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## ICT & The City

edited by Michael Nagenborg, Anders Albrechtslund, Martin Klamt and David Murakami Wood

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## Editorial: On IRIE Vol. 12

Do you remember classic newspapers? Those large pieces of printed paper of the pre-internet-era (the pre-iPad-era in particular) that you got delivered manually in the morning or that you bought at the kiosk round the corner on your way to work. A medium that specifically shaped our cities as cafes or - in more distinguished areas - some noble clubs had to be established where those papers could be read and talked over again – in more or less distinguished ways. On the other hand major parts of what one could read in those papers were the latest gossip that some when exceeded the village square. Thus not only due to the mere size of cities but also due to the possibilities of inclusion and exclusion only a city allows for and that must be overcome by a news medium like the newspaper. Finally, event notes became necessary to advise a potential audience on where to go to and what to see only to tell of its succeeding or falling flat in the next issue. A virtuous circle appears: the city is a mediating as well as a mediated space.

Nevertheless, urban space is a largely neglected topic in contemporary political philosophy and ethics. The absence of explicit works on the city in the field of information ethics is even more surprising given the general interest in the concept of space in contemporary philosophy: cyberspace, global village and communities are the terms used – nothing derived from the living space where the majority of humankind lives. Is that by accident or by purpose? Is there may be a categorical difference between the urban and the cyber space?

To find profound answers to these valid questions we dedicated this issue on the reflection of the mutual shaping of the city and ICTs, especially on its ethical and political dimensions.

- In urban planning, the notion of the post-oil-city has already become well established. Climate change, the finite nature of fossil fuels, and the world's financial and systemic crises allow new forms of urban planning to provide a laboratory for social as well as ecological change. Today urban planners are taking up architectural utopias developed in the 1960ies to offer solutions for dealing with urban problems such as transportation or waste management, adapting them to fit the needs of the present, and making them reality in the future.

- Geo Information Systems (GISs) have already changed the practice of mapping. To Albert Borgmann they have become the paradigm of technological information, which threaten our sense for reality, because "nothing any more presents himself with any authority. Today GIS and remote sensing are used for the modelling of the urban development process, which enables simulating different aspects of life in the city. This may allow new approaches to participatory co-design, but also may give rise to technocratic thinking.
- Of course, ICTs are part of the surveillance infrastructures that are increasingly used to manage urban space and the behaviour of city inhabitants. One may also add security technologies that are employed to regulate access and use of areas in the city.

At all levels this development gives rise to questions about autonomy, anonymity, privacy and trust. Hence, we have looked for contributions on the ethical and political evaluation of the ways ICTs are used and shall be used to manage urban life and on the other hand, how the progressive urban socialization influences the formation of the global knowledge society.

We do thank the editors of this issue, Michael Nagenborg, Anders Albrechtslund, Martin Klamt and David Murakami Wood for exploring this interesting subject, introducing it into the scholarly discourse with their profound call for paper and producing together with the authors a brilliant new issue of IRIE. For some reason we had to confine ourselves this time with only four articles dealing with the subject asked for – fully in accordance with our striving for quality, not quantity.

All the more we are happy that Charles Ess handed in his position paper that he prepared for the special panel discussion "Changes of the Internet - Changing Information Ethics?" on occasion of the 10th anniversary of the foundation of the International Center for Information Ethics @ CEPE 09 (June 27, 2009) with the title "Brave New Worlds? The Once and Future Information Ethics".

We hope to contribute with this issue once again to your personal thinking of the future of the information society and look forward to any corollary it may have.

Yours,

the editors.

Michael Nagenborg, Anders Albrechtslund, Martin Klamt, David Murakami Wood:

## On „ICT & the City“

As Anna Croon Fors and Mikael Wilberg (2010, this issue) remind us, we are used to think of “Information and Communication Technologies” (ICT) and the “City” as two distinct units of analysis. But how can we explain the impact of ICTs of our ways of living in and with the city, if the City never was about information?

To say that information is immaterial is to assume that information has no specific place in the city and takes no physical space. Yet, we should acknowledge that even if we assume that information is immaterial, “it never exists without a material support. Information may be transferred from one material support to another, but cannot be dematerialized ... .” (Wark 2004, 127) The City is the place, where the material support of information (e.g., books and other things made of paper) can be found and where people can meet each other and exchange information. In the City there are places, where information can be found, and the City provides spaces, where the exchange of information takes place.

This exchange of information characterizes specific conditions of public and private space in the city. Vice versa, the city is considered the (only?) place where people get information from their very socio-spatial environment by seeing, hearing, and talking to others, or sometimes just by thinking, sensing, or being present at a city place. That’s why the urban public has been regarded as being essentially about information since ancient times (Arendt 1998; Habermas 1991) and that’s why Sokrates is believed to have depended on the city (Helbrecht 2001). The city is the place where we can find urbanity, heterogeneity, spontaneity and innovation on the one hand side and built manifestations of history and the meanings of the past on the other hand – both of them sources of information provided only by the city. Hence, the influence of ICT on this public realm within the city touches fundamental ethical questions: How does it shape public life, how does it shape privacy? Will the city be replaced as a place of information or will it rather strengthen its informational function? How do both city dwellers and city planners cope with this future shape of the city?

One may criticise the view of “people talking with each other” as “people exchanging information,”

because it represents a technological view on information, reducing it to code, bits and bytes, to be produced, distributed and consumed. To view information primarily as a resource is a common trait in so-called information societies. One might argue that this is a reductionist’s view on information. Yet, using the framework established in an information society, focussing on modes of production, distribution and the use made of information, may also help us to understand how the City has shaped the flow of information before the rise of the information societies. And it might help us to understand, what kind of interfaces already did exist for the coupling of ICT and the City.

Looking for the interfaces provided by City life to the rising information societies also brings forward the subject of the City itself in its physical conditions, which has no prominent place in Western philosophy. Of course, there are notable and well-known exceptions. In Plato’s Republic the discussion on the City plays an important role with regards to the question of a just society. In Utopia Thomas Morus gave a description on the 45 cities to be found at the island, which all look the same. And while the City remained an important subject in the utopian discourse, modern philosophy and ethics rarely deals with the subject. Notable exceptions in the field of philosophy include Heidegger’s writing on dwelling, Vilém Flusser’s works on the telematic city, or Albert Borgmann’s “Real American Ethics” (2008). While the City provides the background for the everyday life of almost the half of the planet’s population, it has become invisible to us. In everyday life we do not take notice of the City as such.

This provides us with yet another reason to reflect on the City as a medium, because media tend to be transparent. Reading a book refers to reading the text printed in the book, not paying attention to the book itself. Watching TV does not mean to look at the TV set. In everyday life we will only notice the TV set as such once it has ceased to function. In her paper on “The cybercity as a medium” (2010, this issue) Seija Ridell reminds us of the “... backstage technical machinery that makes things happen on the front stage ...” and argues for bringing “... the digital infrastructure in the realm of the representation ...”, because this is “... the necessary first step in the process of coming to grips with it in terms of power.” One might add that Information Ethics as a discipline might be a suitable tool of questioning the digital infrastructure of the City. Even more, reflecting on the embeddedness of ICT in the urban environment may become a starting point to bring back

the City itself in the realm of representation and thus ethical reflection.

The importance of infrastructures, which constitute an important part of ICT embedded in city, is underlined in Torin Monaham's & Jennifer T. Mokos' contribution to this issue. With regards to infrastructures monitoring the environment to ensure the safety and security of basic goods (like water and air), they demonstrate that "[w]hile the management of such services is increasingly automated and informatized, judgements made about what the public's needs are and how they should meet are often hidden in technical protocols that resist public awareness or scrutiny." (Monaham & Mokos 2010, this issue) In her paper on "The Ethnography of Infrastructure" (1999) Susan Leigh Star summed up her experience of studying the International Classification of Diseases as worse than reading a telephone book. Yet, she starts her paper with "... a call to study boring things" (Leigh Star 1999, 377). Monaham's & Mokos' paper demonstrate the need to do so. In focusing on too often taken for granted infrastructures in rich countries, they point to the interplay between existing infrastructures and new technologies, but they also demonstrate that the potential benefits of the new digital infrastructure might be for a selected group of people only. Hence, justice is an important issue to address in the discussion on the implications of environmental monitoring, but there is also the strong need to analyse the trust relationships that are shaped by technologies and infrastructure. Even more so, as planning and monitoring strongly depend on ICT to create scenarios for urban development processes that later on shape both built environment and urban landscapes. 3D-models, remote sensing, augmented realities and above all GIS have become both indispensable instruments of analyzing and planning the city and as useful items of everyday life at the same time. The range of effects covers topics like building a new urban district as well as monitoring trees and animals on urban brownfields, driving to the hotel by car, working in a restaurant, or being captured by surveillance technologies in city spaces. As the authors point out, "... ethical issues are often framed in terms of autonomy instead of trust and this may have the effect of focussing on the individual agency to the neglect of social relations." (Monaham & Mokos 2010, this issue)

The article also demonstrates that in the age of globalization it still matters where you live. This is also pointed out in the contribution by Rodrigo Firmino and Fabian Duarte on the "Manifestations and implications of an augmented urban life" (2010,

this issue). They also point to the different, at times conflicting ways that ICTs have become part of the way urban space is produced and experienced by its inhabitants.

But the City always has been about change, while being a manifestation of yesterday's ideas at the same time. While any generation of its inhabitants is trying to shape the City to fit its needs, any generation of new City dwellers is confronted with the manifestations of its ancestors' way of living. Therefore, it's maybe not too much of a surprise that the idea of designing a City is – apart from the professional planner's perspective – far less common than to bring design thinking to other areas. It almost seems strange to think of something like the author of a City even despite the well-known exceptions. We sometimes tend to think of the City as something to be managed, not merely something to be built from the scratch, in other words we're not so much of Le Corbusier. Still, as the contribution of Anna Croon Fors and Mikael Wilberg (2010, this issue) demonstrates, a "designerly approach" in shaping the City and the life of its inhabitants. One may point to the dangers of taking a paternalistic position in doing so, but the "... search for ... meaningful compositions of materiality that disclose and enclose significant interactive processes and practice in the city ..." has to be recognized as an important quest in the ongoing process of shaping Cybercities.

Web applications and services available today facilitate the mixing and blurring of dichotomies such as public and private, global and local, and online and offline. As a consequence of these developments, communities are now often constituted in mixed spaces, where a specific social community website site reaches far beyond the confines of its pages and into both the physical reality of its users, other online spaces and other cultural domains. This brings new perspectives and challenges with regards to how communities organize and operate, and how they are perceived and perceive themselves. Community activities that take place in both physical and virtual spaces create new dynamics and flows, which facilitate new ways to relate to friends and other people as well as new ways to relate to figures of authority, e.g. the police. This is of course a key element in the idea of the Internet as a space of intersections and blurring of boundaries between offline and online worlds. Over the past few years, location awareness has become an increasingly important aspect of everyday use of the web. Especially, the popularity of smartphones, such as Apple's iPhone and Google's Nexus One, is mixing urban spaces and virtual spaces.

There has been a tendency for online social network sites to be based on the premise of sharing personal information, including not only activities, preferences and affiliations, but also current whereabouts, facilitated by mobile technologies for tracking and new web services for distributing. These technologies have the potential for repressive use but are also a platform for exposing oneself as an individual, where being seen or tracked is a crucial element. This tendency gives rise to new concerns in relation to privacy issues, but also seems to change our attitudes towards these issues. Furthermore, the mixing and blurring of spaces also facilitate new ways of constructing, performing and presenting identities and narratives. For example, teens seem to construct and co-construct their identities on social network sites with no clear distinction between offline and online existence, 'locally' practicing identities while demarcating themselves from the 'global' discourse they are surrounded by.

A manifold of interesting research questions arise in the wake the cities as mixed spaces: How do we metaphorically and conceptually grasp mixed spaces? How do we study the mobility and intersecting of people, information and artifacts online? How do the various theoretical framings of mixed spaces influence Internet regulation and use? How can we reach an understanding of the users' experience of their movements within these mixed spaces? When designing for mixed spaces, how can we integrate

and involve the needs of intended users? Does the advanced monitoring and tracking technologies invade our privacy? Are people lured into unfavorable power relations? On the other hand, do the potential gains outweigh the eventual losses? Are surveillance technologies helping us, protecting us and offering new possibilities? These and other questions are discussed in the various articles in this special issue of International Review of Information Ethics, and attempts to map future challenges in the field will be made.

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Anna Croon Fors and Mikael Wiberg:

## Digital Materiality as Imprints and Landmarks: The case of Northern Lights

### Abstract:

In this paper a case is made concerning how important levels of media technology and new interactive textures affect urban landscapes. The case is based on experiences and empirical examples from a Scandinavian city (Northern Lights) in which levels of interactive infrastructures, mediated spaces, and places, are high, and in which accessibility and social inclusion traditionally have been strong components in societal and systems design. Our *designerly* approach discloses some of ways that the city is enacted by a new digital materiality. This materiality can only be disclosed if the relationship between the city and ICT is understood as a meaningful whole – a totality – in this text illustrated by the notions of *landmarks* and *imprints*. Based on our case we suggest that it is possible to employ *an ethical dwelling* reflecting the endless, active and ongoing responsibility for the city and its interactive textures in everyday life.

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- Relevant publications:
  - Croon Fors, Anna (Forthcoming 2010): The Matter of Meaning in Digitalization, AI and Society.
  - Stolterman Erik and Croon Fors, Anna (2008): Critical HCI Research - A Research Position Proposal. Design Philosophy Papers, vol. 1.

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## Introduction – New materials in a changing city

*"...[the] thing is not merely what it is given to us to be, but reserves an 'otherness' in the sense of a dimension that withdraws from our grasp, and it is this withdrawal that allows the being to represent being within the totality..." Michael Lewis 2005, p.123*

The city of today is changing. This might not come across as something new or unique, due to the basic fact that cities to a large extent are about change, growth, and development. Still, what we are facing is a new kind of change that has less to do with the city as a physical place and more to do with the city as a process and practice vis-à-vis to its *being with ICT* (Borgmann 2010; Croon Fors 2006; Greenfield 2006, Introna 2009; Lewis 2005 and McQuire, 2008).

For long, a history rich with various strands of approaches has been carved out to maintain ICT and the city as two distinct units of analysis. When the notion of "city" has been addressed from the perspective of ICT it has been about e.g. citizens augmented with ICT in the networked city (Mitchell, 2003), virtual or online cities, or simply "cyberspace" where new digital cities are established on the Internet. Similarly, when addressing implications of ICT for the city it has been about how ICT can bridge geographic distances, making the world smaller, or even flat (Friedman, 2005), and location irrelevant (Meyrowitz, 1985) instead of addressing the emergence of new practices and phenomenon arising within the "totality" of ICT and the city.

While one approach to the totality of ICT and the city could be to look into changes of social life in the city due to ICT, we take on an alternative approach. Our attempt is to *search for, and identify, meaningful compositions of materiality that disclose and enclose significant interactive processes and practice in a city*. This orientation of our research is motivated by 1) the current movement towards ubiquitous computing and how it blends into and fundamentally changes city life, 2) the ongoing digital reconfiguration of cities into "cities of bits" (Mitchell, 1995), 3) the rise of the "serve city" (Akbar, 2003), and 4) recent developments in the field of interactive architecture (Fox & Kemp, 2009) with a huge potential to not only redefine our social world, but also to make the city responsive, active, sensitive, and in constant dialogue with its inhabitants.

Guiding our approach is among others Borgmann (1984; 1995; 1999; 2006; 2010) and Heidegger (1971; 1977) in terms of *the importance to compose unity* in the apparent contradictory and disperse intertwining of informatics and the city. The advice offered by Borgmann (1999), orchestrating our concern is that:

*"...we have to become again readers of text and tellers of stories... Stories are the spaces wherein pictures and mementos come to life and coalesce into a coherent picture of the past and a hopeful vision of the future." Borgmann, 1999 p.231*

Fundamental is also the suspicion that there is a need of a new ethical foundation as processes and practices are increasingly shaped by computation (Harman 2005, Introna 2009). So, contrary to upholding distinctions between the virtual and the real, the physical and the virtual, the media and the mediation the relationship between ICT and the city is in this paper conveyed in a *designerly way* (e.g. Borgmann 1995, Cross 2007, Heidegger 1971, Krippendorff 2006, Nelson & Stolterman 2003 and Stolterman & Croon Fors 2008). The *designerly way* and the differences it makes for concerns about ICT in the city will be discussed in a following section. But first a brief illustration of our case, Northern Lights and the meaningful wholes of interactive textures that are disclosed in our study.<sup>1</sup>

## Northern Lights: Interactive textures, Imprints and Landmarks

The Northern Lights city was founded in the 17th century and was at the time one of the few gateways to northern wilderness. Since then the city has developed from slumbering county seat, via an expansive university, into a multi-faceted regional capital with a large industry sector and an expanding service sector.

Today the city is one of the largest growing cities in the north with approximately 100 000 inhabitants, with an average age of 37 years and approximately 50% of the population with an academic degree.<sup>2</sup> During the last ten years employment in private trade and industry has grown by more than 30%

1 This study is part of a larger research programme on Digital Materiality investigating how new materialities emerge by interactive technologies.

2 For further details see <http://www.umea.se>.



and has today overtaken the public sector in terms of the number of people employed. Within its population 130 nationalities are represented and the number of broadband connections per capita is among the highest in the world, not least thanks to the fact that city very early on built a fiber-optic metropolitan area network. In 2007 Northern Lights was named the IT Municipality of the Year.<sup>3</sup>

As inhabitant and researchers within this city we have seen the co-creation of landmarks, e.g. online social communities, geographically connected to the city square, as well as technological movements including e.g. "Open source" being used as a metaphor by the municipality to outline a direction for city development including the keywords of openness, curiosity and co-creation of cultural values to develop the city.<sup>4</sup> We also acknowledge that the highly networked city composes itself through ongoing limelight of important textures, imprints and landmarks in the city.

In this paper we have chosen to highlight two aspects within The Northern Lights, *Landmarks* and *Imprints*. In this form we suggest that interactive textures in the urban cityscape presents itself as *meaningful compositions through the everyday actions undertaking by the inhabitants of the modern city*. We also suggest that further notice should be paid to such landmarks and imprints that characterize the interactive textures of modern cities. But, landmarks and imprints should not be seen as isolated and exclusive technical manifestations, but rather as indications of an evolving digitalized cityscape based on inhabitants' practice and processes.

Here, we define interactive textures as *"digitalized materials, physically manifested, and capable of representing information and potentially also to scaffold interaction"* (Wiberg, 2010). Our stance is further that we need to challenge conventional conceptions of technological rationality as constituted by values depriving people the sense of belonging to and sense of fulfillment and meaning (Croon Fors 2006). As a response, we are making the case that the interactive textures of Northern Lights can be seen as situated and realized *in-between, and throughout the physical, the social and the digital*. Our ambition is that these two aspects can illustrate the mutual shaping of the city and ICT as

3 For instance according to recent statistic 95% of the population has broadband access in their homes. See further <http://www.umea.se>.

4 [Http://www.umea2014.se](http://www.umea2014.se).

totalities enhancing ethical considerations beyond instrumental rationality and closer to our focal concerns (Borgmann 1984).

*Landmarks* are often conceived of as a geographic feature used to support orientation and navigation within a particular place. In our case *landmarks* are also understood as such, both also layered with aspects of the intertwinement of physical, social and digital that by inhabitants' of the city are appreciated as tool for meaningful navigation and orientation. Further on, and for our case, the landmarks are the digital manifestations of the physical as it appear in the modern cityscape.

One example in Northern Lights is *The Monkey Mountain*, predating Facebook™ as THE most favorable social network site for the city's younger population, for most in their adolescence.<sup>5</sup> Here teenagers elaborate on identity, and digital inhabitation creating new understanding on the sociality, norms and deviations amongst their peers. The Monkey Mountain is also a traditional landmark, a physical place centrally located in the city square, where many inhabitants, (preferable teenagers) meet, talk and dwell before embarking on various everyday activities. As a landmark The Monkey Mountain is a composite and blended whole. An aspect of the interactive texture in which physical, social and digital materials are co-created by its inhabitants.

*Imprints* are commonly used in the publishing industry used to distinguish, for example different printings, or the same edition produced by a different publisher or printer. But imprints in our sense are rather used as those aspects *imparting a strong or vivid impression of something*. In this respect imprints are in our case conceived of as the ways through which the digital manifest itself in the physical world, and also the impact that the digital have on the life in the city. Within the Northern Lights one such imprint derives from by the cities strong emphasis on public transportation, traffic calming infrastructures, as well as a well-developed infrastructure of dedicated roads for biking.

In our case, *imprints*, are illustrated by, *The bikes and bikers*, where of important aspects of the physical and social infrastructures in the city is augmented and reinforced by interactive installations, revealing, recounting and enhancing the city as a biker-friendly city as well as highlighting the amount of bikers as a communal celebration on a daily basis in

5 <http://www.apberget.se/>

the city. Since 2005 the city has actively been working to enhance and stimulate more of its inhabitants to use bikes as their first hand mean of transportation between the home, work and school. Of the cities inhabitants 41% of its' inhabitants walk or bike to work and school, but the goal of the city is to increase this level to 70%. To reach this goal a thorough investigation of the habits of biking has been conducted. Among the recent ways of encouraging people to use bikes is the installation of interactive installations highlighting the large community of bikers in the city.<sup>6</sup>

These interactive installations are within our case one rough example of an imprint, attempting to disclose a shared value using the interactive texture of digital material. At one location it has been shown that the average number of bikers during one day to be 6 000. However the imprint not only mediates the statistics of the city back to the officers at the municipality and its inhabitants. It also within the physical scaffolds, signals and re-acknowledges the common concern to increase the number of bikers in the city. This, through a physical imprint which constantly work as a reminder to the city inhabitants about the current status of this concern, or more generally as a physical extension of a common social norm guiding sustainability thinking in the city.

## Designerly Approaching Materials and Ethics

From our brief examples it appears as if citizens of Northern Lights are embracing ICT, not only as a mediator in the city, but as *a new materiality*, i.e. as a character of being material and composition of matter, scaffolding inhabitation and navigating in a post digital age. Our suggestion is that we through the notion of imprints and landmarks are able to provide some insights to this new materiality allowing us to advance new and different ethical questions concerning the role that it plays in everyday life city processes.

Taking this as a point of departure we explore our case further in a designerly way. First by acknowledging the importance of the *real* and its relation to the process of something coming into existence (Borgmann 1995; 2006, Nelson & Stolterman 2003).

<sup>6</sup> An image on the interactive counter can for instance be found at:  
<http://www.nt.se/arkiv/2006/08/26/Norrk%F6ping/147838/Cykelr%E4knare-tar-plats-p%E5-H%F6toret.aspx>

Secondly, by incorporating the thinking of Kripendorff (2006) on the stages from compositions of resources into services, to compositions of services, to "ecologies of artifacts" i.e. the composition of technologies into meaningful wholes. Finally, following Nelson and Stolterman (2003) that design has meaning when we can see how compositions are connected to other things that we value (ibid, p. 273).

As a result of this approach we suggest the Heideggerian notion of *dwelling* can be applied to the ethical discourses concerned with ICT in the city (Borgmann 1995, Heidegger, 1971). Following this line of thinking we acknowledge that inhabitants in Northern Lights, in order to get along spatially and socially are composing new meaningful unities and wholes intertwined by ICT. Such wholes that we by introducing terms like imprints and landmarks are able to convey.

As such we promote an approach to the relationship between ICT and the city that is both appreciative of the artificial world, but also is considered to be something that we ourselves are responsible for having created. Consequently, following among others Introna (2009) and Harman (2008) one of the issues at stake is that ethical concerns of ICT beforehand are determined in anthropocentric manners. As such the moral significance of ICT in the city is presumed within an a-priori framework of values that we assume is associated to technology as means to particular ends (Borgmann 1984, Latour 2002).

For instance, Introna (2009, p.38) writes: "... the revealing of us as 'users' or 'manipulators' of tools and objects, is, although the most obvious disclosure, but one possible way in which our things disclose us." He continues: "In the world of 'standing reserve', we exclude the possibility of being otherwise..." (p. 41). This view is roughly what is referred to as the device paradigm (Borgmann, 1984:35-48). In Borgmann's (ibid) view the fundamental difference lies in the way that we relate to the world and experience the world. However, in Borgmann's view the device paradigm is also, but one, of the possible ways in which things appear to us.

Our designerly approach thus help us to formulate the concern we have with contemporary views on ICT and the City. With this approach it is possible to acknowledge that any design of technological artifacts is a design of our actual reality and that digital materiality will create experiences that are being

valued not only as individual objects, but also as parts of a whole. As such, based on our approach, we recall the Heideggerian claim that any technological design *also* reveals reality, i.e., make us aware of the environment and the reality we live in and the kind of lives we live in certain ways.<sup>7</sup> Basically, with our approach we are reminded that there is never a case where interactive textures or digital materials *only* can be seen as separable objects and as means. Rather all artifacts also “points to the larger context of their setting in nature, and call for attention, effort, skill and fidelity to regular practice, and invigorate individual and community life.” (Strong & Higgs, 2000, p.32)

Hence, with our case we like to open up for alternative ethical dwellings of relevance for what kind of humans, or inhabitants we would like to become in terms of being a part of interactive textures and digital materials. So, although not fully recounted, our case revolves around the importance of identifying meaningful wholes disclosed and enclosed in-between, and throughout the physical, the social and the digital. The intention is thus to encourage us to become more mindful in our narratives on the interplay between the city and ICT, suggesting that our imagination of the moral complexion of contemporary culture is enhanced by uniting parts of important interactive textures (Borgmann 2006, Wiberg & Stolterman 2008, Robles and Wiberg 2010).

As such we attempt to propose an alternative human-centered ethics by employing a designerly approach. That is, an ambition to recall the perspective given to us by Heidegger (1971, p.148): “We do not dwell because we have built, but we build and have built because we dwell, that is because we are dwellers.” So, in our case we have made an attempt to identify and disclose some interactive textures by referring to them as a new kind of meaningful totality in the city. Our attempt is based on the importance to appreciate the role of ICT in the city and at the same time acknowledge inhabitants in the city as the particular beings that they are, i.e. as parts of a larger intertwined physical, social and digital materiality (Introna 2009).

Accordingly our approach appreciate the materiality of interactive textures in terms of its enabling of

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7 In the essay *The Question Concerning Technology*, Heidegger (1977) outline two different ways of approaching and understanding technology. This dual nature of ICT is also advanced in for instance Croon Fors (2006). Here we attend to the nature of technology revealing when advancing the role and ethics of digital materiality in the city.

remotely communicate information, and enabling the physical space to become active, queryable, and connected. Further on, our approach also appreciates the role and importance of the digital in the physical world, and the physical in the digital. That is, as an integrated part of the architecture of the modern cityscape. This kind of appreciation opens up for an ongoing ethical dwelling of what kind of processes and practices, inhabitants and cities we like to be.

## Concluding remarks

In this paper a case has been made concerning how important levels of media technology and new interactive textures affect urban landscapes. Our case is based on experiences and empirical examples from a Scandinavian city (Northern Lights) in which levels of interactive infrastructures, mediated spaces, and places, are high, and in which accessibility and social inclusion traditionally have been strong components in societal and systems design.

From our case of how new digital materials changes and enables new city practices we conclude that rather than maintaining ICT and the city as two distinct units of analysis our *designerly approach* discloses new totalities for meaningful inhabitation and navigating in the city. Consequently, our designerly approach in conjunction with our experiences from the case of Northern Lights has also resulted in two tentative concepts, landmarks and imprints.

The research presented in this paper is motivated by movements towards ubiquitous computing, the rise of the “serve city”, and recent developments in the field of interactive architecture. Through our research as reported in this paper we add to this scholarly understanding through the introduction of a new vocabulary capable of speaking not only to the digitalization of the city - *imprints*, but also to the ways in which the city becomes digitally re-represented – *landmarks*. In this undertaking we think about this movement in terms of new interactive textures and a new digital materiality.

Further, based on experiences from our case study of the city Northern Lights and in conjunction with recent thought within ethics and technology an alternative to human-centred ethics becomes valid. Therefore our final tentative conclusion is that the two concepts of *landmarks* and *imprints*, not only are examples of how a city with highly interactive infrastructures are integrating interactive texture in

societal and systems design, but also illustrates an emerging ethics of new materiality, capable of reminding us that there is no simple, easily drawn line between things and people – between ICT and the city. On the contrary, notions like imprints and landmarks can assist us in finding opening potentials for future ongoing work on how we should advance our ethical encounter with otherness inscribed in changing city processes and practices.

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Seija Ridell:

## The cybercity as a medium

Public living and agency in the digitally shaped urban space

### Abstract:

The digitalized urban environment is explored in the paper as a *medium* with several overlapping and interweaving spatial layers. The author suggests that it has grown increasingly complex in the multi-spaced and multiply scaled cybercities for people to share in public space. Moreover, the challenges of public living in contemporary urban settings emerge most intensely at the points of intersection of the invisible technostucture and the (mass) media saturated phenomenality of the city. At these intersections, one ethically and politically burning issue is how people through their ICT-related activities contribute to the 'automatic production of space'. More specifically, critical attention should be paid to people's active, but not necessarily self-reflexive, participation in the consolidation of the 'technological unconscious' that conditions their own public agency.

### Agenda:

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  - Social media as a platform for agency. Audience, community and public in the analysis of *YouTube*. *Lähikuva* 21(2)2008, 27–43 (together with Veikko Pietilä; in Finnish)
  - *Grasping Media* (ed. together with Pasi Väliäho and Tanja Sihvonen). Tampere: Vastapaino 2006, 264 p. (in Finnish)
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In studying the relations between ICTs and the city, relatively little attention has so far been paid to the symbolic aspects of digitalized urban space. Yet people also lead their lives in the fibre optically networked, wirelessly connected and software supported cybercities in the midst of media representations, advertisements, signposts and other cultural artifacts. Their presence, in fact, has been augmented by the digital technologies and contributes to the constitution of the cybercity itself as an immensely complex spatial-temporal texture or a *medium*, which we simultaneously sense, experience and decode (cf. Mitchell 2005; McQuire 2008).

Obviously, the digitalized infrastructure conditions equally crucially as imperceptibly the phenomenal and symbolic dimensions of the present-day urban milieu. The material basis of cybercities and its entanglement in the networks of contemporary capitalism has been discussed at length by critical geographers (see, for instance, Graham & Marvin 1996 and 2001; Graham 2004b, 2004c; Thrift 2005; Crang & Graham 2007). Likewise, scholars have pointed out how the increasingly computerized production of space in cities becomes automatic as people accommodate the use of new technologies as part of their everyday routines. In this way they participate in the sinking of software beyond conscious recognition, as a self-evident background for daily existence (Thrift & French 2002; van Kranenburg 2008). One obvious reason for this easy development of a taken-for-granted attitude is, of course, that people lack access not only to the "mechanosphere" of the cybercity (Thrift & French 2002) but also to even a rudimentary knowledge of its structure and functioning.

In addition to the ways in which the computer code sorts and controls urban life independent of representation – so insightfully mapped by spatial theorists – I would suggest that we also need to shed light on the representational dimension of the "computable city" (Batty 1997). In fact, my contention is that this is especially pertinent when seeking an approach to the digitally shaped urban environment in terms of ethics and politics. There are, in my view, two major reasons for this.

To start with, it is not possible to tackle the city's "technological unconscious" (Thrift & French 2002) without first representationalizing it. Rendering perceptible the "values and ethical principles [inscribed] in the depths of the built information environment" (Star 1999, 379) requires that we are aware of its presence and recognize the ways it supports, guides and constrains our behaviour. This

cannot be done without configuring the non-representational in the realm of discourse – without translating its mutely performative logic into systems of words and images. Hence, in order to get hold of the backstage technical machinery that makes things happen on the urban front stage, we need to give it a symbolic form (cf. Star 1999). More generally, as Mark Andrejevic (2009, 40) paraphrases Slavoj Žižek, the symbolic allows a distance between the code and what it defines thus acknowledging "the possibility that things might be otherwise than how they 'directly' seem". The importance of symbolic distance is in no way diminished, quite the contrary, by the fact, that along with digitalization, the infrastructure has not only spread from the background all around us but also become almost literally part of our bodies; moving with us when we travel in our cars, use our portable communication and media gadgets and carry in our bags the mundane consumer products tagged with an RFID chip.

In another sense, the representational dimension is indispensable if we want to ask how people lead their lives *together* in the digitally conditioned urban environment. This question frames the city as a public space and considers people in their role as public beings. To be *public* – both in the sense of visibility and of collectivity (Arendt 1958; Weintraub 1997) – our activities and interactions must take place on the symbolic dimension; they need to be performed visibly and/or audibly *in situ* or rendered otherwise (for example, through mass media representations) apparent to others.

In what follows, I do not, however, seek to prioritize the representational over the non-representational. Instead, my starting point is the pertinence of both in our attempts to understand our public living and agency in the digitalized city. We cannot grasp the "machine space" of cybercity (Thrift & French 2002) by merely analysing its symbolic dimension; nor is it possible to explain contemporary urban spatiality by focusing exclusively on its invisible infrastructure. More precisely, then, I will direct my attention at points at which the invisible materiality of infrastructure meets the symbolically loaded phenomenality of the city, as it seems to be at their intersections that the most intriguing ethical and political questions or, differently put, questions of post-hegemonic power emerge (see Lash 2007).



## The doubly articulated media in urban space

Structured essentially by the digitalization and computerization of its infrastructure on the one hand and by the pervasive presence of media technologies and representations on the other, the contemporary urban environment can be seen to consist of overlapping and interweaving spatialities of at least three analytically different kinds. We are concerned with a multi-layered spatial-temporal texture or a medium<sup>1</sup> that is composed by the co-existence and constant interpenetration of physical, discursive and virtual dimensions. The nesting of several spatialities makes the cybercity one of the richest (if not the richest) media environments or media ecologies of all.<sup>2</sup>

The notion of urban spatiality I apply here has its inspirational starting point, among others, in Henri Lefebvre's (1974/1991) and Edward Soja's (1985, 1996) conception of space as inherently social and relational, as something that is constituted and becomes constantly reproduced in the processes of human activity and interaction. There are also closer affinities, notably with Lefebvre's trialectical way of conceiving space through physical, mental and lived aspects. However, compared to his sweeping historical view that seeks to include modes of producing and perceiving, imagining and experiencing space, the focus here is confined to the question of urban space as rearticulated by the development of communication and media technologies – a question that has only a minor role in both Lefebvre's and Soja's trialectics.<sup>3</sup> These technologies, as William J. Mitchell (2005, 16–17) points out, at the same time supplementing indirectly Lefebvre's (1991, 39) definition of representational space, "add a dynamic layer of electronic information to the *mise-en-scène*

established by an architectural setting and the meaningful objects and inscriptions that it contains". Another difference between Lefebvre's spatial triad and the conception of multilayered space employed in this article is that the latter also conceives of (media) representations in terms of space, incorporating their specific discursive spatiality.

While dwelling in and moving about the city, people shift continuously back and forth between the layers of the urban spatial constellation simultaneously also navigating between different spatial scales. Take a person who sits on a bench in a city park, connected wirelessly to the internet through her/his laptop. S/he senses at least subconsciously the physical environment, noticing in an equally absent-minded manner the front covers of evening papers (the 'porches' of discursive spatiality) on the nearby kiosk billboards, at the same time as s/he visits within minutes the premises of an online newspaper, updates her/his status on the platforms of *Facebook* and *Twitter* and then moves on to chat politics on a web forum. Indeed, people's presence in the city today is increasingly a hybrid experience of being around in many simultaneous spatial and social environments (cf. Mitchell 2005, 16; see also de Waal 2008).

One interesting question at the intersection between non-representational and representational in the "media metropolis" (de Waal 2008) concerns specifically scales. First of all, digital network technology has made it possible for individuals to interrelate their personal 'space bubbles' with various bigger and more or less remote groups of people and to do so while on the move. Often navigation between spaces involves negotiation with social norms and rules as mobile technologies have rearranged the traditional boundaries in the physical urban space between public and private territory and made it unclear how people should behave. In addition, portable ICTs may also serve as delivery channels for mass media representations such as news, which opens momentary and often moving micro spaces of globally oriented discursive publicness within the cityscape.

Second, the presence of mass media – both as technologies (screens, printed materials, loudspeakers, billboards, panels) and representations (the symbolic messages offered discursively on different media platforms) – in the city plays a major role in terms of scale. We can include here even the buildings of media houses, which not only furnish the local urban space but are organically connected to an invisible network of global technostructure – like

1 Medium is here understood in the philosophical sense defined by Aristotle (2000) as an ether, a gap or an interval that enables human perception, communication, experience and understanding to take place – each medium thus "giving us the world" in specific ways (Ridell & Väliho 2006). This inherently spatial notion of medium is given one prominent articulation in Marshall McLuhan's (1964) medium theory (see also Strate 2008). One could also say that, in the McLuhanian sense, cybercity is the ultimate medium as it incorporates in itself each and every other medium.

2 Cf. Friedrich Kittler (1996) for an information science inspired view of the city as a medium.

3 But see Kirsch (1995) for a detailed discussion on applying Lefebvre's thinking in a technological context.

fungi with their rhizome. Likewise, the animated façades covering the entire surface of buildings as their outer skin grow out of the digitalized media machinery that produces and displays the moving images (cf. Krajina 2009, 406; also McQuire 2008, 126–127). Regarding distinct mass media technologies such as television, their specific feature is the ability to adapt scales between physically distant locales both technologically and discursively. A site-specific television set in a local pub, for example, can transmit live audiovisual narrative from the other side of the globe, thereby bringing together in one communicative presence the local 'here' and the distant 'there' (McCarthy 2001). The levels of non-representation and representation are both involved as neither television technology nor the televisual representation alone is able to accomplish this bridging of scales. Similarly, a television set in the home connects the household with the wider social life physically located outside its walls (Morley 1994).

One way to illustrate the scale-adapting presence of mass media in the cities is by extending the notion of double articulation, introduced in the study of domestic media consumption in the early 1990s. As pointed out by Roger Silverstone (1994), the media do not only carry symbolic messages, they are themselves – as material devices and objects – imbued with cultural meaning (see also Silverstone & Hirsch 1992). A unique feature of media as objects is precisely their liminality; they both mediate messages and act as intermediaries between different and differently scaled worlds. This intermediary position is a site of cultural struggle as through access to people's homes and urban spaces media corporations and other powerful agencies attempt to insinuate images and discourses both into the household's and the city's daily rhythms and routines.

In contemporary urban settings, the meaningful materiality (and the material meaningfulness) of both mass and personalized media forms a junction at which the digitalized technostructure and the phenomenality of the city interface with each other in multiple specific ways. Studying these intersecting articulations may afford insights into the conditioning efficacy of the urban infrastructure, and also help us grasp the ways in which the presence of media constitutes the cybercity itself as a medium.

Let it be noted that from a medium theoretical starting point, what we most essentially should focus on in the doubly mediating role of media is, in fact, *presentation* in the sense of those material

devices and displaying gestures that make things perceptible to others – thus enabling their public sharing – in urban space. In other words, it is through the presentational that the representational gains its existence in the first place. (Cf. Hirvi-Ijäs 2007, 10–15.)

## Public living and agency in the cybercity

How should we then tackle the issue of ethics and politics in today's digitally shaped urban environment of multiply scaled and interlacing spatialities? As I indicated indirectly at the beginning, one way to approach the ethical and political dimension is in terms of public living and agency and, more precisely, through formulating a question of power over their conditioning in the cybercity – power that some have characterized as "post-hegemonic" (Lash 2007) and others as "posthuman" (see Hayles 2006; Gane, Couze & Hand 2007).

If we approach the contemporary city in medium theoretical terms, a central issue of power revolves around the rhetoric of non-representationally supported and presentationally staged public urban space. The cybercity as a medium interpellates the dwellers and *flâneurs* to specific subject positions at all layers of the spatial constellation making it particularly pertinent to ask what forms and strategies the hailing assumes at points where the infrastructure and the phenomenal-symbolic dimension of the city intersect. At these intersections one urgent question is how software regulates and controls the kinds of public agency rhetorically on offer in contemporary urban milieus. Another important question concerns the ethical and political implications of the doubly articulated presence of mass media. It can be suggested that the rhetoric of the cybercity is at its most persuasive at sites where mass communication technologies – as digitally embedded presentational objects – furnish urban spaces and simultaneously put on public display specific symbolic messages. Anna McCarthy remarks, for example, that the positioning of television screens in urban spaces is carefully planned in order to standardize certain patterns of perception for users who pass through those locations. At the same time, commercial practices that guide the production of texts and programme forms to be circulated work to "commodify the spectator's position in space for sale to advertisers". (McCarthy 2001, 11–12.)

The doubly articulated pervasiveness of commercial mass media and above all the ubiquitous presence of advertising constitute the present-day urban environment itself much like a mass medium with its one-way patterns of communication. Most clearly this can be observed in shopping malls which not only have television screens scattered all over but which mimic television as a medium in that "the shopper strolls through experiences as he or she might scan through TV channels" (Goss 1993, 39). Leif Dahlberg (2006, 41) argues critically that "mediated discourse in (physical) public places in contemporary western society to a large extent has been monopolized by an advertising monologue that *shuts out* other public discourses" and speaks to us "as consumers". As Anne Cronin (2006a, 627) importantly points out, the persuasive textuality of the commercialized city space is not simply 'readable' but embodied, as "advertising attempts to target and inhabit everyday commuting and shopping routes and become part of the fabric of people's urban experience" (see also Krajina 2009, 410, 415).

It should be noted, however, that space as such is not an external frame for human action but people's activities and interactions contribute to the production and maintenance of space and its specific characteristics. In terms of power, then, it is not enough to analyse how and as what kind of subjects the mass media dominated urban rhetoric addresses us but, equally importantly, how the interpellation is actually received. Do people accept the position of spectator audience offered them or can we find acts and practices of aberrant and resisting decodings (Hall 1980)? Or, to paraphrase Jon Goss (1993), McCarthy (2001) and Cronin (2006a), who apply Michel de Certeau's (1984) famous distinction, how do the strategies of the spatially powerful encounter the tactics of ordinary city dwellers?

Subsequently, the question that arises regarding the role of ICT-related activities in contemporary cities concerns the ways people's personalized media use relates to the city medium's mode of address and how these activities mold the city as a spatial constellation.<sup>4</sup> Recent studies on the use of portable

communication and media devices such as headphones and music players (mp3s, iPods), laptops and the increasingly multi-functional mobile phones in the city report that these technologies tend to separate people who share physical urban space. For example, in their study on wireless internet use in paid and free wi-fi cafes Keith Hampton and Neeti Gupta (2008) observed similarities between the use of mobile phones and laptops in that both are often employed as "portable involvement shields" to avoid contact with co-located strangers for socializing instead with remote but already familiar people and groups (see also Ito, Okabe & Anderson 2009; Hampton, Livio & Sessions 2009). As a whole, mobile technologies help to construct individualized space capsules or bubbles, or "telecocoon" with invisible barricades around them that co-exist in their separation on the urban stage constructed by the overwhelming presence of mass media. These technologies can even be described as "territory machines", which seize and appropriate urban space temporarily but repeatedly for personal purposes. Be the uses of portable communication and media devices "defensive or offensive postures" (de Waal 2008; Ito, Okabe & Anderson 2009), in both cases they strengthen a tendency that Michael Bull (2004, 278) calls "public privacy" and Hampton and Gupta (2008, 835) "public privatism" in the physical urban space.

Contemporary urban environment is without doubt public in the first sense of Hannah Arendt's (1958) dual definition, as people in their telecocoon are visible and audible to each other – sometimes exposing their most intimate thoughts and deeds and exhibiting their community networks to an embarrassing extent. However, being perceptible to others and witnessing others' performances in a space does not automatically make that space public in the collective sense. A collectively public space is not merely a platform of appearance but refers simultaneously to a space which provides opportunities to address previously unknown and not necessarily like-minded others on matters of public concern (Barnett 2004, 406–407). Or, as Marcel Hénaff and Tracy Strong (2001, 1) formulate the collective aspect slightly differently, we can call public any space "in which human beings encounter each other with the intention of determining how their lives in common should be lived".

In light of recent research, it definitely seems that the use of mobile technologies in urban space

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almost inescapable distractions coming from other people's use of personalized media, such as mobile phone conversations.

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4 A distinct – a more representation oriented – set of research questions could be formulated by focusing on the forms and practices of audiencing the "media city" (McQuire 2008; on audiencing as an activity in the domestic context, see Fiske 1994). As Zlatan Krajina (2009, 410, 415) points out, in the present-day urban space people are surrounded by a myriad of mediated elements, and the strategic hailing by the broadcasting and commercial display screens and panels is mixed with the

discourages encountering physically co-present strangers and initiating discussions with them on issues that exceed the individual's personal or in-group aspirations. There may be publicly oriented activities involved but these tend to take place online instead of the physical layer of urban environment, where users more often seem to occupy the position of audience on the one hand, and that of a community member on the other. However, there are also occasions – as in the case of Hampton and Gupta's (2008) "placemakers" with their laptops – when people use personal media devices to initiate rather than shut out interaction with unfamiliar others around them. This calls for further empirical study in urban locations with wireless internet access to explore whether and how mobile ICTs, compared to more traditional portable media such as newspapers or books, serve as facilitators of not only community oriented interpersonal communication but also of interactive engagements between people as publics (see Hampton, Livio & Sessions 2009).

## Contesting post-hegemonic power?

The mass media saturation of contemporary cities suggests that the dominant mode of address in urban settings is not – and perhaps even cannot – be challenged. We may wonder, for example, whether alternative decodings are possible in thoroughly commercial spaces like shopping malls, where all forms of interpretation, including the resistant ones, have been anticipated and assimilated as parts of the seamlessly seductive urban phenomenon (cf. Allen 2006).

In fact, it is fairly easy to imagine ways of politicizing and countering the consumerist rhetoric of the city medium at the level of representation. This is exactly what interventionist urban art projects, critical consumer campaigns and other "subvertising" activities attempt to do (see Dahlberg 2006; Cronin 2006a, 2006b). The trickier question, however, concerns the practices of use of both mass and personalized media in the urban setting. How to render problematic their taken-for-grantedness and the way it contributes to the fragmentation of city space at the same time as it confirms the infrastructural conditions of people's public activities and interactions?

If we are to accept Scott Lash's (2007) view of post-hegemonic power, it is indeed not possible to chal-

lenge the conditioning of urban public living and agency that occurs at the level of non-representation. This is because the routines involved are firmly located on the ontological level, residing in the "algorithmic, *generative* rules"... which "we do not encounter ... in the same way that we encounter constitutive and regulative rules" (Lash 2007, 71). Generative rules pervade our entire social and cultural life, but as they "have to do with the thing-itself that is never encountered" (ibid.), their critical reflection seems to be out of reach. Hence, the implication is that in the context of the sinister post-hegemonic power, resistance is not only impossible and futile but also irrelevant. In fact, as domination now constitutes us from the inside (ibid., 61), grasping "us in our very being" (ibid., 75) and having made the brain "immanent in the system itself" (ibid., 60), we have become our own (post)hegemons, which leaves destructive self-revolt as the only option for resistance.

In contrast to this paralysing scenario, I wish to suggest that there are ways to challenge and resist the post-hegemonic dynamics of spatial power at the level of routinized action. Paradoxically enough, digital technologies themselves offer abundant and unexplored opportunities for venturing into the elusive urban infrastructure and, subsequently, for reflecting on our 'conspiratorial' involvement in its performativity. Embryonic forms of such ventures can be found here and there – in mobile gaming that explores and plays with the "seams" in the wireless network system design, planned sousveillance activities and disclosing attacks by "street-level internet crackers", to name a few examples (see Chalmers et al. 2005; Mann, Nolan & Wellman 2003; Graham 2004a).

Tactics of rendering discernible and problematizing the routinely unrecognized in the contemporary urban setting require treatment beyond the scope of this article. What is important to note in this connection, however, is the pivotal role of the symbolic dimension as a prerequisite for and an essential part of subversive action. To start with, in order to take a stance towards the functioning of the digitalized infrastructure and to ponder critically the nature of our compliance with it, we need to recognize where and how that structure exists.<sup>5</sup> Once we do so, the

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5 As David Beer (2009, 1000) points out in the context of internet-based social media, one of the pressing questions about the nature of power today concerns the fact that "we simply do not understand how the material infrastructures of Web 2.0 play out in the lives of individual users, how the software constrains



gestures themselves that politicize and disrupt the ways in which the infrastructural system works both independently of and through people's ICT-related activities are plentiful and some of them even trivial.<sup>6</sup>

In other words, configuring the digital infrastructure in the realm of representation is the necessary first step in the process of coming to grips with it in terms of power. A central part of sousveillant activities, for example, is to uncover the disappearance of digital technologies into the fabric of buildings, objects and bodies and make their surveilling role known to others by means of photographing, videotaping or evoking counter-performances (Mann, Nolan & Wellman 2003). Urban internet crackers for their part, with laptops in their hands track "points from which they can enter the local, broadband wireless networks of corporations". Once connected to these hotspots of network coverage the "street-level activists mark up their boundaries with chalk so that these hidden infrastructures can be publicly consumed". (Graham 2004a, 16.) One more example are critical RFID activists' attempts to expose the use and future potential of "spychips" as a corporate and governmental surveillance tool by public boycotts and protests both offline and online.<sup>7</sup>

Obviously, politicizing and challenging the dynamics of post-hegemonic power in the urban context also entails ventures into the embodied spatial texture of cybercities in which private space bubbles exist and move about in close proximity yet ignoring one another's presence in more or less calculated manner. Embarrassing the self-evident separation of teleocoons and rendering problematic their offensive variants would make palpable and raise questions about the colonization of urban space by domesticating and customizing desires.<sup>8</sup> This, again, would open up opportunities for countering the forces that work to deprive urban public space of its

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and enables, how it formulates hierarchies, shapes the things people encounter, and so on". See also Ratto (2007, 24–25).

6 The vulnerability of the technosystem, along with the huge economic interests that drive its development and maintenance, is, of course, one of the main reasons for keeping it hidden from the majority of people.

7 See <http://www.spychips.com/>

8 It should be remembered here, as emphasized by Lyn H. Lofland (1989, 462) that courteously acknowledging other people's presence but simultaneously declining interaction with them – civil inattention in Erving Goffman's (1963) sense – is, in fact, "the absolute sine qua non of city life". Otherwise we could not sensibly manage the constant flow of fleeting encounters with large numbers of unknown persons and groups.

collective significance. What actual forms such interventions – and their research – might take remains an urgent topic for further ethically and politically informed discussion.

To close my ponderings on a more theoretical note, a crucial question to be posed is whether it would make any difference regarding digitally reconfigured posthuman subjectivity if people were more aware of the ubiquitous "cognisphere" that invisibly surrounds them in the contemporary urban environment and, furthermore, if they realized how they themselves contribute to it through their ICT-related activities (cf. Ratto 2007; Gane, Couze & Hand 2007; Hayles 2006). As, for example, RFID activist Katherine Albrecht emphasizes, in order for people to agree to bear RFID-tagged clothes and actively submit to being tracked, they must first be aware that these tags exist (Albrecht 2005; see also Albrecht & McIntyre 2005). Subsequently, if people have no idea, for example, that their everyday objects and devices contain an RFID chip and especially what this implies, how can they think – and even less do – something about the ways these tags are connected to databases and other 'sorting software'?

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Torin Monahan, Jennifer T. Mokos:

## Sensing Environmental Danger in the City

### Abstract:

In this paper, we identify and discuss some of the ethical problems associated with digital sensors used to detect water contamination and air pollution in the United States. Such safety devices are often deployed unsystematically and with questionable efficacy, thereby structuring the life chances of people in unequal ways. Whereas most technological infrastructures are hidden from view – or at least from active awareness – until they cease to function, those infrastructures meant to monitor and/or regulate largely “invisible” public health dangers resist public awareness even when they fail. Because such detection systems tend to individualize responsibility for reducing risk, the systems may normalize and perhaps exacerbate root problems of contamination and unequal exposure. One ethical challenge is to render such systems and their failures legible.

### Agenda:

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The health and wellbeing of urban denizens, as well as those residing in other areas, depend upon sophisticated technological infrastructures to monitor the environment for hazards and ensure the safety of basic utilities, such as water, gas, and electricity. While the management of such services is increasingly automated and informatized, judgments made about what the public's needs are and how they should met are often hidden in technical protocols that resist public awareness or scrutiny. Nonetheless, these vital systems, which include both public and private utilities, are political in that they differentially protect and endanger populations, often along lines of race and class. The deployment of information and communication technologies to manage public health infrastructures or basic utilities therefore invites critical inquiry into potential ethical problems being introduced and codified by digital systems for the provision of the public good.

In this paper, we analyze the use of electronic sensors to detect and mitigate the public's exposure to environmental toxins, with a specific focus on water contamination and air pollution in the United States. While U.S. law requires the collection and dissemination of water quality reports, and most cities actively monitor air quality and issue health warnings, the valence of such communications is toward risk management – rather than mitigation – and individual responsibility for protection. Additionally, municipalities are more prone to use sensors to monitor water contaminants in largely populated urban regions that use reclaimed water that is “cleaned” at water treatment facilities. Less populated towns and rural areas that depend on well-water systems do not benefit from the same level of routine water monitoring and treatment and are subsequently exposed to harmful toxins at a much higher rate than their urban counterparts. With water and air quality alerts, people must be in a position to receive and process the warnings in a meaningful way. If one must work outdoors or utilize public transportation, for instance, he or she is more likely to be exposed to polluted air for longer periods of time and suffer associated health risks, such as asthma. Whether looking at systems to detect water contamination or air pollution, though, both appear to lead to unequal exposure for the most marginalized members of society: the urban and rural poor. The relatively affluent, on the other hand, can “choose” to install sophisticated water and air purifiers, have bottled drinking water delivered, or keep their families indoors on days with air quality alerts.

In the sections that follow, we identify and discuss some of the ethical problems associated with digital sensors used to detect water contamination and air pollution. Safe living environments are necessary for maintaining public health, and the introduction of such detector systems has the potential to minimize environmental dangers to which people are exposed. Nonetheless, safety devices are often deployed haphazardly and with questionable efficacy, effectively structuring the life chances of people in unequal ways. Whereas most technological infrastructures are hidden from view – or at least from active awareness – until they cease to function,<sup>1</sup> those infrastructures meant to monitor and/or regulate largely “invisible” public health dangers resist public awareness even when they fail. One ethical challenge is to render such systems and their failures legible.

## Water-Contamination Detection Systems

In the aftermath of 9/11, concerns about potential terrorist threats to critical public infrastructures galvanized interest in a host of security systems and measures. Because public water supplies were seen as a likely target for future attacks, various industry and government reports called for better security of water facilities and reservoirs and automated systems to monitor water supplies in real time and trigger alerts should dangerous conditions be detected.<sup>2</sup> The implementation of automated, real-time water-testing systems has been unsystematic though, mainly because of limited financial support from federal, state, and local governments and a reluctance on the part of policymakers to issue rules that would require utilities, many of which are private companies, to expend their own resources on such systems.<sup>3</sup> One result of this is a situation where people continue to have different levels of protection based upon where they live, which companies serve them, and what protective measures they take on their own. While unequal exposure to risk is the key ethical issue about which we are concerned, the dangers of unsafe water in the U.S. were recognized long before the current wave of anxiety, and dangers are ever present even without terrorist attacks.

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1 Bowker and Star 1999; Graham 2009

2 Tiemann 2004; American Water Works Association 2003; Campbell and Love 2008

3 Public Citizen 2004

In the United States, a "Safe Drinking Water Act" was passed in 1974, and the Environmental Protection Agency (EPA) currently regulates the presence of 87 primary biological, chemical, and radiological contaminants in public water systems.<sup>4</sup> Private water systems, including individual household wells are not regulated by EPA standards.<sup>5</sup> Pollutants enter water sources through the natural weathering and erosion of harmful compounds from surrounding mineral deposits and geologic formations; however, most contaminants enter drinking water through anthropogenic means: discharge from petroleum refineries, metal refineries, chemical factories, and coal-burning factories; runoff from agricultural fertilizers, herbicides, and insecticides; leaching of septic tanks, gas storage tanks, and landfills.<sup>6</sup> Seven EPA regulated contaminants are products of disinfectants employed for the treatment of drinking water in order to control the presence of harmful microorganisms.<sup>7</sup> Microorganisms typically enter drinking water through contact with human or animal waste. Minute viruses and *Cryptosporidium* bacteria evade detection and pass through filters causing serious health implications, particularly for immunocompromised individuals.<sup>8</sup> According to recent data, "as many as 19 million Americans may become ill each year due to just the parasites, viruses, and bacteria in drinking water. Certain types of cancer – such as breast and prostate cancer – have risen over the past 30 years, and research indicates they are likely tied to pollutants like those found in drinking water."<sup>9</sup> In spite of having federal legislation intended to ensure safe drinking water, since 2004 an estimated 20 percent of water utilities have violated the safety benchmarks established in this legislation.<sup>10</sup>

Chemical and radiological pollutants also have the potential to seriously impact upon public health. All radiological contaminants and many chemical contaminants regulated by the EPA are associated with an increased risk of cancer. Chemical contaminants are additionally associated with liver, kidney, and stomach problems, reproductive difficulties, nervous

system damage, and circulatory system problems.<sup>11</sup> Infants and children are particularly sensitive to lead and nitrate contamination. Lead enters drinking water through the corrosion of older, poorly maintained household pipes, thereby hindering children's physical and mental development, attention span, and learning abilities.<sup>12</sup> Nitrates, typically found in fertilizer runoff, impede oxygen transport by hemoglobin in infants less than six months of age, causing serious illness ("blue baby syndrome") and potentially death.<sup>13</sup> Rapid detection and notification is of vital importance to the prevention and mitigation of these serious health risks associated with acute and long-term exposure to biological, chemical, and radiological contaminants in drinking water.

During "contamination events," alerting systems communicate vital time-sensitive information but typically not very rapidly or effectively. Public notification of violations is often significantly delayed. Contamination events deemed to have the most serious health effects due to acute exposure must be reported within 24 hours, while all other violations must be reported within one year of the violation.<sup>14</sup> Passive distribution of alerts places the responsibility for receiving information upon individuals and families, while national monitoring protocols are often not sufficient to identify critical instances of contamination.

Sensors that electronically detect environmental pollutants in drinking water provide water utilities with more frequent monitoring capabilities, increasing the potential for mitigation in response to contamination events. Biological sensors, used for rapid first-order detection of contamination, detect changes in abundance of bioluminescent bacteria within the sensor in response to water toxicity levels, while chemical sensors can ascertain levels of pollutants like arsenic and chlorine directly from the water column.<sup>15</sup> When deployed at key locations, these online sensors have the advantage of continually sampling water for potential dangers.<sup>16</sup> Monitoring data are sent to computer systems through radio or telephone lines at pre-determined intervals. Criteria levels programmed into monitoring software

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4 U.S. Environmental Protection Agency 2009

5 U.S. Environmental Protection Agency 2003

6 Ritter et al. 2002

7 U.S. Environmental Protection Agency 2009

8 Robertson and Gjerde 2007

9 Duhigg 2009

10 Duhigg 2009

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11 Ritter et al. 2002

12 Miranda et al. 2009

13 Knobeloch 2000

14 U.S. Environmental Protection Agency 2003

15 Rodriguez-Mozaz, Lopez de Alda, and Barcelo 2006

16 Rodriguez-Mozaz, Lopez de Alda, and Barcelo 2006

automate alerts to system operators. Real-time monitoring and automated alarms notify operators almost immediately when violations in water security occur, mitigating reliance on infrequent sampling protocols, which have the potential to miss short-term time-sensitive breaches in water quality. Creation of a longitudinal database of water quality information allows for analysis of historical trends that is not typically possible due to the human investment required with more traditional sampling techniques. However, utilization of electronic sensors is not standardized and monitoring of water quality beyond EPA and state regulations is not required. While the EPA sets minimum monitoring requirements for each of the primary contaminants, and states can set more stringent requirements for testing frequencies,<sup>17</sup> implementation of monitoring protocols and technologies for EPA-regulated pollutants in drinking water is mostly the responsibility of individual water utilities.

Although automated systems have the potential to detect water pollutants rapidly and alert people to their presence, the systems are not deployed systematically, public alerts are delayed and infrequent even when events do occur, and unequal exposure to toxins continues, thereby extending a legacy of environmental racism in the U.S. Especially in rural areas, people often gain access to water from private household wells, which are not regulated by EPA standards<sup>18</sup> and where responsibility for monitoring is borne solely by individuals, many of whom are poor and placed at great risk when environmental accidents occur.<sup>19</sup> Smaller public water utilities, which each serve up to 20,000 residents, are also guilty of the most violations of the Safe Drinking Water Act in the U.S.<sup>20</sup> Additionally, there are currently 1,270 EPA-identified "Superfund" sites in the U.S., which are areas officially recognized as being in need of remediation because of toxins.<sup>21</sup> Such sites are scattered throughout the country, including in largely populated cities where water treatment facilities are known to fail periodically, but that information is seldom disclosed to residents. Thus, people are expected to "responsibilize" to gain awareness of existing dangers or threats and mitigate their own (potential) exposure either by moving to areas thought to be safer or by purchasing

home water-testing kits, bottled drinking water, reverse osmosis systems, shower filter systems, and so on. Automated water security systems could be thought of as possessing a valence for protecting the public good; in this neoliberal era, it is not surprising that they have not been adopted in any widespread way and have not significantly corrected environmental inequalities.

## Air-Pollution Detection Systems

Individual exposures to airborne contaminants operate over multiple spatial and temporal scales.

Releases of chemicals and particulates from sources such as engine exhaust, power plant emissions, smokestack releases, and debris from construction sites and unpaved roads directly diminish local ambient air quality. Inhalation of these toxic materials exposes people to multiple respiratory and cardiovascular diseases, including chronic bronchitis, emphysema, asthma, lung cancer, heart attack, and stroke.<sup>22</sup> Children, people with already existing lung disease, and older adults are particularly sensitive to high levels of air pollution.

The risk of exposure to high amounts of certain air pollutants varies with daily and seasonal variations in temperature and sunlight. Ground-level ozone concentrations are highest in the summer and in warmer climates, when sunlight is most intense. Ozone is created when nitrogen oxides and volatile organic compounds interact with sunlight.<sup>23</sup> Urban heat islands created by intense warming of the ubiquitous impervious surfaces found in densely populated cities further increase ozone levels.

Protecting indoor air quality is just as vital to health as community air quality, although less is generally understood regarding the health impacts of indoor toxins, like volatile organic compounds, formaldehyde, and nitrogen dioxide.<sup>24</sup> Gas stoves, space heaters, carpeting, paint, particleboard, and other indoor products release toxins that accumulate inside when ventilation is poor. Toxins can also enter buildings from the outside environment and are responsible for serious health effects. Radon, a radioactive gas found in geologic deposits that seeps into buildings through cracks and holes in base-

17 U.S. Environmental Protection Agency 2003

18 U.S. Environmental Protection Agency 2003

19 Guarino 2008

20 Duhigg 2009

21 <http://www.epa.gov/superfund/sites/npl/index.htm>

22 Brunekreef and Holgate 2002

23 Brunekreef and Holgate 2002

24 Jones 1999



ments and foundations, is the second highest cause of lung cancer after smoking and the primary cause of lung cancer in non-smokers.<sup>25</sup> Colorless, odorless, and tasteless, radon can easily evade detection. As indoor radon levels fluctuate daily and seasonally, continual *in situ* monitoring and mitigation are of primary importance to identifying and preventing individual exposure.

Nationally deployed air pollution detection systems focus monitoring on the six criteria air pollutants specified by the U.S. Clean Air Act of 1970. Monitoring stations report levels of criteria pollutants – carbon monoxide, nitrogen dioxide, ground-level ozone, sulfur dioxide, particulate matter, and lead – primarily through the 4,000 stations in the State and Local Monitoring (SLAMS) network and 1,080 stations in the National Air Monitoring (NAMS) network.<sup>26</sup> Individual states determine locations of stations in the SLAMS network and report monitoring data to the EPA annually. National Air Monitoring Stations (NAMS) are specialized SLAMS located predominantly in high-density urban areas to provide more frequent monitoring of ambient air quality where risk of exposure to criteria pollutants is high.

The Air Quality Index (AQI) is the main alerting system for communicating unhealthy air quality levels to the public. The AQI translates concentration levels for five of the six criteria pollutants into an overall scale of daily air quality that ranges from 0 to 500.<sup>27</sup> Lead concentrations are not utilized in the determination of the AQI. A score of 100 or above on the AQI corresponds to levels of pollution that exceed the EPA's National Ambient Air Quality Standards (NAAQS).<sup>28</sup> All metropolitan statistical areas with a population greater than 350,000 are required to report daily air quality levels to the public.<sup>29</sup> Daily AQI levels are communicated through technology and the media. Local news outlets report air quality information through newspapers, radio, and television utilizing guidelines for specific language and phrasing set forth by the EPA. The EPA's AirNow website<sup>30</sup> allows individuals with Internet access to view current air quality alerts and AQI levels from cities across the United States, as

well as maps of ground-level ozone and airborne particulate levels. Online cameras provide a visible picture of air quality from 61 sites located in 29 states and Washington, DC. The EPA's EnviroFlash system<sup>31</sup> distributes alerts through email notification, Twitter, and RSS feeds, although cities and agencies must partner with the system in order for data to be available.

Ultimately, whether the issue is hazardous air quality outdoors or indoors, individuals must bear the burden of protecting themselves. This is especially true for exposure on a day-to-day basis. Whereas one would expect that continual air-quality alerts would spark policy interventions in the long term, managing daily exposure to polluted air is a public health responsibility forced upon individuals. Because people possess varying financial resources, degrees of awareness, and abilities to act upon knowledge about air pollution, poor and racial minority populations continue to face exposure to these and other forms of pollution at much higher rates than their more affluent and white counterparts, both within the U.S. and globally.<sup>32</sup> In this case, the presence of outdoor air-quality sensor and alert systems may create a false sense of equal exposure and a false belief in the effectiveness of technological fixes, which is a situation that may in turn present symbolic barriers to a recognition of persistent environmental dangers and inequalities.

## Conclusions

Electronic systems for sensing and communicating environmental danger could be construed as surveillance systems intended to protect public health. They can collect samples, test those samples for pollutants, translate the presence of pollutants into electronic data, analyze those data against indexes that define what is considered hazardous, and send out alerts that can be acted upon to minimize harmful levels of pollutants or a community's exposure to them. Where ethical problems emerge, however, are in the largely hidden processes of the social construction of risk, responsibility, and the public good. In their current manifestations, these systems probably do allow for an increase in public health over time because they amass data that can be analyzed and acted upon at a later date. In the present, however, the systems are predicated upon

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25 World Health Organization 2009

26 Demerjian 2000

27 Franceschini, Galetto, and Maisano 2005

28 Franceschini, Galetto, and Maisano 2005

29 U.S. Environmental Protection Agency 2006

30 <http://www.airnow.gov>

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31 <http://www.enviroflash.info>

32 Bullard 1994, 2005



a rationality of containment of environmental problems, rather than remediation or prevention of them, and responsabilization of the public for minimizing its exposure to toxins. As with mainstream discussions of other environmental problems, this rationality calls for both individual responsibility and collective blame,<sup>33</sup> but risk is not shared equally. People who can purchase a variety of products and services to minimize their exposure fare better than those who cannot. People who can regulate their behavior to ensure that they do not go outdoors on days with air-quality alerts or that their children's schools are not in congested urban areas can experience less exposure to pollution than those who cannot. People who happen to live in regions that actively collect, communicate, and act on data about water or air quality may live in safer environments than those who do not.

In the bioethics community, ethical issues are often framed in terms of autonomy instead of trust, and this may have the effect of focusing attention on individual agency to the neglect of social relations.<sup>34</sup> In the context of the cases discussed here, though, there seems to be an unwarranted trust in technological systems to keep people safe, and an overemphasis on autonomy, in the guise of "choice," to protect oneself through consumption. This orientation obscures power relations and inequalities such that societal ideals of fairness and social justice are further removed from the realm of possibility. In more direct terms, when technical systems for sensing environmental danger are deployed without simultaneous attention to correcting underlying conditions of environmental pollution or social inequality, the systems may do more harm than good; the systems may normalize, and perhaps exacerbate, root problems of contamination and unequal exposure.

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33 Monahan 2001

34 O'Neill 2002

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## Manifestations and implications of an augmented urban life

### Abstract:

In this paper we investigate how the shift to a completely urban global world intertwined by ubiquitous and mobile ICTs changes the ontological meaning of space, and how the use of these technologies challenges the social and political construction of territories and the cultural appropriation of places. Our approach to this conceptual debate will focus on what we consider to be more direct and tangible implications of this augmentation of urban life. Three types of manifestations will represent the core of the discussions presented here, both through theoretical approaches and analytical descriptions of some examples: surveillance artefacts which permeate our daily life and allow a hypothetical total control of space; locative media that gives us the freedom of spatial mobility and the possibility of creating and recreating places; and the global networks of signs, values and ideologies, which break down the social and political boundaries of territories.

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## Introduction

The idea that ICTs have been dramatically changing many aspects of contemporary society is no longer new. The influence of such technologies on our daily activities, and on the ways we perceive and use space, has attracted the interest of a wide variety of researchers from different backgrounds, and this has also in turn increased the inter- and multi-disciplinarity of studies about space. Recent references to the city predominantly relate the constant and rapid development of ICTs to the re-definition of notions of space, territory, place, time, mediation, presence, and immersion – virtual, physical and real. According to Moss and Townsend (2000: 31), 'information systems are permitting new combinations of people, equipment, and places; as a result, there is a dramatic change in the spatial organization of activities within cities and large metropolitan regions'.

It seems to be common sense, after two or three decades of speculation and studies about the intensification of communication through the use of increasingly sophisticated ICTs, that we have exponentially increased our ability to interact and expand our personal and collective boundaries to a global scale. And so has urban space. The intangible relations between physical space and what Manovich (2002) calls dataspace are contributing to the existence of what can be called augmented reality, and analogously, augmented city. Or, in other words,

*'Contemporary augmentation of our immediate reality, differing from such experiences in the past (based on the fact that religion, magic, metaphysics and art have always provided means for augmenting the immediate material worlds of our existence), does not depend on specific and deliberate individual or collective beliefs. Augmentation takes place everywhere and anytime, regardless of our knowledge of what is indeed happening'. (Duarte and Firmino, 2009: 545-6)*

This expansion of our ability to communicate has been compared to unlimited extensions of our own bodies and boundaries. It brings new perspectives to the perception and conceptual definition of space, to what are the boundaries that define a territory – or what are the strategies to break down these boundaries – and, to the subjective appropriation of portions of the space, called places. This shift in the perceptions of space deals, at the same time, with an urban world existing in a global scale and a

fragmented world of mobile and mutant places and territories with no permanent relation with their position.

## The idea of an urban world

The world is completely urban. The idea of an urban world could be tracked back to Henri Lefebvre (1991), when he thought about the notion of urban as a manifestation of a way of life different from anything that had happened up until the 19<sup>th</sup> Century, before the Industrial Revolution. For Lefebvre, urban and city become two different and yet inter-dependent concepts. In this sense, the *city* is an object, while *urban* is a phenomenon – therefore, it could be understood as a culture, a way of economic and social life. So, urban is independent of the presence of "urban" objects, or the existence of a city, of bundle of buildings and people and infrastructure put together. While thinking about the concept of city, Patsy Healey (Healey, 2002) takes into consideration the diverse interpretations made by different agents who live, build and use cities. She also considers the "imaginative", socially constructed concepts of city, those that are "locked into cultural inheritances and institutional practices" (Healey, 2002: 1777).

Among many differences between the concepts of city and urban, we can simplistically say that the former can be defined in terms of a territory, defined by the land it occupies – although we know that contiguity and territoriality can be questioned as determinants to place-bound in these days of information and communication technologies. Meanwhile, territorial boundaries do not help to understand the latter, which is to say that it is impossible to physically define or delimit what an urban territory truly is. This reinforces the idea that the world is indeed an urban world, despite the fact that many people live far from cities, or try to escape from the life style that characterize an urban life style. On the way to understand these differences, it helps also highlight that urban is not the same as urbanization, which in turn, is a concept closer to the idea of cities, as in urbanized areas.

In the book *The Urban Revolution*, and aware of a worldwide broad urbanization process since the 19th century, Lefebvre (2003) returns to the idea that urban and city do not serve to conceptualize the same thing. He starts the chapter called *From the City to Urban Society*, stating: "I'll begin with the following hypothesis: Society has been completely urbanized" (Lefebvre, 2003: 2). As we mentioned

before, to the author, urban is a set of transformations that characterizes contemporary society mostly due to demographic growth, concentration and industrialization, a way of life of modern societies. It is, thus, something intangible and subject to different scales, with much room for personal, historical, ideological, comprehension, but at the same time generally observed, consistent and contemporary. On the other hand, city is a well defined object, territorially delimited, the one that can be seen through the concentration of buildings, roads, public and private spaces, people, conflicts, and common efforts, altogether in the minimum possible concentrated area. In an attempt to update Lefebvre's definition, it is important to stress, though, that the differences between urban and city do not rely exclusively on the limits defined by territorial boundaries.

City itself is becoming something different to what we classically came to know as urban agglomeration. In this respect, one can, figuratively, say that city, as a concept, is always pursuing urban, and always trying to equal the idea of urban. Even though it is quite possible they will never be the same.

As far as ICTs are concerned, they have been connecting more and more places to the spatial idea of an urban world as they turn the physical differences and boundaries of concrete places into immaterial bumps of an interconnected world where every place is linked to the principal logics that moves the world. It is not to say that everything becomes part of a homogeneous singularity, but rather that everything becomes increasingly interconnected and interdependent, without losses in the particularities and idiosyncrasies of each part of this whole. Again, this interconnection of all parts around the world constitutes a complex network of relations in different scales forming the political economy and social realities related to the historical and social construction of ICT and cities. In this sense, it has already been argued by many scholars that even the so-called digital divide is an inherent part of this interconnected urban world, and not its antithesis or abnegation (see for instance Thrift, 1995; Graham and Aurigi, 1997; Firmino, 2003).

This idea of an interconnected urban planet announces a first ethic issue: since any single part of the space is considered vital to the constitution of an urban society, this society assumes rights and responsibilities over the whole space – sometimes despite the values of people who live in particular

places also directly or indirectly affected by a general way of life.

Even though the idea of a world completely urban relies in a fair share of immaterial perceptions and flows, as put by Lefebvre in the 1960s, this phenomenon has only become possible once the space is intertwined by ICTs in a global scale. These increasingly infiltrated technologies challenge the scales of space, the boundaries of political and economic territories, and how social groups appropriate parts of the world to turn them into their places (Duarte and Firmino, 2009).

We are arguing that the basic conceptual trilogy of any spatial study – space, territory and place –, are being challenged by ICTs. Even if the way we are using and developing these technologies are not influencing these three concepts individually, we believe that the way they relate to each other are fundamentally being questioned or at the very least being brought to the core of the perceptions of what we call space and urban space.

## Space, territory, place

In *A Natureza do Espaço* (The Nature of Space), Milton Santos defines space as a combination of "systems of objects" and "systems of actions." Objects and actions make space a multiple and heterogeneous entity, which primarily means that space is not defined only by the physical and topological aspects of geographic manifestations of humans and objects, denying the geometrical and Cartesian notion of space that sees it as a singular unit, an aseptic physical container for social interactions.

*'Systems of objects and systems of actions maintain a perpetual interaction. On one side, systems of objects drive the way in which actions are done and, on the other side, the systems of actions lead to the creation of new objects or affect already-existing objects. That is the way space finds its dynamism and changes itself'. (Santos, 1997: 52)*

When space is seen together with technological aspects, for example, the false understanding of space as mere container of actions exacerbates. Cuff (2003: 44) proposes the term cyburg as a "spatially embodied computing" to oppose the dread notion of the cyberspace as a "dematerialized space"; and Whittaker (2002: 136-7) points to the fact that many cyberspace theorists, for instance,



increasingly “remove space from being simply the geometrization of symbolic mathematics and re-situate it within structures or webs of political and economic power”.

The other two basic concepts of any spatial logic – or of what Duarte (2002) calls the spatial matrix – are territory and place. Territory is a portion of space embedded with organizational and mainly hierarchical rules to which any entity, person, institution and even artefacts, are forced to obey (Duarte, 2002). As Kärholm (2007: 441) puts it, “these areas do not necessarily have to be considered by any person or group as ‘their own’, but are nevertheless associated to by others as pertaining to a certain function or category of users”. Therefore we could argue that rules and a certain logic of exclusion characterize the territory – nobody needs to submit himself/herself to the rules of a territory, unless there is a need or desire (or obligation) to become part of it.

Place is a portion of space appropriated by any person or group as “their own”, but this appropriation does not involve rules or submissions (at least not written or imposed ones). It is defined by an affective appropriation or a projection of cultural values onto a certain portion of the space. A place is the kingdom of commonness, where some people or groups feel culturally attached to a geographical part of the space. If territory is characterized by rules and submission, place is characterized by affection and election.

As cultural values of individuals and groups are intrinsic to the way they perceive and conceive space, territory and place, these concepts are completely interdependent and complementary. As Doreen Massey (2005: 12) puts it, “it is simply the principle of coexisting heterogeneity. It is not the particular nature of heterogeneities but the fact of them that is intrinsic to space”. However, for the purpose of this essay, in the following sections we will separate them and link them to specific manifestations of ICTs.

## ICTs and the connections between space, territory and place

### Mobile and locative media: the sense of place

Contemporary urban spaces are permeated by a multitude of electronic images and cultural and social signs embedded in the built environment and

social context in many forms. In terms of technological infrastructure, on the one hand there is a space of ubiquitous computing, consisting of “interlinked capacities for memory and data storage, for perception and environmental sensing, and for the interpretation of contexts and situations” (Phillips and Wiegerling, 2007: 05). But on the other hand there is an explosion of mobile and locative media which are now part of a technological network of signs produced and accessed globally that, at the same time, allow a precise and instant positioning within geographical places and territories which, in turn, could lead to a meaningful link with specific locations.

The main differences from current mobile and locative media to former interfaces of instant connections within global networks are mobility and the relative unimportance of specific places for connection – despite an apparent incongruence with the very idea of locative media.

Some authors call ‘hybrid spaces’ this imbrication of infiltrated technological infrastructures, invisible but accessible information clouds and concrete space. As Sousa e Silva (2006: 262) puts it, “hybrid spaces are mobile spaces, created by the constant movement of users who carry portable devices continuously connected to the Internet and to other users”.

This double role is essential for the re-signification of urban places, at the same time precisely positioned, even in movement (as in GPS technologies), and part of a global network of cultural and social values.

Recently, artists have been proactively using locative media with the intention to explore this hybrid space using all the potential of the global networks of signs but at the same time, anchoring them geographically by emphasizing local values. Once place is a culturally-appropriated portion of space, it cannot be considered, hierarchically, a small or submissive part of an alleged global space. Place has no physical dimension. Thus, locative media allows us to play equitably with the strengths of both the global networks of technologies and signs, and the cultural values of specific places – which are ephemeral and mobile.

Therefore, mobile and locative media are also addressed as a major manifestation of urban life augmentation, in the way that this kind of technology gives us the freedom of spatial mobility and the possibility of creating and recreating places.

### Global networks and territories

Global networks of signs, values and ideologies, are intended to break down the social and political boundaries of territories. The flows and all kinds of relations (material and immaterial) that shape spaces and societies incessantly produce signs that intentionally promote the idea of a global interconnected society – or the dream of ‘anything, anytime, anywhere’. But as Neil Smith (2005: 894) puts it, “it would indeed be nice if the world were flat and non-hierarchical. (...) But it is precisely the self-serving trick of neo-liberalism to assume that such a flat world is already here, hierarchy is gone, equality rules”.

Indeed, the signs of an alleged global identity tend to disseminate a set of rules, beliefs, and technologies which are the support and conditions for the very existence of what can be recognized as a global world. Those global flows of signs are dependent, though, of a set of dense and interconnected infrastructures which work globally, from the telegraph to the internet. The illusion of a purposeless set of signs and values disseminated by the globalization finds a counterpart in a mostly necessary global infrastructure, named by Matt Ratto (2007: 21) as a ‘seamless’ infrastructure, which “emphasizes the erasure of the marks and boundaries between separate systems thereby creating an infrastructure whose individual parts blend transparently – without seams”. The author makes clear that the seamless infrastructure can be positive when opening up access to technologies to non-experts; but he also argue that the abolition of seams is intended to avoid points of criticism or conflict.

Therefore, the challenge is to discuss both the roles of the global flows of information, social and cultural values, and the infrastructures which have been built as a global technological network to sustain such flows. The challenge is also in the unveiling – not necessarily to condemning beforehand – the seamless infrastructures that make this global network of material and immaterial facts and artifacts.

The studies produced by the Globalization and World Cities Research Network (GaWC) are, in this sense, seam-trackers and map-makers of the global systems and technological infrastructures that connects distant and close territories through the logics of a global interconnected economic networks. Putting in evidence the flights and airports hierarchies, the routes and hubs information dynamics, this research group claims its studies can help

measuring global networks. This was already a concern to Peter Taylor (1997) in the first GaWC bulletin, when he argued that “world cities are the geographical entity that appear as the organizing nodes of world wide networks” and tried to collect data and design an empirical map for this organized world cities network. Yet, more recently, Devriendt, Boulton, Brunn, Derudder and Witlox (2009) have pointed out that “in a knowledge economy, there exists a need to apprehend the informational inter-connections between cities of the world in ways that take into account the real-time and continuous production of urban places”, and, with it, have tried to map the flows of information, based on the Google search engine, to show that information both reinforce some world cities hierarchies and overlap political and administrative territorial boundaries.

### Surveillance: hidden dimensions of space

According to Murakami Wood and Graham (2006), surveillance studies are part of a multidisciplinary field of Social Sciences which considerably neglects spatial issues in general. These studies have grown stronger with notorious works by Foucault, in *Discipline and Punish* (1977), which concentrates a great number of works that supports his theories about the panopticon. Although this has been derived from the spatial or architectural design of prisons by the English social theorist Jeremy Bentham in the 18<sup>th</sup> Century, Foucault and many other scholars after him were enthusiastic about the punitive and disciplinary systems involved in the idea of the panopticon rather than its spatial implications. This is not to say that Foucault's only preoccupation and major issue was the panopticon. In fact, he uses a great number of examples and issues relating architecture and city planning in order to link his evidences and to build his arguments about the inherently disciplinary characteristics of modern societies.

This vision of Foucault's works which goes beyond his ideas of the panopticon as an architectural and technological representation of power is a crucial approach to understand the notion of a surveillance society, and is well explored by Murakami Wood (2007) in *Beyond the Panopticon: Foucault and Surveillance Studies*. Unfortunately there is no space in this paper to thoroughly assess and discuss the real implications of Foucault's works to the understanding of what now has been called the surveillance society, or as Murakami Wood argues, the different nuances of surveillance societies.

In any way there is an essential difference between what has been explored by Foucault and what has

been observed in present days in terms of the very meaning of surveillance. Empowered by a very large number of technologies more and more ubiquitous, invisible and small, nowadays surveillance has a decentralized, infiltrated and wide-spread nature, instead of the panopticon's original centralized surveillance perpetrated by Orwellian totalitarian (big brother like) State.

Boosted by ICTs, surveillance technologies are increasingly invisible and melted into the built space, and the material forms that sustain our current urban way of life. Thus, we can say that surveillance has become an intrinsic part of the space, and as such, it tends to make visible the invisible and immaterial components of places and territories. In other words, to rationalize the many flows of people, places, objects and actions for the sake of surveillance, these technologies organize information, bits and bytes for specific purposes, unifying and giving visibility to what was spread and intangible.

Therefore, there are at least two important characteristics of surveillance in relation to the discussions of space, place and territory, being its simultaneous antagonistic capability of disembodiment and materialization. These characteristics can also be understood as two different moments of the relationship between surveillance and space.

The first moment concerns the machinist manner in which surveillance systems turns persons and histories in numbers and codes of databases as part of various types of identification systems, which by definition are related to social sorting schemes (Lyon, 2009), used to point out who is eligible, who has access, who may claim or who is a suspect in the disperse and ever wary 'eyes' of the city. This divorce between identity and identification promoted by surveillance technologies can be illustrated by what happens to ants when scientists sprayed them with a pheromone that makes them smell dead to other ants – even though they are alive, they cannot communicate this effectively and keep being removed from the colony<sup>50</sup>. In this case we have at once the immaterial codes that represent dead ants attached to the live bodies of real ants.

In a second moment, if some attention is paid to surveillance practices – assumed here as forms of objective and systematic attention to personal

details for the purpose of generating influence, manipulation or control, as outlined by David Lyon (2001) –, one can say that while working in the rationalization of data through the sorting of many different kinds of information and immaterial flows captured and organized by devices programmed with surveilling functions, surveillance technologies are giving visibility to many of the invisible and intangible aspects of the contemporary augmented space, and also relating these information to people, facts and artefacts in places and territories.

## Conclusion

ICTS have a quick obsolescence. Nevertheless, their social and historical construction and implications to our life style, change the concepts and experiences of urban spaces. In this sense, what we had tried here was to focus on how the influence of an emerging global urban infrastructure based on ICTs could enlighten and bring some ideas about the paradigmatic challenges upon space, the boundaries of political and economic territories, and how social groups appropriate parts of the world to turn them into their places.

The arguments that contemporary space is homogeneous because of globalization and its interdependent infrastructures, and that places are spots of cultural resistance are, at the very least, naïve. Doreen Massey (2007: 16) argues that "the idea that the local is a product of the global has become common currency (and this is indeed one aspect of what must be addressed) but it is less often recognized that the global is also, conversely, locally produced".

In this essayistic approach, we have used the examples of three kinds of technological manifestations – mobile and locative media, global networks and surveillance practices – to point out some of the ways in which ICTs are producing complex conflicts between traditional and new paradigms of space, territory and place, and creating some conceptual dilemmas for an integrative development of infrastructural technologies and cities. Therefore, what we have argued is that, although it has been around for centuries, the mechanisms for augmenting our spatial relations have been empowered by ICTs and, as such, they represent clear manifestations of the ambiguous hybrid characteristics of space and technology in the contemporary urban world. Visible and invisible technologies and actions as well as their intrinsic relations with the manifestations of space through territories and places (more evidently

<sup>50</sup> Address given by David Lyon at the Surveillance, Security and Social Control symposium, Curitiba, 4-6 March 2009.

displayed in locative media, global networks and surveillance practices), have clear implications to the way we experience or think through the construction/production of space in the contemporary augmented urban world.

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Charles Ess:

## Brave New Worlds? The Once and Future Information Ethics

### Abstract:

I highlight several aspects of current and future developments of the internet, in order to draw from these in turn specific consequences of particular significance for the ongoing development and expansion of information ethics. These consequences include changing conceptions of self and privacy in both Western and Eastern countries, and correlative shifts from the communication technologies of literacy and print to a "secondary orality." These consequences in turn imply that current and future information ethics should focus on developing a global but pluralistic virtue ethics - one that may offset the anti-democratic dangers of such secondary orality.

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## Introduction

As noted in the description of our panel, what we mean by "the internet" has changed dramatically in the decade that has passed since the founding of the International Center for Information Ethics. In addition to the characteristics listed there, I begin by highlighting several features and shifts - especially as affiliated with the so-called "Web 2.0" - that seem to me to be especially pertinent for considering the current and future agendas of information ethics. These features and shifts include: (a) the increased interactivity of contemporary applications and uses of the internet as manifest, for example, in social networking sites, content increasingly generated by amateurs (so-called "pro/sumers," i.e. producers who are simultaneously consumers) on sites such as YouTube, etc. In addition, I point out that (b) the internet, as it is increasingly diffused and accessed via mobile devices (e.g., "smart phones" and inexpensive netbooks), thereby (i) becomes increasingly interwoven within the lives of those in developed countries, such that earlier distinctions between "virtual" and "real", online and offline, are ever less meaningful, and (ii) the internet continues a dramatic expansion throughout developing countries, linking an ever larger proportion of the world's population from an ever more diverse range of cultures and traditions.

These developments then immediately lead to a series of shifts and changes in (a) our most fundamental assumptions regarding the nature of the self in both Western and Eastern societies. Here I will highlight especially how in the developed West, (i) the modern "atomic" conception of the autonomous individual shifts increasingly towards a self-understanding as a "networked individual" (Wellman and Haythornthwaite, 2002) - and, in my terms, the "smeared-out self," i.e., a sense of ourselves as distributed across the various communication possibilities enabled by the internet. Such a self likewise is increasingly characterized as a *relational* self - i.e., a self defined precisely by its multiple relationships with Others and others (terms whose meaning I will define more carefully), where these relationships are increasingly mediated by the network of networks constituting the internet. As well, (ii) the cross-cultural communication facilitated by an ever more global internet appears to foster an increasing *hybridization* of our sense of self - a hybridization apparent particularly in the contrasts and convergences between modern Western conceptions and Eastern conceptions. Finally, (iii) as in developed countries, as especially younger people favor more and more the audio-visual modes of communication

made possible by increasing bandwidth, and as in developing countries, as interfaces for internet access are designed for non-literate peoples - we may be witnessing a major shift from the skills and abilities affiliated with literacy and print to what has been characterized as the secondary orality of cyberspace.

I conclude by drawing from these developments their consequences for the current and future agendas of Information Ethics. Briefly, these developments (a) bring to the foreground for us the increasing importance of *virtue ethics* - first of all, as the shift from a modern self to a relational self restores the importance of virtue ethics from the Western ancients, now as reinforced by contemporary feminist and environmental ethics: at the same time, the hybridizing selves that appear to be emerging between Western and Eastern cultures bring in their train from the East the virtue ethics traditions of Buddhist, Confucian, and indigenous traditions. Such a virtue ethics thus stands as (b) a strong candidate for a central component of any emerging *global, cross-cultural* information ethics - which such a global, cross-cultural information ethics is increasingly required by the ever-expanding internet. As I have argued previously, such an information ethics must be *pluralistic* - i.e., conjoining shared norms with multiple interpretations and applications of those norms in diverse cultures and traditions, where such applications and interpretations both reflect and thereby preserve the irreducible differences essential to individual and cultural identities. While these developments may encourage a certain optimism about our global futures, (c) if basic theories that connect the modern self and democracy with the technologies of literacy and print are correct, the shifts from literacy and print to the secondary orality of cyberspace threaten to thereby undermine the sense of self requisite to modern liberal democracies. I urge us, then, to include on our agenda increasing attention to the broader social and political dimensions of internet use - especially as these run the risk of increasingly serving as technologies that largely serve to undo our capacity to think, and thereby eliminating the sorts of selves required for modern liberal democracies.

## Internets Current and Future

There are any number of analyses of "the internet" these days, each with its particular perspective, strengths and limits - including the ubiquitous term "Web 2.0." While the distinctions and emphases

underlying this taxonomy are contested among scholars and researchers, it seems reasonably clear that *interactivity* across network connections is a common feature emphasized in and exploited by a range of increasingly popular applications. These include social networking sites such as *Facebook*, *MySpace*, *LinkedIn*, and many others, as well as sites such as YouTube that feature content such as videos produced largely by amateurs for the enjoyment (and consumption) of friends, cohorts and potential fans - the so-called *prosumers* that some argue represent the dissolution of more traditional boundaries between professional producers and a largely passive audience of consumers (Burnett, Consalvo, & Ess 2009).

In addition, the internet connects an increasingly significant proportion of the world's population - currently ca. 24% (Internet World Stats, 2009) - a percentage that promises to increase especially with the advent and diffusion of mobile devices, i.e., "smart phones" and netbooks. As comparatively inexpensive alternatives to "traditional" networked laptops and desktops, such devices promise to dramatically increase internet access, especially in developing countries. This diffusion is significant in especially two ways. One, in the developed world, the internet thereby becomes increasingly interwoven within the larger fabric of everyday life - so much so that the 1990s' distinction between "real" and "virtual" is no longer seen to be meaningful (Burnett et al 2009). Two, as mobile devices foster the diffusion of internet connectivity especially in developing countries, they will thereby constitute a "second wave" of internet diffusion, one that promises to dramatically increase not only the absolute numbers of persons who interact with one another online, but also the diversity of cultures and traditions those persons reflect and represent.

## Consequences of internet diffusion

### Self, privacy, and community: from atomic to relational / hybridizing selves

A first consequence of such diffusion is the emergence of what Barry Wellman and Caroline Haythornthwaite identify as "the networked individual" (2002). In the developed world, at least, prevailing patterns of internet use point towards an increasingly seamless interweaving between offline and online lives - and with it, our increasing sense of ourselves as interconnected with hundreds, perhaps thou-

sands of others via various internet technologies. By and large, Wellman and others can document the benefits of such networking - for example, as internet-enabled communications help us maintain strong-tie relationships (i.e., with family and close friends) and establish and foster weak-tie relationships (e.g., our several hundred Facebook "friends," colleagues known to us only through listservs, etc.).

Moreover, I have come to describe this networked individual as the "smeared-out" self. This expression invokes what is intended as a weak analogy between contemporary senses of self and quantum mechanical descriptions of sub-atomic particles. That is, somewhat like a quantum particle that is conceived of as a set of potential locations "smeared out" in space, prior to its realization in one specific configuration upon observation or measurement - so we are increasingly aware of ourselves as distributed across CMC networks via social networking applications such as Facebook and Twitter that thereby represent hundreds, if not thousands, of simultaneous relationships/engagements, which we then realize one at time, even when multi-tasking or "switch-tasking" (Rubinstein, Meyer and Evans 2001). At the same time, this understanding of the self is fostered by shifts from cognitivist to enactivist models of the self as an *embodied* self (Stuart 2008). It is consistent, finally, with larger turns in recent decades in the West towards *relational* models of the self, beginning with environmental and feminist ethics (e.g., Warren 1990).

This relational sense of self starkly contrasts with the modern (Western) sense of the self as an "atomic" individual - e.g., a Cartesian rationality radically separate from its own body, much less from any other entities in its environment. As we will see more fully below, this atomic sense of self, especially as it becomes defined in terms of its essential freedom - in Kantian terms, its *autonomy* as its ability to give itself its own law - thereby becomes foundational for the modern liberal and democratic state. In addition, it is this atomic self that is thought to require a distinctive kind of individual *privacy* - one that in the U.S. context, has only been legally recognized and protected for a little over a century (Meeler 2008). By contrast, relational selves focus more on communication and other practices intended to foster a sense of community. They thereby de-emphasize the self (and thereby individual privacy) as an atomic isolate, in favor of greater interaction and interconnectivity

with both Others and others<sup>51</sup> - what Anders Albrechtslund has helpfully identified as "lateral surveillance" (2008).

This shift explains, among other things, why younger people *qua* relational selves seem far less worried about losing their privacy by way of online self-revelation of even the most intimate sort, as compared with their elders whose sense of *individual* privacy presumes an atomic conception of the self. At the same time, these turns towards a more relational sense of self and a correlative reduction in the demand for individual privacy, as I have argued elsewhere, points us in the direction of both pre-modern Western conceptions of the self vis-à-vis the larger community (perhaps most famously, Aristotle's dictum that human beings are naturally social - *Politics*, I.2, 1253a2) - as well as towards Eastern conceptions of the self as a relational self, beginning with Confucian thought (Ess 2005, 2006, 2007).

And while contemporary Western conceptions thereby seem to be pointing eastward, in such Eastern societies as Japan, China, and Thailand, conceptions of the self and affiliated notions of privacy are dramatically changing. To begin with, young people in these societies - in part, under the influence of Western cultural models - are increasingly demanding for themselves an *individual* privacy that confounds their elders who are wedded to more traditional understandings of the relational self, such that individual privacy is inevitably looked upon with suspicion and as working against the harmony and well-being of the community (Ess 2005). Moreover, Soraj Hongladarom has articulated a Buddhist conception of the 'empirical self' - in contrast with the absolute or enlightened self that understands that 'self' is a pernicious illusion to be overcome. His *positive* conception of the empirical self - in the context of Thailand's predominantly Theravadan Buddhism and hierarchical political traditions - is designed precisely to justify the sorts of individual privacies and other basic rights foundational for citizens in a democratic society (2007). In these two ways, then, we see what were once Eastern conceptions (i.e., conceptions clearly distinct

from Western conceptions) mirroring changes in the West - i.e., as they point westward in adopting and adapting what were once exclusively Western conceptions of the self and privacy.

### From literacy and print to secondary orality?

Finally, as dramatically exemplified by the development of interfaces for such devices for use among non-literate populations (Dyson, Hendrick & Grants 2007), the ongoing expansion and diffusion of the internet appears to bring in its wake a correlative turn from the technologies of literacy and print to "the secondary orality of cyberspace" (Ong 1988). While Ong himself presumed that this transformation would occur in a "sedimentary" fashion (my term), i.e., that we would add the communicative and technological skills of internet connectivity to earlier skills affiliated with literacy and print - it may rather be the case that for the so-called "digital natives," i.e., those younger generations who literally grew up with the internet, their immersion into the orality of cyberspace results in a displacement and loss of earlier skills.

More carefully, the major schema developed by Harold Innis, Elizabeth Eisenstein, Marshall McLuhan, and then Walter Ong show strong correlations between the skills and communication technologies affiliated with literacy (in contrast with the earlier stage of orality) and the emergence of critical thinking and logic (with the ancient Greeks) and then between those affiliated with print and the rise of modern science and democratic governance (Chesebro and Bertelsen 1996; Baron 2008, 196f.). Along these same lines, the late Foucault described how literacy - especially in the form of diaries and letters - serves as a "technology of the self," i.e., ways of communicating and reflecting that foster the emergence of sense of self distinct from the sense of self affiliated with orality (1997; Foucault, Gros, Ewald and Fontana, 2005). In particular, as Maria Lüders has pointed out, in this work,

*... Foucault strongly emphasises the virtue of self-development, bringing the Greek philosophical idea of epimeleia heautou, or 'care of one-self', into the limelight, arguing that an ethical way of life concerns a certain, meditative way of considering life, behaving in the world, acting and relating to other people. (2008, 48; cf. Capurro 1996)*

This virtue of self-development, finally, seems to depend crucially on the sorts of reflection and self-

<sup>51</sup> By 'Other' I intend to signal a sense of the other person as marked by *irreducible differences* from us - in contrast with the 'other' as something less than a person, a sort of 'place-holder' neither deserving nor requiring excessive attention or fundamental respect. This usage is intended to echo Levinas, beginning with his account of the Other as Other, as a positive 'alterity' or different-ness (1963).



representation - if not self-construction - that writing makes possible.

In my view, taken together, these observations suggest that the communication skills affiliated with literacy and print in the modern era thus help construct a reflective and critical sense of the self - one that, in Kantian terms, is capable of functioning as a rational autonomy. Such a self, in part by expressing and reflecting upon itself via the technologies literacy and print, is able to rationally deliberate, posit and critique alternative ends and courses of actions - and thereby is enabled to freely choose and *judge* (in the technical senses of *phronesis* and Kant's reflective judgment) what is to be one's own conception of the good life, including political, religious, career, and other personal choices and commitments (in Kantian language, one's *ends*) and thus the appropriate and necessary *means* for achieving those ends. In these ways, the technologies of literacy and print thus facilitate the emergence of a sense of self that is foundational to the justification of modern liberal democracies (cf. Berlin 1969, 131). This sense of self, as we have seen in a preliminary way, is one that likewise requires *privacy* in a strong sense - i.e., a freedom from the interference and surveillance of others, within which we are thereby free to reflect, express, and revise our thoughts and sensibilities, as part and parcel of the process of making such foundational choices (cf. Johnson 2001, ch. 3).

By contrast, as we are increasingly immersed in contemporary networks and communication technologies, we are, in Baron's words, in a state of being "always on" - always available, always connected. As Anders Albrechtslund has put it, we thereby engage in a participatory or voluntary surveillance (2008). To be sure, such surveillance, especially as "lateral" or peer-to-peer surveillance, mimics how earlier communities have worked to ensure the well-being (and conformity) of its members. At the same time, however, we are thereby increasingly habituated to what Baron calls "fast text" - the Facebook status update or Twitter "tweet" (limited in the latter case to 140 characters). Such texts are prolific - but also ephemeral. In a variety of ways, Baron (among many others) suggests that we run the risk of losing our facility with the technologies of literacy and print - e.g., as reading skills decline in the U.S., accompanied by shortening attention spans, etc. As a specific example, Baron refers to Ian Parker (2001) and Edward Tufte (2003), who argue that our increasing reliance on PowerPoint as visually-oriented form of communication thereby fosters "...a cognitive style quite distinct from that required for a well-constructed, sustained, even elegant argument" (Baron 2008, 188). Along these same lines, virtue ethicist Shannon Vallor has argued that the affordances of mobile phones - i.e., a preference for the quick and the easy - prevents us from acquiring the virtues of *patience* and *perseverance*, virtues essential to

communication and friendship, both within and between cultures (forthcoming; cf. Gallagher 2009, Ess 2009a).

## What is on the Agenda of Information Ethics?

As we consider the future of an information ethics driven in larger measure by an ever-expanding and evolving internet, it seems relatively straightforward to suggest that as information ethics continues to mature along with diverse communication technologies, a mark of that maturity will be greater attention to and, one would hope, thereby a greater coherency between Information Ethics and affiliated domains of applied and theoretical ethics - most notably, bioethics and nanoethics (including questions of technological enhancements of human beings, insofar as these enhancements may include implants that expand current ways of communicating with one another via the internet). At the same time, however, it seems to me that the developments I have highlighted above require us to move still further - first of all, to the development of a genuinely global and intercultural information ethics, one that I argue must be pluralistic first of all, and, correlatively, focus especially on developing a *virtue ethics* that will be central to such an information ethics for a number of reasons. Finally, I will argue that these emerging directions of an intercultural information ethics require us to expand our scope even further - so as to incorporate ethics in its broadest senses and applications, i.e., ethics as focused on the character, nature, goals, and virtues of the good life, both for the individual and the community.

To be sure, information ethics has already branched out to include an important focus on intercultural information ethics (e.g., Capurro 2006, 2008). Further, there is now - apparently widespread - agreement that such an intercultural information ethics must take a *pluralistic* approach. As I have put it, such pluralism would conjoin shared norms that allow for diverse interpretations and applications - i.e., precisely as interpreted and applied through the "lens" of a specific set of local cultural traditions, norms, values, practices, etc. Such a pluralism thereby avoids the cultural imperialism inherent in imposing a single values system (and its source traditions, etc.) upon the world at large, while sustaining the irreducible differences that define specific cultural traditions - and thereby protecting and fostering distinctive cultural identities (2006, 2007). As Capurro has helpfully pointed out,



such conceptions of pluralism are not unproblematic (2008, pp. 644ff.): nonetheless, they seem to be important candidates for efforts to develop a global information ethics that avoids both cultural imperialism and ethical relativism.

The possibility of developing such a pluralism is further enhanced as we recognize especially two features of a globalizing internet: such an internet increasingly interconnects diverse cultures with distinctive virtue ethics traditions, as it at the same time appears to foster the emergence of a relational self closely affiliated with such virtue ethics traditions - e.g., in Socratic thought and Aristotle (specifically, in their emphasis on developing the capacity for *phronesis*), in contemporary Western feminist and ecological ethics, and certainly in Buddhist and Confucian ethics as well as many indigenous traditions (cf. Paterson, 2007). Especially insofar as the development of the sorts of selves requisite to (as both justificatory and necessary for the functioning of) modern liberal democracies depends upon the *virtue* of care of oneself - including, we can now see, the sort of critical, rational, reflective self fostered by the technologies of literacy and print - it would appear that efforts to develop an intercultural information ethics that wishes to sustain modern liberal democracy will need to place the development of a pluralistic virtue ethics close to the top of its agenda.<sup>52</sup>

This focus on virtue ethics in conjunction with a commitment to both cultural diversity and modern Western liberalism means, finally, that such an intercultural information ethics inevitably intersects with the larger questions and issues of social and political philosophy. In my view, Neil Postman continues to offer the most clear and compelling reasons for expanding our attention in these ways. Already in 1984, Postman famously worried that Western societies, as increasingly saturated by diverse media, were already on the edge of "amusing ourselves to death." Postman made his case by

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<sup>52</sup> It may also be in place to point out here a third aspect of a globalizing internet vis-à-vis virtue ethics: namely, the way in which the growth and diffusion of the internet may foster the (re)emergence of a *philosophical naturalism* - a fundamental affirmation of the intrinsic *goodness* of the material, created world. Such a naturalism is closely affiliated with virtue ethics in both Western and Eastern traditions, and is a primary consequence of the growth of networks and thereby networked selves drawn especially by Luciano Floridi (see Ess 2009b for discussion).

contrasting two dystopias, Orwell's (better known) *1984*, and Huxley's (lesser known) *Brave New World* (originally published in 1931). To begin with - and well before the advent of the internet - Postman notes:

*Orwell warns that we will be overcome by an externally imposed oppression. But in Huxley's vision, no Big Brother is required to deprive people of their autonomy, maturity and history. As he saw it, people will come to love their oppression, to adore the technologies that undo their capacities to think. (1984, vii)*

Consider this observation in light of the contrasts between the technologies of literacy and print, especially as these are affiliated with a particular sort of (modern) self that is rational, critical, and reflective in ways crucial for modern liberal democracies, in contrast with the sorts of selves we may become through our immersion in the internet and affiliated contemporary communication technologies, especially as these incline us away from the sort of critical rationality affiliated with literacy and print and towards a relational self affiliated with the visual and the secondary orality of cyberspace. The predominance of the visual, as Plato's analogy of the line in *The Republic* reminds us, restrains our focus on the concrete and the individual - in contrast with the intellectual and abstract, many components of which (e.g., beginning with simple mathematical definitions) can not be visualized (*Republic*, Book V, 509d-511e). Orality in its turn does not incline us in democratic directions: on the contrary, pre-literate societies are by and large authoritarian in terms of the predominance of the community and tradition over the individual and innovation. Especially in light of increasing evidence that our immersion in the internet, along with affiliated contemporary communication technologies, thereby inclines us in the direction of a secondary orality - and with it, a smeared-out self characterized by shorter attention spans and less capacity to engage with critical argument - it may not be an exaggeration to worry, following Postman, that the communication media of secondary orality indeed threaten to undo our capacity to think in the ways required for the autonomous self and liberal democracies.

Along the same lines, Postman further points out that

*Orwell feared those who would deprive us of information. Huxley feared those who would give us so much that we would be reduced to passivity and egoism. Orwell feared that the truth*

*would be concealed from us. Huxley feared the truth would be drowned in a sea of irrelevance. Orwell feared we would become a captive culture. Huxley feared we would become a trivial culture, preoccupied with some equivalent of the feelies, the orgy porgy, and the centrifugal bumblepuppy. [...]*

Again, both Postman and certainly Orwell reflected and wrote well before the advent and global diffusion of the internet - but Orwell's fear of our drowning in a sea of irrelevance uncannily anticipates the contemporary problems of near-infinite quantities of information, if not simply noise, made available to us via the internet. Especially as driven by marketing models that emphasize the "user" as consumer - *contra* Web 2.0 enthusiasts who highlight the "prosumer" as short-circuiting the classic division between producer and consumer, the vast majority of information made available online emphasize commercial appeals to the individual self or ego.<sup>53</sup> Such consuming egos, moreover, seem increasingly impatient with information gathering that involves anything more than a simple click or two ...

Finally, Huxley's uncanny anticipation of the darker possibilities of contemporary society includes a focus on "...man's almost infinite appetite for distractions." Postman continues:

*In 1984, Huxley added, people are controlled by inflicting pain. In Brave New World, they are controlled by inflicting pleasure. In short, Orwell feared that what we hate will ruin us. Huxley feared that what we love will ruin us. (1984, vii f.)*

In short, like the media Postman worried would work to fulfill Orwell's darkest fears, the internet appears to even more perfectly and completely serve as a medium for controlling us by oversaturation, reduction to passivity - all done by way of apparently innocent satiation of our near-infinite appetite for pleasure and distraction. Of course, we are in love with this medium - but thereby, as

Postman and Huxley suggest, we risk falling in love with the technologies of our enslavement.

This may sound too dire or too alarmist. But I hope that the developments I have outlined above, especially with regard to the shifts already apparent in our sense of self, i.e., from the modern critical-rational self made possible by the technologies of literacy and print, to a more relational - but also a smeared-out and more distracted - self intertwined with the technologies of secondary orality, make clear that these are potentially dire consequences of our increasing immersion into contemporary communication media, including the internet. To be sure, there is perhaps no end of wonderful consequences and possibilities that a globalizing internet can bring in its wake - e.g., greater cross-cultural encounters, enhanced health care for remote peoples, etc., etc., etc. At the same time, however, these contemporary shifts and developments argue for me that our developing intercultural information ethics must emphasize attention to the broader social and political dimensions of internet use - especially as these run the risk of increasingly serving as technologies that largely serve to undo our capacity to think in the ways necessary for the selves required for modern liberal democracies.

To paraphrase Neil Postman, I believe it essential that cross-cultural information ethics keep before us the possibility that especially as these communication technologies become increasingly interwoven with our sense of self and community, we run the risk of thereby falling in love with the technologies of our enslavement. Hence, in broadest terms, current and future information ethics must include, in my view, a crucial attention to what "the good life" might mean for networked selves inextricably interwoven with others in larger, increasingly more complex and technologically-mediated communities. Doing so, after all, is nothing new. The founding document of Western information ethics - Norbert Wiener's is shaped by an overarching concern for the impacts of computational technologies and a (utopian) hope that they might lead to a global *ethos* of "flourishing" (cf. Bynum n.d.). Thematic and consistent attention to these broadest questions, then, defines a once and future information ethics.

<sup>53</sup> Perhaps not accidentally, McDonald's has made this focus especially clear and articulate: "You're immediately at the centre of attention - your individuality, your everyday life, situations in which you recognize yourself and where you would like to see yourself." <<http://www.mcdonalds.ch>> Cited in Würtz, 2005.

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