New technologies, yet same dilemmas?
Policy and design issues for the augmented city

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Abstract

In the second half of the 1990s in Europe the concept of the so-called ‘digital city’, the enhancement of urban functions, management and regeneration processes through the deployment of information and communication technologies, started emerging. Much attention – and indeed hype – was generated about the phenomenon, and pan-European organisation and projects such as Telecities, and European Digital Cities were born. Even relatively unimaginative initiatives such as simple websites promoting places were often hailed as symbols of a new era of innovation and change, and studied eagerly. Having gone through the techno-bubble burst of the early 2000s, we can say that much of the hype on the revolutionary potential of high technologies is settling, though this by no means implies that cities are getting any less ‘digital’. Indeed, this process of augmentation of the built environment continues. The emergence of more sophisticated mobile and wireless technologies, broadband and the engendering of ICT as an ‘everyday’ occurrence of our lives mean that – often beyond our plans and control – every city and citizen is getting somehow ‘digital’.

This paper argues, however, that though part of the context for the deployment of proactively planned and designed urban high technologies seems to have changed or evolved, most of the dilemmas that could be already identified in the 1990s are still relevant. Indeed, many of those design and policy challenges are being reinforced, rather than made obsolete, by these recent developments.

Aim of this paper is to explain some of these dilemmas or tensions and reflect upon them, what they mean for the urban space of the XXI century, and what could be done to address them in order to proactively shape a better, ‘augmented’ city.

INTRODUCTION

In the mid 1990’s, the booming technological development of the Internet and the World Wide Web seemed unstoppable and destined to grow exponentially. Together with the fast deployment of new products for information and communication, both in terms of hardware and software, a massive amount of hype was generated in the press, the media, and in scholarly papers as well, on the forecast revolutionary and beneficial impacts of the Internet on Western societies. This also encouraged visions of urban futures in which information and communication technologies were going to be central to city management and the exercise of local democracy.

In Europe the concept of the so-called ‘digital city’, the enhancement of urban functions, management and regeneration processes through the deployment of civic information and communication systems, started emerging. This happened on the wave of early experiments of civic networking and virtual community-making such as Amsterdam’s De Digitale Stad (The Digital City) that somehow ended up
giving the whole movement its name, and rapidly spread across a range of sometimes very diverse experiments all over the continent. Digital city activities were initially strongly linked to the conception and production of Web-based civic information systems and portals, as the potential of the World Wide Web as a new powerful and effective medium, to the point of being able to function as a ‘cyber-place’ was seen by several municipalities and their policy-makers as something that could revolutionise the way we manage and use cities. Hi-tech ‘clubs’ of cities like Telecities or the European Digital Cities initiative were born and acted as catalysers for exchange of experiences, ideas and good practice. These clustered a great variety of projects – often funded within the Framework Programmes of the EC – addressing urban improvement through ICT at many different levels.

A good deal of interest was expressed for the relation between ICT and regeneration by academics, the press and the media during the 1990s. Martin Jacques from The Guardian newspaper visited Kuala Lumpur in 1997 and argued: “Modern planning is not just about roads and estates. It’s about an ‘intelligent network’ linking our offices and homes” [15]. In the same year, The Independent was reporting on a forthcoming experiment – sponsored by the two IT giants Gateway and Microsoft – to be held in a secret street in Islington, London, where the whole neighbourhood was going to be wired and provided with computers and software to communicate, becoming an ‘Internet Street’ [2]. But even relatively unimaginative initiatives such as simple websites promoting places were often hailed as symbols of great innovation, and studied eagerly.

Many were the important issues for the early development of the digital city. These ranged from the capacity of hi-tech projects to be offered as universal services, and our ability to construct an information society for all, to the related social inclusion problems of IT education and literacy, to the potential for new technologies to support economic development as well as public participation within the regeneration strategies of our cities and communities.

Policy-makers, designers and project managers dealing with ‘digital’ city experiments – in their efforts to realise best practice – were facing many dilemmas. They needed to find ways to encourage access and usage of the new networks yet retaining their economic sustainability. They were struggling to strike a balance between the ‘global’ character of the Internet and the need to concentrate on local development. They were also trying to balance the institutional and service-oriented needs of projects mainly generated by public administrations, with the more anarchic and participative character that many initiatives were deriving from their visionary promoters, and from the experiences of the civic networking grassroots movement of the early 1990s.

But, it could be argued, things change, and when it comes to high technologies they are – often simplistically supposed to change at a speed which is almost impossible to keep up with. This actually tends to be more a myth than reality, and whilst programming languages, applications and techniques might have improved relatively fast in the past few years, the overall philosophy behind ‘digital’ city interventions has not evolved that deeply. Some significant changes that can partly redraw the urban ICT scenario have indeed occurred, such as a relative reduction of connectivity costs – especially with the emergence of ‘free’ Internet accounts – much higher available bandwidth and the emergence of wireless/mobile computing. It is also an accepted fact that in most Western cities the overall usage of advanced telecommunications systems has kept increasing.

On the one hand these developments embed a potential for conceiving and developing new ideas within the city, or indeed for realising those ‘old’ ideals in a much better way. This can then lead to identifying the need for constant and heavy technological upgrades as the central issue for the development of a more ‘digital’ city, and as a consequence to a strong emphasis in planning, designing, financing and implementing newer and ever more powerful infrastructure.

However, this paper argues that placing too much emphasis and preoccupation on infrastructure and state-of-the-art technologies when it comes to ICT projects in the city, as these were the determining factors for urban ICT innovation can be misleading. It can make planners and decision-makers lose sight of the persistence of some other, less technical and yet crucial issues affecting the relationship between city and high technologies. It argues that without due consideration of these issues, technical progress alone is not necessarily going to make the implementation of ICT in cities more relevant to their successful planning and regeneration. Some of the major tensions that could be recognised as crucial for the shaping of the ‘digital city’ of the 1990s, are still very much central for the bolder, more complex and apparently more
mature ‘augmented’ city of the 2000s. The low-bandwidth, modem-based e-city of early civic portals and pioneering bulletin boards mainly attended by techno-geeks shares some fundamental policy and design issues with the sleeker, faster, service-richer and supposedly more popular augmented city of the present. Some of these challenges and dilemmas are the object of this paper. This contribution looks at how our view of ICT and the city is becoming more ‘holistic’ and how important is to consider/plan urban space as ‘augmented’ by technologies, instead of looking at ICT projects in isolation – which was frequent within the early ‘digital city’ movement of web-based information systems. However, this evolution of our approach does not come easy, and depends on our ability to recognise and deal with a series of issues. The paper argues that it is necessary not to overlook some ‘tensions’ which should be addressed as major ‘hurdles’ towards the establishment of this holistic vision. It then reflects and concludes on what can be done to improve the approach towards making a difference in the augmented city. These reflections also draw from the evidence derived from a series of case studies carried out either by the author or by colleagues, and embracing events and interviews spanning from 1997 to 2004. These case studies have dealt with the ways ICT developments and approaches – from the deployment of civic websites and networks to the planning of wider strategies – have been conceived and socially shaped in a series of prominent European cities.

THE ‘AUGMENTED’ CITY BETWEEN SPONTANEITY AND DESIGN

The concept of the ‘digital city’ adopted in the 1990s to identify urban information systems and discreet ICT projects with civic orientation, should change as a consequence of technological development, as well as a change of attitude and interpretations on the city and telematics relationship. We could start talking of an ‘augmented city’, moving from a technological project-based view towards a more holistic view of urban space enhanced, and permeated, by technology. Many of the basic ideas and technologies that had such a strong symbolic role in the 90’s are now becoming ‘ordinary’ aspects of our everyday lives, and our everyday cities. As Gumpert and Drucker note:

Where does the "digital city" exist in the scheme of things? By this time, all cities, whether by design or by accident, whether in a deteriorating or renaissance state are, to some degree, "digital" [13, p376].

So, initiatives could be expected to become a much less 'hyped' phenomenon, something that on the one hand has to deal with a much more mature public, technologically speaking, and on the other has apparently lost its aura of innovation, to become yet another everyday "object" Haythornthwaite and Wellman, in their edited book The Internet in Everyday Life, support these considerations and argue that

The rapid contraction of the dot.com economy has brought down to earth the once-euphoric belief in the infinite possibility of Internet life. It is not as if the Internet disappeared. Instead, the light that dazzled overhead has become embedded in everyday things. A reality check is now underway about where the Internet fits into the ways in which people behave offline as well as online. We are moving from a world of Internet wizards to a world of ordinary people routinely using the Internet as an embedded part of their lives. It has become clear that the Internet is a very important thing, but not a special thing [14, pp. 5-6].

Within this climate it is extremely significant, for instance, that a paradigmatic example of ‘digital city’ in Europe, which had launched the idea of a web and email-based electronic public space, Amsterdam’s DDS, although still existing has in the past few years radically changed its characteristics and lost its appeal as an Internet-based virtual community based on a clear urban metaphor. Lovink explains that

By 1998-99 the free DDS facilities were available everywhere. Scores of new commercial providers and services had popped up all over the place (such as Hotmail, Geocities, and even free dial-up providers), offering the same services (often more extensive, better ones) than the DDS was able to provide. The free Internet services advertised massively and attracted a customers pool far removed from the idealistic concerns that used to inform the original Digital City. This resulted in a substantial quantitative, but more importantly qualitative, erosion of
the DDS user base. Even if the absolute number of accounts had risen to reach an all time high mark of 160,000 in early 2000, an analysis of the use patterns showed that these could no longer be considered conducive to community building or even to socio-politically relevant information exchange – homepage building and upkeep for instance, no longer attracted much interest. The once so valuable website had turned into empty lots. Despite an overall growth of Internet use, the Digital City had lost its attractiveness for users [17, p376].

Coupled with the everyday ‘normality’ of lifestyles which have more ICT embedded in them, but in a less ‘special’ way, there is the increasing ‘embeddedness’ of ICT in everyday objects, space and place. Mobile telecommunications and Internet are going to strongly contribute to the shift in usage patterns, perceptions and attitudes. Agre claims that

Computing is to become ubiquitous and invisible, industrial design is to merge with system design, and indeed the very concept of computing is to give way to concepts such as writing reports, driving to work, and keeping in touch with one’s family. Computing, in short, is increasingly about the activities and relationships of real life, and the boundary between the real world and the world of computer-mediated services is steadily blurring away [1, p416].

On the one hand it looks like urban computing is increasingly ‘complexifying’, going beyond the web-based domain of information systems and place promotion sites which had been so popular in the past few years, to become part of our everyday lives and private, unplanned and relatively uncontrolled individual usage.

But this is only half of the story. Urban ICT are also pervading more and more aspects of city management and service provision. The will to proactively engage in design and development as well as policy-making for the increasingly complex digitally augmented city, started in the 1990s, is here to stay. Digital city-style projects, portals, innovative ideas for services and the like are still around, and they are not less relevant for our lives, less worthy of observation and analysis. Many European governments are concentrating on these systems now more than ever, with a strong push towards the implementation of e-government projects and services, such as the UK-Online initiative aiming at achieving the 100% target of central and local government service e-delivery by the end of 2005. And the forthcoming pervasive, ubiquitous computing is going to take the potential for social and urban applications of IT above and beyond what could be envisaged just a few years ago.

If the designers and policy-makers of the digitally augmented town of the 2000s want to have the ability to deal with the potential of ICT in the city in a proactive, planned way, it is important for them to be able to consider what challenges they could be facing, and should indeed be aware of. And these challenges are not simply limited to being able to technically adapt to new technological developments and deploy projects in the city which are based on these. They are also related to the ability of town planners, urban designers, project managers and city officials to find their way through a series of tensions that deal with our interpretations of urban space, governance, citizenship in the digitally-enhanced, or augmented city.

All of this has to do with the fact that the ‘augmented’ city instead of re-writing the rules of the civic game from scratch, really has to cope with a majority of issues which are the product of a re-combination of digital and physical. Whilst techniques can change or improve, the underlying social, political, and economic processes shaping the ‘augmented’ city are bound to the city as a whole, and change at a much slower pace than a few software versions. The next few sections of the paper highlight some of these dilemmas.

PHYSICAL/VISIBLE VS VIRTUAL/INVISIBLE

Does perception – or lack of it – of the electronic layers of the city affect our way to deal with – and intervene in – the augmented city? Digital infrastructure can be, first of all, very hard to notice – apart from the inconveniences caused by roadwork to install cabling. Most of it is underground or locked in rather unexciting, anonymous buildings. All that usually can be ‘seen’ – and indeed appreciated – is the ‘terminal’, the computer or kiosk standing as a threshold object/space to access the otherwise invisible network. The emergence of wireless networking and the increasing availability of small, mobile and
personal ‘terminals’ wirelessly connectable – GPRS and 3G mobile phones, wi-fi PDAs etc – is reinforcing the characteristic of invisibility of the digital ‘bits’ of the city. Moreover, another related ‘dualism’ of fixity Vs mobility, or placement Vs fluidity is being introduced by the increased sophistication and popularisation of mobile technologies.

All of this apparent lack of substance and this high levels of ‘displacement’ create the very tangible problem of understanding the importance and communicating the impacts, relevance, benefits of the deployment of information and communication technologies in the urban scene. A public administration would find much easier to obtain consensus, for instance, for the construction of a series of new roads than for the extension of its metropolitan area broadband network, or for the implementation of a new electronic urban software-based system for job searching. Understanding the road system is still much more straightforward – and methods to do so are well developed, established and shared among experts – than making sense of what ICT can or cannot do for our cities. Case studies carried out in several cities with a reputation for an ability to envisage advanced urban ICT projects can provide evidence for this. In Bologna, Italy, for instance, the recently defined ‘Piano Strategico Strutturale’ (Strategic-Structural Plan) for the city, whilst acknowledging that the implementation of new – much needed – physical transport infrastructure will not be easy, fails to consider – even in negative terms, in case – the possible role of ICT in complementing physical mobility [7, p.89]. This is not surprising when we consider that the supporting analytical documentation for the Plan mentions ICT only as an industrial sector per se, to be encouraged to boost the economic development of e-business enterprises in the region [8], and yet fails to acknowledge the pervasiveness of high technologies in most aspects of urban life. In a way, it fails to ‘see’ the relevance of digital technologies and their possible role in complementing the regeneration of the city.

ICT are interpreted as being basically ‘virtual’, operating within cyberspace and apparently not having much to do with land use, housing or spatial planning in general. Therefore it becomes natural to most urban planners to disregard them as something irrelevant to their expertise. Graham and Marvin [12, p.50] have argued that ‘Urban studies and policy tend to be dominated by a concern with the visible, tangible and perceivable aspects of urban life’. A study on virtual city strategies in the cities of Newcastle and Antwerp [9] and the analysis of Bologna’s strategies carried out by the author both in 1997 and 2004 also show how urban planners of cities that have been developing Internet-based ‘digital city’ initiatives, are scarcely aware, and interested, in these projects. The interviews carried out in the studies clearly show how most planners are interested in IT only for its potential to provide tools – such as GIS and related systems – to analyse traditional spatial problems. Apart from this, their attitude towards ICT tends to be reactive rather than proactive, often more based on a development control attitude than on the will to design and create opportunities. It looks at the development of new technologies as a linear process and trajectory where planners stay at the receiving end. Before putting new technologies into the urban planning picture, it is expected that some major impacts on land-use or on the generation of hi-tech related employment would show up.

The problem, however, is of a different nature than what is expected by most planners. As quoted previously, the information revolution is not something that manifests itself in a major, special way. It is more and more permeating everyday lives, everyday gestures, and indeed the ‘everyday’ shape of the built environment that we already have in a subtle but capillary way. It ‘recombines’ digital and physical. As Mitchell explains

> The trial separation of bits and atoms is now over. In the early days of the digital revolution it seemed useful to pry these elementary units of materiality and information apart (…). Now, though, the boundary between them is dissolving. Networked intelligence is being embedded everywhere, in every kind of physical system – both natural and artificial (…). Increasingly, we are living our lives at the points where electronic information flows, mobile bodies, and physical places intersect in particularly useful and engaging ways. [19, pp.3-4].

We need to understand this subtlety, and we need to inform practice with this. It seems therefore of crucial importance to couple policy-making and development with research aimed at understanding and clarifying the role that the phenomenon has within the wider urban environment. Invisible networks and facilities can surely benefit from studies that would make their impacts and roles more visible and understandable.
INFRASTRUCTURE VS PROCESS

Very often the only way this problem of hidden facilities is tackled, is only by desperately trying to make sense of ICT by ‘reifying’ them, making them visible through operations that can end up as more symbolic than meaningful or useful. Graham and Marvin, for instance, analysing the report on the ‘Review and possible role of Teleports in Europe’ by IBEX (1991), noted how efforts had 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 developments 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. [12, p.51].

This can be related to a series of different practices, all somehow denouncing the tension between the really important effect of telecommunication networks – the capacity to enable links and relationships – and the attempts to make sense of these in a ‘spatial’, tangible way. It is in a way feeling the need to have a ‘product’ more than a ‘process’.

In Bologna, for instance, several interviews highlighted what could be seen as a strategic unbalance in the deployment of ICT services in the city, as some prominent interviewees would focus their attention almost exclusively on the need to install more fibre-optic cabling in the city. One interviewee would explain that

We do talk about having a strategic plan for telematics, but the bottom line is that everybody ends up gathering around a bunch of engineers to think about the infrastructure. We have a huge amount of fibre optics under our feet, we have wi-fi over our heads, but we always fail to address the issues of the contents and the users of those contents. (Project manager, 2004)

Even the deployment of ‘visible’ civic kiosks for public access to Internet-based services, has sometimes been tackled more with the aim of making a ‘physical’ statement and showing that the city was becoming ‘intelligent’ and endowed with innovative infrastructure, rather than as a well coordinated action within a more articulate strategy for encouraging inclusion and participation in the use of ICT in the city [9].

STRATEGIC DEFICITS

All of the above has a major relation with the ways we approach the strategic planning of the city. We have seen how ICT-based initiatives end up not being usually regarded as part of the planners’ remit, despite allegedly aiming at things like economic development, education, service delivery and city management, community regeneration and in general a better use of the resource-city and the improvement of ‘urban’ quality of life. These projects are usually dealt with by information systems personnel and experts, and customer relations offices. In substance, whilst it would seem sensible that strategic planning visions embedded this very relevant aspect of civic development and management through ICT, this rarely occurs. Koolhaas and Mau have been pointing out the deficit of openness and knowledge existing within the planning profession respect to ‘conceiving new modernities, partial interventions, strategic realignment’ [16, p.965]. Now more than ever before, a wealth of experimentation and ideas on technological interventions that will surely have a clear impact on urban management comes from computer scientists and engineers, and their R&D activities, with apparently no active involvement or participation from planners.

It has been noted in the previous sections how important it is to understand and acknowledge the increasingly hybrid, ‘recombinant’ spatial situation in which we live. It is also crucial, though, to realise that to operate in it, and understand it, traditional barriers have to fall down and leave room to a more open-minded attitude towards urban planning. ‘Recombinant’ space can only be dealt with by a ‘recombined’ discipline.
This works both ways, though. Whilst town planners have been overlooking a possible expanded role of ICT for intervening on urban space, those officers and professionals who have been at the centre of new technological developments have tended to rely too much on the potential of cyberspace as a separate, independent dimension from the physical city.

A major limit of far too many ICT-based regeneration initiatives in Western cities has been a somehow enthusiastically deterministic way to see impacts of IT on urban functions. Technological entrepreneurs have tended to believe that computers, networks, and software could act as a quick-fix for a variety of urban problems, by changing the rules the game was played by. This has allowed ‘digital city’ initiatives to be often conceived and deployed in isolation, confident that their innovative potential would be a catalyst for change. This ‘pigeonholing’ of innovation, competencies and decision-making can – and does – easily reach extreme levels of fragmentation. Firmino [10] reports how in Newcastle, UK, ICT projects are, therefore, developed almost in isolation across the divisions of the council. This means that projects are developed without attention to mutual interaction. In this way, even costs, benefits and budgets for ICT are extremely difficult to pinpoint.

Similarly, in Bologna the award-winning Iperbole civic networking initiative – despite its ‘holistic’ vocation as an overarching environment for many different e-activities – does not have a central position in the council’s organisational chart, and its team has no coordination role over ICT projects for the city. In fact there is – according to several interviewees – no ICT coordination at all, and “no overall strategy for the ICT sector” (IT officer, 2004) to the point of managing what is regarded as ‘information’ separately from what can be defined as ‘communication’. There is a high degree of organisational fragmentation within the administration, as far as the implementation of ICT is concerned, with different offices pushing forward different needs, agendas and discourses. As a consequence, it becomes very unlikely for high technologies to be seen as a significant part of a wider strategy for city management and regeneration.

All of this suggests the need for government and institutions to follow a ‘holistic’ path to conceive planning and management strategies for the augmented city. Central coordination, interdisciplinary approaches and joined-up thinking are the necessary conditions for developing effective projects that would not interpret physical and virtual as two separate dimensions, but that would encourage the interplay – and the hybridisation and interdependence – of physical and IT projects. However, this also introduces and highlights our next ‘tension’.

WHOLE VS FRAGMENTS

If some degree of central strategy-making and coordination of the projects in the ‘augmented’ city is desirable, when it comes to the ways we interpret and deal with urban society, space and governance, the ‘whole Vs fragments’ dilemma gets crucial. If it is strategically important to look for inclusiveness and coordination within a local authority, the need for widening governance mechanisms in the city calls for an even more decisive attitude towards enlarging the arena of actors contributing to the shaping of the augmented city. This can be reinforced by the fact that high technologies spread, becoming mobile and ubiquitous at the same time, making urban space yet more fluid and less easily manageable. The effects of the emergence of the information society on place and lifestyles do not look like something that civic administrations on their own can make sense of, and control, very effectively. The typical development control approach to the government of urban space, rather modernist and rationalist in nature, finds itself unable to cope with a liberalised, market-driven, hard to pinpoint and highly fluid phenomenon as the utilisation of ICT within the civic arena. What can then administrations do to play a significant and hopefully beneficial role in this? How can they relate with this situation in order to produce benefits and a higher quality of life for their citizens, and how can they – if at all – limit the possible drawbacks?

In the 1990s organisations like Telecities and the civic networking movement were born with this in mind: enabling the public sector and/or community groups to influence positively the otherwise privately-driven world of emerging urban ICT. Their basic aim was to provide an alternative, a way of contextualising IT, making it local, sensitive and creative towards local issues and needs [6]. At the local
authority level this has mainly resulted in centralised ‘digital city’ initiatives, frequently presented via a civic web portal. Although in most cases there would end up just being glorified ‘electronic brochures’ [4], the best examples these would be relatively articulate and willing to offer services and facilities that would go beyond the simple ‘information’ online site.

Most of these projects have been – and still are – trying to cope with the more general ‘whole Vs fragments’ tension. Already in the 1990s officials in Bologna were asking themselves whether the ‘digital’ city could be effectively managed centrally, or whether it was in itself a far too complex social environment for any central organisation to make sense of:

My position stems from the fact that in a complex society it is extremely difficult to know how the system works, being able to take decisions (…) Actually, even in Bologna the urban social system is far too complex for the administration to be able to satisfy people’s needs. There is a deficit of resources as well as knowledge. Is it then possible to run and administrate the city effectively? My answer is no, it is not possible unless we manage to cope with complexity, broadening our knowledge base and the number of those involved in decision-making. I am not referring to direct democracy, but rather to a broadening of representation. We increasingly need forms of self-representation, and the net can allow people to organise themselves beyond traditional structures like unions or certain associations. People can speak beyond traditional representation forms, and beyond differences in wealth and social status (Former Council secretary for Innovation, 1997).

The city was always more than the ‘whole’ that could represent it: it was its numerous fragments. So, a logic of ‘control’ of the whole, useful to easily make sense of things but limited in scope, would always be opposed to a more comprehensive but difficult to implement logic of ‘participation’ of the fragments. Does the digital city, meaning by this not just a website, but the augmented, virtually-enhanced city in which we live and communicate, need more control? And does it need more open participation, and above all, how can these two aspects be weighed against each other?

This is obviously connected to the more general government Vs governance dilemma for the management of cities and the promotion of decision-making. Interestingly enough, the enhancement of civic space and the public sphere through Internet-based initiatives, has rarely corresponded to an attempt to enhance governance, widen decision-making processes, and offer opportunities for different ‘fragments’ – pressure groups, spontaneous aggregations of people, marginalised sectors of the community – to communicate with each other and be granted some form of public representation. Most projects – often driven by strict economic development imperatives – have even chosen to offer an image of the city as a tidy, harmonious and rather unproblematic ‘whole’, a quasi-corporate image coherent with a short-term place marketing ethos, but possibly in the need of more incisive actions towards increasing social cohesion and local governance.

THE ‘STABILISATION’ EFFECT: PORTALS VS NETWORKS

In the cases observed by the author and other colleagues, the initial visionary richness of the civic ‘network’, which had proved so effective in mobilising energies at the very beginning of the ‘digital city’ history, has stabilised – and crystallised – into the more institutional and rigid format of the civic ‘portal’.

The ongoing process of stabilisation in the social shaping of technological artefacts – in this case the whole ‘digital city’ concept – is a crucial factor here. It is worth remembering that whilst in its the early phases of development, a technological object or system is in a very fluid state, being shaped by the articulation or conflict of different interpretations of it, with time this tends to crystallise in an accepted form – and interpretation. As Winner clearly explains

By far the greatest latitude of choice exists the very first time a particular instrument, system, or technique is introduced. Because choices tend to become strongly fixed in material equipment, economic investment, and social habit, the original flexibility vanishes for all practical purposes once the initial commitments are made. In that sense technological innovations are similar to legislative acts or political foundings that establish a framework for public order that will endure over many generations [21, pp.30-31]
Digital cities, intended as the civic websites born in the 1990s, have done exactly that, and apart form the addition of a few new services – indeed fewer than it could be expected – their basic ‘shape’ has tended to remain more or less the same. In the 2004 round of interviews carried out in Bologna, for instance, what had initially been the civic ‘network’ was constantly and exclusively referred to as the ‘portal’ by nearly all of the interviewees – local politicians, council officers and planners. The obvious consequence was that what could be done with the ‘portal’ – in most of these people’s interpretations – was limited to broadcasting information and providing institutional services. Only one interviewee would recognise the need to re-address this tension, and identify the emergence of the ‘portal’ paradigm as something that ‘has a lot to do with television’ and has weakened the reflection on, and construction of, a civic ‘network’. The same interviewee would also acknowledge how important enrolling the ‘fragments’ into a much more fluid network would be:

You are the council, but you are also the parish, the cultural club, the school, the association etc. You cannot present yourself [the city] with this type of monolithic façade, but as a dynamic place, a process rather than an entity (Project manager, 2004)

But it has to be remarked how powerful and accepted the ‘portal’ paradigm is generally, and how this type of vision can affect the shape of things to come in the augmented city. And, indeed, how this can affect the way designers and practitioners look at those who will ‘use’ the digital city itself, as the next section questions.

INFORMATION FOR AN ‘AUDIENCE’, SERVICES FOR ‘CUSTOMERS’, OR NETWORK FOR ‘CITIZENS’?

This is another notable tension that practitioners and decision-makers involved in conceiving and running urban ICT projects have been facing in the 1990s, and still have to face, and that links rather strongly with the dilemma of government Vs governance of the cybercity. Should the digital city’s ethos be oriented towards the improvement of service provision, and a consequently better city management, or should it be focused on enhancing social and political links and boosting public discourse? The simple answer would obviously be that it should take care of both dimensions, by working towards the establishment of a better quality of life through both providing good, efficient information and services, as well as building a stronger sense of community. One of the interviewees in the Bologna 1997 case study had also remarked, with a good deal of common sense, that communities do need services and that good provision of interactive, day-to-day electronically distributed services could indeed attract citizens towards engaging with the participative aspects of the online city.

However, achieving this is a difficult task that requires policy-makers, and in general those who are supposed to work on strategies for regeneration, to make constant efforts to balance their ways to interpret what the crucial role of those who live and work in the city should be. Are policies – and technological initiatives – aimed at ‘audience’, ‘clients’, ‘end-users’, or are they aimed at ‘citizens’, ‘actors’, ‘owners’ of the city? This is not just some type of moralistic distinction between more or less liberal approaches towards public administration. It is an important and delicate choice that shapes the vision, trajectory – and indeed the effectiveness – of high-tech projects in the city, and is often overlooked in the name of the generic and urgent needs to engineer ‘solutions’ for problems or to make initiatives economically viable.

In the 1990s Bologna’s policy-makers had decided that the council should provide free dialup Internet connections to citizens, as a way of promoting universal access to the new medium as well as a strongly symbolic gesture to highlight the ‘public’ role of a citizen-oriented network

What is the public interest? Until three years ago nobody would have thought that giving free Internet connections could be a Council’s function. People expected us to build roads, public lights, and the like. But now this line is emerging, although among a restricted group as yet

When we meet colleagues from other European municipalities, and the British in particular, we willingly provoke them by emphasising the term ‘citizens’ in opposition to ‘customer’. For us, ‘citizen’ is much more than
‘customer’ or ‘client’, because people must not be restricted to consuming services, but they should intervene in the decision-making processes (Former Council secretary for Innovation, 1997)

It would be easy to suppose that – with the emergence of free Internet accounting from telecommunication companies – some aspects of this friction would lose momentum, and partly the demise of Amsterdam’s DDS could suggest this. But other evidence tells us that this dilemma seems now as relevant as ever. In 2004’s Bologna, policy-makers and project managers were still trying to negotiate the tension between ‘dealing with the all-round dimension of the citizen rather than simply with the one of the user of services’ (Project manager, 2004) and concentrating on Iperbole becoming the ‘entry door to all public and private services, the home-based ‘counter’ for everything you need’ (Local politician, 2004).

It is also interesting to notice how the issue of universal access to dialup Internet connectivity is back with a vengeance when it comes to wireless access. If officials in Bologna were seeing dialup Internet as a right of citizens, not different in essence to the right to have roads and other basic services, this rhetoric is being now re-presented and reinforced for the new wave of wi-fi technologies. For instance, the recently established Manchester Wireless group argues that

> We believe that the data networks of the future will be as important infrastructure as roads and railways, and it is vital that these networks are not monopolised by a small few, but are run in the interests of the local community. Manchester Wireless aim to create a city-wide wireless network using freely available off-the-shelf hardware, and free, open-source software [18].

Another very interesting aspect of this dilemma is the not easy co-existence of different modalities of use of online – or augmented – public or semi-public spaces. Service-driven environments – both physical and virtual – are rarely very social, tend to be used on an ad-hoc basis – only when they are needed – and accessed in a rather selective way, that is by dealing only with the information, people, sections or indeed spaces that are useful in certain circumstances. Evidence of a debate on this tension had emerged, for instance, in the making of Digital City Bristol, where different actors involved in shaping the initiative were keen on very different ways of configuring the DCB Internet interface. Some would favour a ‘customer-oriented’ view of making the information accessible quickly and directly, with the least possible number of ‘clicks’, whilst others would be keen on forcing users to ‘browse’ through the network, making the experience more complex and community-oriented [3, p.108].

Andrew Shapiro focused early in the urban cyberspace history on this tension, speaking about two different possible designs of a civic network. The first, that he called Cyberbia, is a a very controlled space in which ‘...you can shape your route so that you interact only with people of your choosing and with information tailored to your desires’. He therefore proposed an alternative type of digital city, called Cyberkeley, conceived to guarantee freedom of speech and the presence of electronic public spaces that he defined as ‘virtual sidewalks’:

> Consequently, it should be clear that Cyberbia – like suburbia – simply allows inhabitants to ignore the problems that surround them off-line. In Cyberkeley, by contrast, people may be inconvenienced by views they don’t want to hear. But at least there are places where bothersome, in-your-face expression flourishes and is heard. These public forums are essential to an informed citizenry and to pluralistic, deliberative democracy itself [20, p.10].

So, whilst the audience Vs customers Vs citizens, as well as the government Vs governance tensions are certainly not new issues to consider, and have not been generated specifically by the implementation of IT, the emergence of the city as a more widely digitally enhanced space is going to reinforce these dualisms rather than escaping the need to address them.

Are cities developing as ‘digital’ ones by means of institutions and projects managing to successfully articulate these different ways of configuring and using urban facilities? Are ICT initiatives and strategies addressing the needs of inhabitants as both their ‘clients’ and their ‘citizens’? Are service, customer-oriented projects facilitating and encouraging democratic participation and social cohesion, or are they promoting a type of hi-tech individualistic city where technology mainly enables people to simply ‘push a button’ – or swipe a card – to get something? These are now more than ever some very ‘hot’ questions for ICT innovation in cities. Benini et al. [5], for instance, seem to suggest that the shift of ethos from the
initial pioneering phases of socially-oriented civic networking to the service-oriented project-making of most European municipalities, has so far failed to address this problem of balance.

CONCLUSIONS: THE NEED FOR STRATEGIES BASED ON AWARENESS AND RESEARCH

In the past few years civic authorities have been mainly concentrating on the important decisions of the wiring of the city, putting in place fibre-optics metropolitan area networks and the related investments. In general they have been concerned about implementing infrastructure and in some cases deploying Internet-based information and services. This has often been done with a relatively short-term perspective, either because of a perceived difficulty to keep apace and up to date with hi-tech developments, or because these were expected to provide a quick-fix route to improving urban management, public participation and democracy. One of the major figures in Bologna’s civic network for instance has acknowledged how important it is to learn to keep a longer term vision and go back to the original issues, by saying:

We need to give an innovative sense to all of this, but something that goes along the route we and all others who begun in the 1990s initially started from. Maybe all of us who started in the 90s had ideas which were too romantic and a bit naïf, and we were convinced that everything [the ICT improvements for city and communities] was going to happen in a very short time (Project manager, 2004)

This paper has tried to show that a series of basic tensions, which have a non-technical nature and operate mainly at the interpretative level, have been – subtly but surely – been with us for years. These tensions affect the ways we design, shape and regulate the augmented city, they shape the way we ‘think’ ICT and the choices we make. But practitioners are not always fully aware of them, and this could mean that opportunities for addressing these problems and improving our ‘solutions’ could be missed. With the ‘physical’ ICT infrastructure getting more widespread and ‘soft’ at the same time, and broadband services being accessible through the normal telephone line by DSL technology, I would suggest that the main attention of city managers and planners could – and indeed should – shift towards the ‘softer’ but crucial issues of filling the knowledge and strategic gaps that this paper has tried to highlight. And if the technologies in the augmented city are becoming more ‘hidden’, this should encourage scholars not to lose sight of them. As Stephen Graham suggests for a wider context:

This is an important stage of development because technologies often have their biggest effects on society when they become, in a sense, invisible because they are taken for granted and assumed. In many cases this shift to invisibility is both a metaphorical and a physical one. People fail to notice technological artefacts and connections because they cease to be novel or exciting. But those technological artefacts and connections also tend to become more hidden, more miniaturised, and more embedded into the every day environment of homes, workplaces, transport systems, artefacts, and cities [11, p415].

Now that the hype is settling over the glittering novelty of urban ICT, planners and governments need to think about on the one hand how to grasp and interpret the complex changes that cities are going through in the information age, and on the other hand how to turn this understanding into action, successfully addressing the problem of setting strategies for the regeneration of the increasingly digitally-augmented city.

This cannot be achieved without keeping awareness of many non-technical issues, like the ones explained here. Therefore, a stronger than ever effort and support towards inter-disciplinary research is needed. One of the things that so far have been lacking is a multi-perspective and collaborative approach towards ‘augmented’ city-making. Having a ‘healthy’ information society, at least in wealthy Western cities and countries, might soon not be a problem of achieving critical masses of users or number of deployed projects. What is likely to become crucial and able to make a real difference is the ability – or lack of – from municipalities and technological entrepreneurs in general to mobilise a wide spectrum of knowledge and expertise in order to address the dilemmas highlighted in this paper, as well as possibly several other issues.
What is in this for planners, then? The tensions highlighted by this paper do not obviously suggest either a series of specific projects, interventions or policies, or any comprehensive theory for the augmented city. However, though they do not define new ‘products’, they can point at important issues for the processes of looking at the city, interpreting it, and envisaging/deploying new ideas – the new products – for regenerating urban spaces which are digitally augmented. Planners should have these tensions in mind when considering urban analysis, strategy-making and deployment of the planning strategies.

First of all, the issues of invisibility and subtlety of telematics require a change of attitude towards our analysis of the ‘impacts’ of ICT on cities. So far these have been often neglected as they would not fulfil the expectation of major, systemic and epochal changes in the city happening, such as large numbers of workers giving up commuting to work from home, office land-use shrinking and similar phenomena. Planners should not dismiss ICT as spatially irrelevant to the city only because they cannot see any sharp, major effects. Much is happening in a subtler, re-combined and ‘everyday’ way for all of us. To stick to the previous example, few people will have become full-time telecommuters, but to a lesser extent – maybe one or two days a week – many workers might choose to carry out work at home instead of travelling to work. They will not be directly identifiable as telecommuters, but their behaviour will have an impact on urban systems, and could call for new ideas for the city. These changes cannot be fully understood and appreciated by analysing census data or in general coarsely-defined surveying, and cannot be captured by looking at ICT as a revolutionary phenomenon obeying ‘special’ rules and isolated from our normal habits. So, planning research – not just in the academic domain – into the relationship between ICT and cities should more and more concentrate on fine-grain people-environment type of studies which try and understand the complex and combined ways in which we live and behave in cities, and what role ICT have in this.

The tension between infrastructure and process and the strategic ‘deficit’ identified in the paper, somehow extend and complement the previous suggestion by pointing at the augmented city as a concept that transcends the simplistic view of ICT as mainly an engineering imperative. The challenge for planners should not simply be facilitating the deployment of more and better infrastructure – cables, wireless beams etc – but should involve considering creative ways to use and embed ICT in strategic planning, with the view of using it to complement and augment strategies to regenerate local economies and communities, to foster governance and encourage better and more sustainable uses of the city. In practice this means moving away from the widespread ‘pigeonholing’ of competencies when it comes to ICT, a phenomenon that usually leaves the challenge of deploying new technologies with information systems people, as it is seen as something ‘digital’ as opposed to the ‘spatial’ things that planners deal with. Regenerating the augmented city calls for augmented strategies.

The last part of the paper, where the ‘whole Vs fragments’, ‘portal Vs networks’ and ‘audience Vs customers’ tensions are defined, again builds on the concept of the augmented city as a continuum ‘whole’ of physical and digital aspects of a single ‘space’, and shows that issues which would be considered important in a spatial regeneration arena, are as relevant when it comes to deploying telematics-enhanced strategies. So, if planners conceive projects involving ICT, they should deal with these as we deal with public space and participation. Working with communities – and not just for communities – providing platforms where grassroots needs count and initiatives embedding these can thrive is crucial for the acceptance and success of plans, and the tensions described point at the fact that telematics-enhanced projects need to deal with the same issues.

The augmented city – too often regarded by some as the result of providing a quick-fix, technocratic approach to urban problems – has to deal with complexity the very same way as the ‘traditional’ city did.
REFERENCES