements that define the nature of the contemporary city. We also need to reflect on where telematics technologies play such a significant role. Batten (1995) argues that the characteristics of the networked city are far more pervasive than the ones of Christaller's central place theory. He argues that although "some larger cities possess both network and central place characteristics, it is the smaller network cities that have counteracted the central place trend towards primacy and contributed to the size-neutrality or urban growth" (Batten, 1995).

Enjoying relative freedom from major material limitations and functional constraints, artists are usually more advantaged and better equipped than architects, designers and planners for producing schemes that reflect the merge of physical and digital experiences.

Among many very active artists, currently experimenting the possibilities of interaction between ICTs and space – in other words, practicing what Novak calls transarchitecture – we can highlight three examples.

First, an interesting work of art and architecture that follows this pattern is Lars Spuybroek’s intervention for the city of Doetinchem in the Netherlands, called D-Tower (figure 2), constructed between 1998 and 2003 (Cuff, 2003). During these five years, a website surveyed participants’ emotions every month to transform their sensations into an unstable and colourful tower in a public square. In this way, passers-by would notice what the artist/architect supposed to be the mood of the city.



Figure 3: D-Tower, measuring the city's humour.

Secondly, the Mexican artist Rafael Lozano-Hemmer, uses ICTs and interaction as his major instruments for his interventions. His works also assume an augmented, urban notion of transarchitecture: what Brower and Mulder (2002) call transurbanism. In one of his most celebrated works, Vectorial Elevation, Lozano-Hemmer arranged several searchlights on the top of buildings surrounding the Zocalo Square in Mexico City. For about 10 days in 1999/2000, people were able to configure a design through the Internet for the beams of the robotic lights to change every 6 seconds. The result was a vivid dance of lights which could be seen from as far as 15 kilometres (figure 3). Since then, he has repeated this installation in Spain (2002), France (2003), and the Republic of Ireland (2004).



Figure 4: Vectorial Elevation, re-thinking public space. Source: Lozano-Hemmer, 1999.

Finally, the Austrian movie-maker Andreas Traint developed what can be considered a possible version of teletransport and telepresence. His Tholos System extrapolates the idea of interaction and remote communication. Tholos System consists on a series of kiosks mounted with a sophisticated apparatus of cameras, screens and projectors, and that can be installed simultaneously in two

or more cities. The system allows people in public places of different cities to interact in real time and with a real sense of presence (figure 4).



Figure 5: Tholos System, a possible teletransport. Source: Wired, 2003.

According to Horan (2000), these three types of space intervention presented by Lars Spuybroek, Lozano-Hemmer and Andreas Traint, can be considered representatives of a very particular type of recombinant design: what Horan would call ‘transformative spaces’, in which there is an extensive influence of ICTs on the appearance, construction and use of the space.

A second type of recombinant space is called, by Horan, ‘adaptive design’, seen as a transitory type between traditional and new cybernetic spaces, in which traditional elements of construction and architecture are retrofitted or changed to accommodate new electronic equipments and activities.

Horan also talks about a third type of recombinant design, in which telematics technologies do not produce major impacts in terms of appearance and construction. These he calls ‘unplugged spaces’.

These three types of design for places are, according to Horan, representative of a type of ‘evolutionary line’ in which:

“At one end of the digital place continuum are ‘unplugged’ designs that manifest little or no digital technology in their appearance and construction. Toward the middle of the continuum are various ‘adaptive’ designs, representing modest attempts to visibly incorporate electronic features into physical spaces. Occupying the far end of the spectrum are ‘transformative’ designs: room, buildings, or communities composed of truly interfaced physical and electronic spaces.” (Horan, 2000)

Horan’s classification of recombinant space (design)¹ has steered the discussion in the direction of differentiation between traditional adapted spaces and completely new spaces where the symbiosis would already affect the conceiving process, methods, construction and use of places. In other words, Horan’s classification of spaces as unplugged, adaptive or transformative, ultimately has served to classify and acknowledge the level of symbiosis between traditional elements – bricks and mortar – and telematics elements – networks, bits and bytes (figure 5).

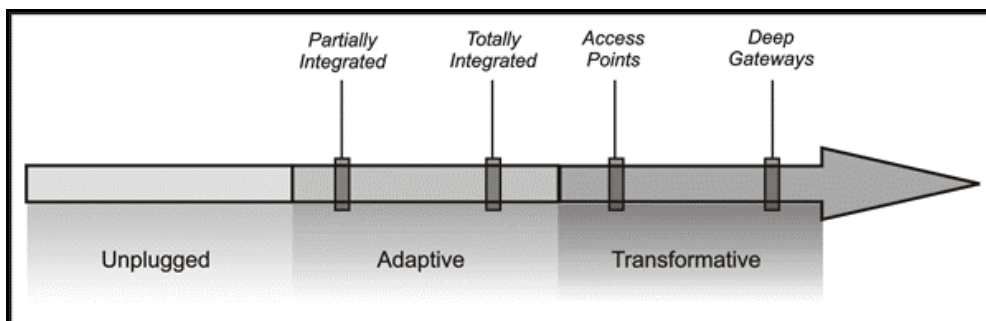


Figure 6: Horan's continuum of recombinant design. Source: Firmino, 2004.

¹ For a more detailed discussion of Horan’s classification of recombinant spaces see Firmino (2003).

The way our public places are conceived and constructed, both virtually and physically, is a key issue for problems of access, democratic design, governance, life style, and the interplay between virtual and physical elements of space. It is widely accepted that we still need assembly places, face-to-face communications and a physical dimension to our lives, but these public interactions can now be augmented by digital technologies. The public space still exists, but perhaps endowed with more meanings and possible configurations.

3 CONCLUSIONS

Despite many uncertainties about the impacts of ICTs upon urban space, at least one thing seems to be clear: that in the light of the natural process of evolution and actualisation of our cities, the contemporary space is not the same space once characterised by the industrial city and the modernism of the nineteenth and twentieth centuries. New elements with different characteristics have emerged and need to be considered. Distance, once a significant limitation and decisive factor on the organisation of space, no longer represents a barrier for many aspects of today's activities, especially in the economic domain.

As a consequence, it seems to be clear that space and the organisation of territory cannot continue to be interpreted and modified according to concepts and methods evidently dated, which were mainly developed for the Fordist city.

Koolhaas and Mau are amongst the commentators who have argued that professionals involved in urban planning are struggling to grasp and respond properly and proactively to this ever changing reality:

“The transition from a former position of power [during the industrial and the modernist era] to a reduced station of relative humility is hard to perform. Dissatisfaction with the contemporary city has not led to the development of a credible alternative; it has, on the contrary, inspired only more refined ways of articulating dissatisfaction. A profession persists in its fantasies, its ideology, its pretension, its illusions of involvement and control, and is therefore incapable of conceiving new modernities, partial interventions, strategic realignments, compromised positions that might influence, redirect, succeed in limited terms, regroup, begin from scratch even, but will never re-establish control” (Koolhaas and Mau, 1995)

It is down to these professionals to understand better this moment of spatial redefinition, and to embody information, mobility, integration and other characteristics of the symbiotic and recombinant space in strategies for the augmented city. Only this process of increasing awareness would allow city-makers to consider what Horan (2000) refers to as recombinant landscape, or “a collage of settings which, properly designed, will advance the symbiotic relations between people and technology”.

Planners and city-makers do not seem particularly conversant, or keen to be, with these developments in terms of space, time and technology. It seems that there is a certain incompatibility between the actual hybrid ways in which space is evolving and being socially constructed and the ways in which it is being traditionally interpreted and assessed by planners and local authorities.

The power of ‘real city-makers’ once attributed to planners under the modernist aspirations of the industrial city, is now shared by other professionals and forces. One could say that planners are keeping themselves disempowered to deal with some of the emerging factors that are shaping today's cities. Other specialists, such as IT consultants and bureaucrats demonstrate greater control of elements such as telecommunication-based networks, services and community initiatives, which are contributing to the reshaping of spaces and places.

The questions are: what type of relationship can be established between planners and the technologies which are revolutionising spatial concepts? Are planning attitudes and methods capable of dealing with today's ICT-influenced developments in cities? How can the notions of a new symbiotic, recombinant and cybernetic space be incorporated into planning and governance practices?

The neglect of the characteristics that make space a hybrid and cybernetic entity, as well as its new principles and values such as mobility, control and information, may represent a threat to what should be the basis for planners and local authorities' practice: the current use and shape of urban space.

Possibilities and approaches that are not in any way related to traditional patterns of physical construction of space seem to be ignored by planners. Above all, what is missing here is the acceptance of the fact that urban space is a multi-dimensional reality, embedding high technologies as something that cannot be seen as a separate reality. What we would like to argue is that cities do not need a brand new form of cyber-urbanism sporting totally new rules. They need a more holistic approach to planning and urban design, an approach able to embed ICTs within up-to-date, effective strategies for the improvement of civic spaces and places. Why exactly does it matter in the end? Mitchell (1995) has his own answer:

“It matters because the emerging civic structures and spatial arrangements of the digital era will profoundly affect our access to economic opportunities and public services, the character and content of public discourse, the forms of cultural activity, the enactment of power, and the experiences that give shape and texture to our daily routine.”

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