

6.0 TECHNOLOGY TO MAKE EVERYDAY LIFE MORE MEANINGFUL

This chapter builds on the previous two chapters by shifting focus to the smaller stories of individual urban computing and locative media research projects, and asking what expectations and promises emerge in their future-oriented visions. Beginning with a discussion of the differences between location and context, it becomes clear that researchers in these areas seek to understand the more performative aspects of technology use in everyday life. Contrary to the discursive construction of pervasive computing as 'everywhere,' urban computing and locative media projects expect to locate these technologies 'somewhere.' Context-aware computing, researchers suggest, enacts particular but dynamic spatialisations, temporalisations and embodiments. In doing so, city spaces and social behaviours are expected to become more affective and expressive, and potentially more meaningful. Similarly, knowledge becomes a matter of knowing interiority, or what is going on *inside of* or *under* the surface of things. In this vision of the city as an interaction design space, computation also extends *over* the built environment, enacting or transducing another layer of exteriority to be experienced. This extensibility and transmissibility of the city, along with an increased ability to be embedded within in, is a core expectation and promise shared amongst all the cases presented here.

The first project I discuss is *Passing Glances*, whose interaction model involved using text messages to trigger images embedded in the built environment and

create random and temporary narratives for urban waiting spaces. Waiting in the city was described by researchers as uninteresting and uneventful situations, and it was expected that this activity could be (re)vitalised through the creative use of mundane technologies like the mobile phone. The research can be seen to be distinguished by its call to charge these in-between spaces with potential, to augment them with new ways of thinking, and to pleasantly surprise people. But this scenario also appears to expect a time when everyday life is no longer exempt from technological intervention, and so promise to make these interventions more playful.

Sonic City, which consists of a wearable computer that senses people's physical contexts and actions and maps them to an algorithm that generates music in real-time, is the second project I present. Distinguished as both a composing and listening technology, the *Sonic City* project really begins to draw out the transformative possibilities of urban computing and locative media. Positioned as a tactical and creative intervention in urban spaces, the application's users may not be able to 'get closer' to other people, but they can get closer to the city. While this suggests that interpersonal relations may continue to be restricted by technological hardware, sociality and sociability are clearly extended to include a variety of non-humans (sound, light, buildings, etc.).

The implications of these kinds of individualised user agency and creativity are examined at length in the final case history. The *Urban Tapestries* application was designed to allow people to "annotate" physical space with text, image and

sound in order to foster a greater sense of belonging. As with *Sonic City*, users reported experiencing changes in how they viewed the urban environment and others within it. Most notably, workshop and field trial participants used the application to personalise and aestheticise the city in ways that enabled boundary-making and identity formation. *Urban Tapestries* is further distinguished as an example of the tendency to use urban computing and locative media as aesthetical tactics that open up the possibility of becoming ethical tactics of everyday life as well.

In the final section of this chapter, I introduce notions of mobile publics and playful cities as productive ways to engage the spatial and cultural potentials enacted in my dissertation's case histories. Focussing on transformative activities, as well as individual and collective uncertainty, compels an approach to mobility and play that is more fluid than traditional network models allow. The playful city, then, emerges as one characterised by social and spatial disorderings, "where transitional identities may be sought, sensual and imaginative experimentation indulged" (Edensor 1998:219). Ultimately, I argue that augmented reality research does not expect or promise that technology will replace people, places or activities, but rather seeks to amplify or extend the most vital qualities of our lives in order to multiply possibilities for future connections. A primary expectation that informs all these research projects is that future technological applications would, and should, facilitate playful or transformative experiences, dense with aesthetical and ethical action.

At the same time, such visions and expectations tend to reify the ideals of consumer capitalism and fail to acknowledge the implications for people who cannot afford, or do not wish to use, such technologies. Furthermore, they advocate use scenarios that reinforce the value of urban life to the exclusion of rural life, thereby excluding half the world's population and maintaining rigid socio-spatial divides. Finally, I argue that a critical take on urban computing and locative media requires further research into the infrastructural and governance issues raised by these expectations and promises.

6.1 LOCATION, LOCATION, LOCATION?

A 2006 special issue of MIT Press' *Leonardo Electronic Almanac* was dedicated to locative media, and the contributors—computer scientists, engineers, social scientists, architects, designers, artists—further demonstrate the various and overlapping perspectives that come to bear on making computing urban and media locative. In both situations, and distinct from prevailing accounts of cyberspace, the *where* and *when* of interaction emerge as paramount. Yet as Dourish (2006:304) argues, these technologies

do not create new spaces, but rather allow people to encounter and appropriate existing spaces in different ways. These new practices, then, transform existing spaces as sites of everyday action. Far from creating a space apart, technology is fundamentally a part of how one encounters urban space.

The locative case appears in Old Latin and Sanskrit grammar, as well as in modern Balto-Slavic languages (such as Latvian, the host language of the first

locative media workshop in Karosta) to indicate the 'where' of a particular noun phrase, but it is more-or-less replaced by prepositional phrases (in, over, beside, during, etc.) in English. More generally, as a descriptive adjective, the word 'locative' simply serves to locate or fix something in position for a certain amount of time. Put back in technological terms, locative media always rely on some form of location or context-aware computing.

Accordingly, much early work in locative media made use of Global Positioning System (GPS) technologies and Geographical Information Systems (GIS) data in order to support both 'collaborative mapping' and 'personal cartography,' which often but not necessarily (see 2004's *Mobile Outskirts* workshop held on Lofoten Island, Norway) occurred in city environments. For example, in the early to mid-2000s, *Amsterdam Real Time* (<http://www.waag.org/realtime/>) and *The Daily Practice of Map Making* (<http://www.planbperformance.net/dan/mapping.htm>) recorded the movements of individuals and groups of people through urban areas and rendered them as static (if sometimes sequential) maps. While such data visualisations are often quite lovely renderings or representations of urban mobility,

by abstracting and stabilising our movements in space-time, GPS tracings can become de-contextualizing practices, and ultimately shift focus *away* from our (constantly changing) 'on the ground' potential. Furthermore, by reducing our spatial experiences to latitude and longitude coordinates, social/spatial interaction can take on a totality, precision and predictability that it [actually] lacks. While the city may indeed emerge as the collective movement of her people, these maps and curatorial projects are not particularly amenable to such (re)interpretation, and risk only ever being intelligible to, and actionable by, the

people who created them (Galloway and Ward 2006).

If these early mapping projects represented urban mobilities after-the-fact, then subsequent urban computing and locative media projects tended to reposition the city as a real-time platform or stage for performance, where process trumps product.

For example, Chang and Goodman (2006) claim that "locative media move beyond pinpointing location to enacting place as a medium for expression" in their project *Asphalt Games*, where players "conquer turf on an online map by performing and documenting game moves on real-world streets." Indeed, since 2000, collaborations between researchers at the Mixed Reality Lab, Nottingham University, and Blast Theory, a London-based artist group, have created several well-known exemplars in the highly performative area of "pervasive games" (see McGonigal 2006), including *Can You See Me Now?* (http://www.blasttheory.co.uk/bt/work_cysmn.html) and *Uncle Roy All Around You* (http://www.blasttheory.co.uk/bt/work_uncleroy.html). Both games involve people online and on the streets, where play is both expectedly and unexpectedly shaped by movements through space and communications along the way, as well as by technological "glitches" (see Benford et al. 2006). Such projects take advantage of pervasive computing's potential to enact 'hybrid worlds,' where 'online' and 'offline' become explicitly interdependent, and slippage between the virtual and the actual is ever-present.

Nonetheless, it is important to remember that this sort of spatial overcoding (Dodge and Kitchin 2005, 2007) or haunting (Hetherington 2001) is not entirely new, nor exclusively a technological issue:

[Since] the overlaying of different spaces is a conceptual problem that is not connected to any particular technology, we may start to think about which architects and artists have already been working on this problem. To put it another way, the layering of dynamic and contextual data over physical space is a particular case of a general aesthetic paradigm: how to combine different spaces together. Of course, electronically augmented space is unique – since the information is personalized for every user, it can change dynamically over time, and it is delivered through an interactive multimedia interface, etc. Yet it is crucial to see this as a conceptual rather than just a technological issue (Manovich 2006: 225–226).

6.1.1 Over, under and around the surface of the city

One of the most intriguing aspects of urban computing and locative media research projects is how they play on tensions between what a city *is*, and what it *could be*. In contrast to, and perhaps even in reaction to, expectations of a total surveillance culture enabled by pervasive computing (see Chapter 4, Section 4.1 and Chapter 5, Section 5.2), these researchers actively pursue what they consider to be more socially and culturally positive applications for the future. Here we might recall the case of *Mobile Bristol* presented in Chapter 5:

Phil Stenton: “[W]e're creating a canvas over the city, we're giving people a palette of technology with which they can display and deliver their content ... There are historically interesting parts of the city, there are events that might happen in the future, so what this technology can do is give another dimension to the city. An accessible, visible, audible dimension to the city. Once you can get to know the inside of buildings then you get to know the social side of the city. And I think this technology can help do

that.”

In *Mobile Bristol*, the city emerges as a place seething with activity, where people thrive—but all this is beyond the threshold of what we can see as detached observers of architectural monuments. As the microscope is expected to compensate for the limitations of the naked eye, context-aware computing is expected, at least in part, to overcome the constraints of the physical world, or space-time. Rather than being detached from the world around us, we become more deeply embedded in it. Similarly, knowledge becomes a matter of knowing interiority, or what is going on *inside of* or *under* the surface of things. In this vision of the city as an interaction design space, pervasive computing also extends *over* the entire built environment, enacting or transducting another layer of exteriority to be experienced. This extensibility of the city, and an increased ability to be embedded within in, is a shared expectation amongst all the cases presented here.

Indeed, by positioning the city as a sort of platform for digital media, possible situations and potentialities are seen to multiply. However, in this scenario the *real* (i.e. lived, vital) city becomes the *augmented* city. People with the proper technological capacities are able to live each time and space of the city to which they have access; past and future events are made present; they can move, and be moved, in many directions.

Phil Stenton: "I think it adds another dimension and makes the city more accessible, even to the people who live there. It gives depth of field ... [In the future] you'll be able to come to Bristol and have more of an experience of more of Bristol in terms of time and social depth. As cities move and shift in terms of their centres of social existence, parts of the city that were really important one hundred or two hundred years ago start become places you just pass through. I think you'll be able to keep more of that, more of the city as it moves and shifts. The technology will enable you to remember."

However, this story, and the future it expects, also brackets out the possibility of what happens, for example, if these technologies are unequally distributed.

People without the proper technological capacities get stuck in an incomplete present, without the sense of potential afforded by memories and dreams, never quite able to experience or live a fully augmented life. These exceptions and promises also preclude technological failure (Will we all be doomed to a less than full life? Will our very lives break down?), as well as any unintended consequences (What if we drown in these depths of field? What if we want to forget? Or someone else chooses for us?)

In order to better understand what it might mean to technologically 'activate' urban experience, and by extension 'meaningful' lives, the remainder of this chapter will use three case histories to investigate researcher expectations and promises around emerging technological and social agencies.

6.2 CASE: PASSING GLANCES

Passing Glances, also known as *Texting Glances*, was a short-lived project (2002-2004) collaboratively designed by artists and engineers in the Story Networks research group at Media Lab Europe (MLE) and the Networks & Telecommunications Research Group (NTRG) at Trinity College, Dublin. *Passing Glances* researchers and designers proposed:

a system in which transient audience participants co-create emergent narratives that are revealed in public space. *Passing Glances* enables users to create these ambient urban interludes through the use of SMS text messages. The *Passing Glances* system contains a wealth of keyword-associated imagery that is stored 'in the city'. Images are revealed to the transient audiences when SMS message keywords trigger the system. The mobile phone therefore acts as an expressive device revealing hidden layers of the city to construct short-lived stories (Vaucelle et al. 2004:1534).

While undoubtedly within the purview of urban computing and locative media, this case history differs from the others in one significant way. Although their vision employed widely available technologies (mobile phones), the application never made it out of the lab. Nonetheless, the project *vision* did manage to travel overseas—and through cyberspace—in the form of image and text for conference presentations and posters (see Vaucelle et al. 2003, 2004). While it is notable, then, to see the project function almost entirely as an imagined future, it is precisely this vision in which I am interested.

Originally, I was attracted to the *Passing Glances* project for two related reasons. First, I was impressed by its appreciation of the mundane spaces and activities of everyday life, and intrigued by the desire to intervene in people's experience of urban waiting spaces. Second, I was drawn to the sense of ambiguity and

ephemerality in its desire to generate random and temporary stories for these waiting spaces. Marc Augé (1995) identifies such in-between or “non-places” as increasingly central to our experience of everyday urban life, but perhaps at the expense of places for organic (i.e. ‘authentic’) social interaction. However, he also suggests that more historically and creatively vital places still exist, and even manage to reconstitute themselves within non-places. While not cited as inspiration, the vision behind *Passing Glances* can be seen to share something in common with Augé’s views insofar as they are both concerned with making non-places into more meaningful places. At the same time, the vision denies that possibility that waiting is already rich with meaning, or that boredom can be positive.

6.2.1 Activating places, activating people

Take, for example, this excerpt from a conversation between me and engineer Linda Doyle, the NTRG’s principle investigator:

Me: “How do you think that *Passing Glances* can change our experiences of places and events?”

Linda Doyle: “I suppose that’s the kind of question we’re asking with this research. Can it do this? Can it do that? In a meaningful – whatever you want the word meaningful to be – way? For me, sometimes being totally disruptive is really meaningful. Sometimes you want to kick people out of the way they think, show them a different way, even for a short while, and hopefully that will carry on with them in some way.”

Me: “Did you want to disrupt with *Passing Glances*?”

Linda: “No.”

Me: “What sort of relationship to space or place were you hoping for, or anticipating would emerge?”

Linda: "I was hoping that the space itself would become a more interesting place to be in...It's amazing that people sometimes like repetition and familiarity. You can get a kind of sense of calm or comfort from something you just watch...I would like to do things that make people think more but Passing Glances was never set up to do that. But that doesn't mean you couldn't turn around, think about the content and do something interesting."

Me: "Did you not have the intention of changing the way we experience waiting in the city?"

Linda: "Yes, that's true. It's disruptive in that sense."

Me: "You describe the city centre as moving, mobile, but you chose to focus on when we have to stand still..."

Linda: "Yes, in that sense it tries to change the way people experience things...The bit I like the most is that you put down the technology and think about something else. In Passing Glances you make stories out of images, or you might talk to the person standing next to you. You never know."

Me: "You seem to be touching on the importance of ambiguity..."

Linda: "Yes, it was important to me that the system be random."

Me: "If I can get back to this bit about waiting, you've mentioned that if you're waiting alone you can be totally engaged with Passing Glances, or talk to someone else..."

Linda: "We wanted to encourage that yes..."

Me: "So both individual and collective action..."

Linda: "Yes. One of the things about waiting spaces that I like is - you know when people go to wait for the train, and some people always stand in the same place on the platform? - what I originally wanted to do is have a huge image in a train station but it's totally out of focus, and only comes into focus slowly over say four months, but only focussed in the spaces where people stood. As people notice the photo is coming in based on where they stand, they might decide to stand somewhere else on the platform. I love this idea that you're doing something slowly, repeatedly, something ordinary... It takes you ages to realise that something's happening, and it takes you ages to realise that you can change it..."

Waiting time in the city definitely fascinates me, and your behaviour in that space, the repeated behaviours...Life has gotten so busy. So fast. In the last ten years Ireland has changed. We went from being poor to wealthy. You can see it in the aggression and pace of the city, it's different than it used to be. So I think that something that makes someone stop for a moment [is good]. You're giving people access to interesting content, or you're making it interesting because you're giving people access in places they don't expect it." Linda's enthusiasm for her work is infectious and, as we sat in her noisy office at the university, she vividly evoked a picture where everyday life in Dublin was increasingly speedy and hectic, where people inevitably found themselves stuck somewhere trying to get somewhere else, often alone despite being in close physical proximity to other people. She described waiting as uninteresting and uneventful situations that could be revitalised through the creative use of mundane technologies like the mobile phone. So while I tend to prefer the idea that such places might still provide temporary shelter or refuge from pervasive communication technologies, I could not help but be moved by Linda's call to charge these in-between spaces with potential, to augment them with new ways of thinking, to surprise people.

As suggested in the previous section, such urban computing and locative media projects are distinguished by their desire to activate urban spaces—to make present multiple potentials—through the production and consumption of text, image and/or sound. Following Amin and Thrift (2002) and Urry (2003), Michael (2006:113-115) describes this complex enactment of urban spatiality as a matter of disclosure, where new technologies work to open up, rather than enclose places, thereby enacting or transducing what Crang (2000) calls the "transmissible city." In the case of *Passing Glances*, multiple relations could

potentially emerge: textual ones (messages sent to the system), image-based ones (triggered photos), and verbal ones (talking with bystanders about the texts and/or images) to name just a few. The rich potential of these experiences also recalls a 'deepening' (cf. Latour 2004) of meaning in terms of increased connections, or an augmenting of what Michael (2006:117) also calls the "density of spaces."

Nonetheless, *Passing Glances* also positions the city and everyday social interaction as somewhat lacking, or in need of improvement. In terms of expectations it also becomes clear that the researchers believe that everyday life has already been irrevocably colonised by information and communication technologies, and so their promise is to improve the quality of our interactions with them in the future by enabling us to play with other people and places.

6.3 A BRIEF NOTE ON PROTOYPES

Before I introduce the remaining two cases, and continue my discussion of how urban computing and locative media stand to change everyday experiences of spatialisation, temporalisation and embodiment, I would like to take a brief look at the role of technology prototypes in expecting and transducing future scenarios.

Both the *Sonic City* and *Urban Tapestries* research projects involved the documented making, testing and refining of prototypes. Defined in the OED as "a first full-size working version of a new vehicle, machine, etc., of which further

improvements may be made" or "a preliminary version made in small numbers for evaluation, or from which improved or modified versions may be developed," prototypes are instrumental in trying out, or playing with, new technologies (Schachtner 2002). First, they are crucial in determining and demonstrating technological feasibility, and second, they can be seen as material instantiations of ideas or theories. In effect, they set research in motion, or grind it to a halt.

Social studies of science and technology have clearly identified the importance of visually-based material objects such as sketches, drawings and diagrams in research and design practice (see for example Lynch 1985; Latour and Woolgar 1986; Latour 1986; Turnbull 1993; Henderson 1998). Ideally they serve as easily understandable and reproducible models, but they also act to recruit allies and to create "obligatory passage points" (Callon 1986) through which other researchers must move. In technology design work, the object prototype is especially important as it makes tangible what has previously only existed as ideas, words or images. It is seen as an attempt to translate the 'merely' imagined into the real. It is also explicitly made to be changed, as most commercial products go through multiple prototyping phases, and pre-competitive research projects—like the cases presented here—only ever reach the prototype or investigatory phase.

For the purposes of my dissertation, then, prototypes are interesting precisely because they enable me "to draw out [some of] the normative claims and assumptions embedded within them" (Garrety and Badman 2004:199) and, by

extension, within particular expectations and promises surrounding the role of urban computing and locative media in everyday life.

6.4 CASE: SONIC CITY

Part of Lalya Gaye's doctoral research at the Future Applications Lab, Viktoria Institute, in Göteborg, Sweden, *Sonic City* was a collaborative research project (2002-2004) with Ramia Mazé and Margot Jacobs. Like the previous cases, research and design was highly collaborative and multi-disciplinary, and it was a project made to explore ubiquitous computing technologies and what roles they might play in "enabling future everyday aesthetic practices" (Gaye 2005).

Although devoted to mobile music-making, *Sonic City's* first experimental prototype caught my attention as a piece of clothing:



(Photo: Ramia Mazé and Margo Jacobs, 2003)

I had never seen a computer that looked like a beautiful straightjacket, and I wanted to learn more:

The prototype senses the user's context and actions when walking through the city, maps this information to the audio processing of live urban sounds in real time, and outputs the resulting music through headphones. It is an open-ended platform for iterative prototyping of sound content and musical interaction that enables testing in real-world settings ... Current sensors used in this implementation are a metal detector, an IR-sensor measuring proximity to walls and objects, a light intensity sensor, a microphone measuring sound level, and an accelerometer sensing stops, starts, and the starting user pace that determines the music tempo of a whole session. We have also experimented with sensing pollution and temperature and plan on adding a heart-rate sensor. Low-level sensor input such as light intensity or presence of metal are continuously measured and mapped to the music, whereas the context recognition of high-level parameters such as "standing still at night" are updated every other beat. (<http://www.viktoria.se/fal/projects/soniccity/prototype.html>).

I had originally planned to focus my doctoral research on wearable computing, but the more I read about *Sonic City*, the more I was drawn to the implications of interaction design for urban environments. I was intrigued by the emphasis on the generative capacities of cities, and by extension, urban computing and locative media.

6.4.1 Location, context and scale

Following De Certeau's (1984:91-110) well-known discourse on the spatially, temporally and socially productive capacities of walking in the city, *Sonic City* is positioned as a tactical intervention in urban space:

Everyday urban experience involves active interpretation and impels creative response – consider the meaning of a screeching noise, the smell of burning rubber and a car headed your way! As a 'physical interface', the city provides a built infrastructure and established ways of using it creatively. Even the mundane act of taking a walk involves the complex coproduction of bodily movement in relation to obstacles. Along the way, there are always elements of serendipity: an unexpected view, surprising encounters or fleeting ambiances. Built and transient

conditions require continual tactical choices and inspire possibilities along the way. Whether a pleasant stroll or a mundane commute, being in the city involves dynamic creative improvisation ... In this project, we take the simple act of walking to explore the city as an interface and opportunity for personal creativity. Everyday behaviours, personal (mis)uses, and aesthetic practices suggest the inventive ways in which people already use the physical city. As a new platform for personal expression and urban experience, *Sonic City* explores public space as a site for private performances and emerging behaviours, and the city as an interface for personal musical expression (Gaye, Mazé and Holmquist 2003:1-2).

Sonic City further highlights how people's everyday movements "generate particular everyday spatializations that incorporate the 'local' and the 'global'" (Michael 2006:121).

The user only interacts with her local context, not with the city as a whole. This brings a dimension of immediacy to the interaction and makes the musical experience situated. Because the system is wearable, the space of enabled interactions is also user-centric and non site-specific. This interaction space is however scaled to the dimensions of a city: the musical time-line is matched to the user's path and the time it takes to travel certain distances. This implies a certain scale of musical gesture (Gaye and Holmquist 2006).

Interested in how designers were approaching new interaction spaces, I asked how the researchers thought the *Sonic City* application could reshape people's experiences of space and place:

Lalya Gaye: "The notion of place is central to the project. The music is situated; it is produced and experienced in context. However, because it is centred around the user's perspective of the city, the system does not rely on GPS or other types of location information. Sensor data is not stored; only the resulting music is recorded...but even that is not necessary. As the music is a result of the user's interaction with her urban space, the music could be seen as a representation of contextual data. The location cannot be derived from listening to the music, unless you hear some recognisable sound in the background, so the data is more contextual than locational. And speaking of data, users only have access to the music, both while using the system and afterwards when listening to the recording. They cannot

directly access raw sensor data."

The distinction between location and context is particularly important amongst locative media and urban computing researchers. Location is considered to be a matter of longitude and latitude, a precise measurement afforded by mapping technologies. Context, on the other hand, is considered to be much broader and more fluid, as it relies more on dynamic input from sensor technologies. In terms of interaction design, the 'real' value of a place is people's experience of it (see for example Dourish 2001). Location, as defined above, is considered irrelevant here—but context and experience are considered paramount. By shifting focus from location to context, researchers can focus on the transformative aspects of technologically-mediated spatiality, temporality and embodiment:

Lalya Gaye: "Sonic City also suggests new relationships between people and spaces. Everyday familiar spaces are transformed into resources for musical interaction. Users report feeling more aware of their surroundings when using Sonic City, more engaged. This change of perception stimulates new behaviours in their walk, such as deviating paths abruptly, reaching for objects, or changing body orientation with regards to sources of input in the environment. A drawback of the use of Sonic City is that it is more difficult to be sociable/social when you are using the system. But one does not always want to be social. Intimacy is also worth supporting. And you can always switch off the system when needed!"

While the wearable technology envisioned in *Sonic City* may allow new relations of scale between people and the city, the researchers also acknowledge that it may be at the expense of interpersonal relations.

However, the greatest transformative potential of *Sonic City* may be that it

promises to turn the city into a musical instrument and the city walker into a musician.

Me: "In several conference papers you (and the other authors) describe the city as an interface and mobility as a musical gesture. Can you please expand on each phrase and explain how they relate to each other?"

Lalya Gaye: "The way we conceive the city as an interface is double. First, we look at it from the perspective that it is an interface between physical urban space (including the user's embodied experience of the city) and the digital layer of music being created. Familiar interactions with urban space are augmented with musical interactions that add a layer of meaning to urban interactions that the city dweller takes part in. Second, we look at it from the perspective of it being a user interface for playing music. There is a long tradition of musical interfaces where physical interaction creates music in real time. The design of these user interfaces are sometimes based on traditional instruments - the synthesizer keyboard is based on that of the piano - or completely different objects that the user might or might not use for other purposes (e.g. new interfaces with original design vs. augmented everyday objects).

In Sonic City, we build on this tradition by augmenting something that users are familiar with, but not in terms of making music with it. Urban space - which we are all familiar with and have learned to live in - becomes the user interface, from both local and global perspectives. At the larger scale, one navigates non-linear musical scores through one's movement in space, the paths one takes in the city, and the changes in urban context that one encounters. On a local level, one's immediate surroundings become a variety of 'knobs' and 'dials' to play with when passing by.

As walking through the city is an inherently mobile activity, the surroundings and interaction possibilities at hand change continuously. For example, the letter-box on your right will only be in your vicinity for so many seconds. Your path takes you through different urban contexts with different qualities and corresponding interaction opportunities that shape the score you are making. The idea of physical motion as musical gesture produces musical sounds projected on a physical path. "Playing the city" means playing with an interface that

unfolds at each step, an interface that you are used to dealing with but that now has extra meaning and invites you to use it in a new way."

While *Passing Glances* envisions the city as a place where new media can be creatively produced and consumed, expecting and promising new media ecologies, *Sonic City* stretches this idea even further. Not only can the application's user generate her own music (instead of listening to pre-recorded sounds) but by sampling the urban environment, the music is dynamically co-created with the city itself.

Explicitly positioning the city as an interface between a person and a technological device, *Sonic City* fully draws out the implications of expecting cities to become interaction design spaces. The city of urban computing and locative media emphasises how specific contexts (relations, situations, etc.) actively reconfigure the social, the spatial and the technological. Perhaps more interesting, the prototypes also point to how researchers envision new technologies reshaping our relations with the spaces, and people, around us.

6.4.2 Aesthetics and sociability in the (sonic) city

Cities, after all, insist on the senses at the level of sound. It is easier and more effective to shut your eyes than it is to cover your ears. Ears cannot discriminate in the way eyes can – as with smell, hearing puts us in a submissive, sensuous relation with the city. And yes still we glance at sounds in the city, we don't gaze. Individuals' relation to sound in the everyday spaces of the city tends to be one of distraction rather than attention (Tonkiss 2003: 304).

Idhe (2003) explains that auditory polyphony profoundly shapes how we perceptually and imaginatively experience different modes of co-presence. Put another way, everything we hear, and do not hear, affects how we engage with the urban environment and with other people. While the *Sonic City* application shares much in common with the personal stereo (it is highly mobile and requires the use of personal headphones), it differs in its ability to change the user's role from media consumer to media producer.

Michael Bull has written extensively on the role of personal stereos, urban experience and the management of everyday life. In his view, Walkmans and iPods have profoundly reshaped urban aural experience—and aural desire—through a consumer-driven mass individualisation of the soundscape, and of social relations. Describing the personal stereo as “the icon of personal taste” (2002), Bull primarily characterises these technologies as ones that detach their users from the space and people around them, as people tend to use them to escape sounds and other people they find objectionable, and to replace or overlay this less desirable reality with a more desirable one (2000, 2007).

However, Beer (2007) suggests that rather than treating sound as an intrusion into the spaces of everyday life, “we listen more closely to the ambient architecture of the streetscape [so that] we become sensitized to music and sounds that [already] affect how we live” (Atkinson 2005 as cited in Beer 2007:851). In this way, he argues, personal stereos can instead be seen to “operate a self-regulated information overlay that transforms [people's] experience of the city (without allowing them to ‘get away’ from it in any

substantive sense)" (Beer 2007:858). This notion of layering is particularly apt when we consider the expectation that urban computing and locative media will augment or overlay the urban environment. Arguably, *Sonic City* goes one step further and takes the publically sensible aspects of the city and changes them into personal soundtracks.

Interestingly, the application's users may not be able to 'get closer' to other people, but they can get closer to the city. While this suggests that individualisation continues to underpin such visions and interpersonal relations may continue to be restricted by technological hardware, sociality and sociability are both enabled by these relations and clearly extended to include a variety of non-humans (sound, light, buildings, etc.).



(Photo: Sonic City 2004)

But Bull (2000, 2007) also stresses that listening to one's own music while walking through the city is a powerful tactic to reclaim a sense of control over

situations that might otherwise diminish the quality of people's urban experiences, and this notion takes on new meaning when applied to *Sonic City*.

As Tonkiss (2003:305) explains, while

walking the city, people invent their own urban idioms, a local language written in the streets and read as if out loud ... Walking, we compose spatial sentences that begin to make sense, come to master the intricate grammar of the streets; slowly, we learn to make the spaces of the city speak.

In these ways cities become something "to grasp and make sing" (Barthes 1997:172), and indeed Lalya and her colleagues explain how the *Sonic City* application reconfigures people's experience of control in everyday urban life:

Using *Sonic City* enhanced the users' perception of and engagement with their everyday settings. They felt more aware of details highlighted by the system, of things that they had stopped paying attention to or never even noticed. However, they also perceived that the city was more in control of the music than they were, due to unpredictable and uncontrollable factors encountered in urban environments that had more effect on the music than their own actions. This pushed the users to actively regain control over the music, which they would do through various ad hoc tactics, both on a path level and on a local immediate level. The users modified their planned paths in order to search for unusual urban contexts (electrical chamber, etc), and engaged in local interactions with shifting resources at hand, directing sensors with their body towards sources of input (such as metal) or modulated the city's input by shadowing sensors from noise or light with their body posture. Paths could be seen as scores articulated by ad hoc local bodily interactions ...

The experience alternated between being active and passive, going back and forth from an immersive experience to background music listening, to active interventions in the music. During active phases, users looked for sources of input and interacted with them. The experience would become passive when the activity of dealing with the city had higher priority or when the users wanted to simply hear what the city did musically, at which point the experience would become more introspective and intimate. Navigation through space alternated as well between being motivated by intentional musical actions (such as suddenly getting closer to a wall) and by normal everyday mobile behaviours (crossing a street, avoiding a dog...) Sometimes, users even made musical actions pass as everyday activity, pretending for example to be looking at a shop window when actually aiming to hide the microphone from loud traffic noises (Gaye and Holmquist 2006).

More poetically, one user even recognised that a person "would have to do a lot of exploring to...develop an ability to play" the city as an instrument, and noticed that quiet environments were experienced as "one very long song" (Gaye and Holmquist 2004:3-4). The city, in other words, can go a long way and take a long time.

As an embodied and mobile experience, however, *Sonic City* may not be substantially different from current personal stereos. Thibaud (2003:338-339) explains that walking through the city listening to music enacts six related things: the route, the stride, the gait, the style, the detour and the short cut. The route—getting from one place to another—is distinguished by the choice of sound accompaniment; the stride encourages continual movement or continuity and "gives priority to musical rhythms;" the gait modulates walking speed in accordance to the music; through bodily gesture and improvisational choreography, the style makes movement aesthetically pleasing; and, finally, the detour extends and the short cut reduces the listener's experience of time. While the precise terms might differ, it is clear that *Sonic City*, as both a composing and listening technology, enacts a variety of active and passive activities that similarly reshape people's experience of space, time and bodies.

In sum, the *Sonic City* prototype and the values embedded in it, point to novel forms of technologically-mediated urbanism based on the desire to take advantage of, through technological modulation, the vital qualities of everyday life. Recalling Dourish's (2006) claim that these are not new spaces as much as

new means of experiencing existing spaces, I would add that projects like *Sonic City* (and the others presented here) also point to the expectation that the 'real' world could, or should, be amplified or augmented in positive ways. What constitutes 'positive' ways will be explored in depth in the final case history, but *Sonic City* already hints at the fundamental value: increased user agency and creativity.

6.5 CASE: URBAN TAPESTRIES

The context Urban Tapestries aims for is one in which a community organically records layers of histories, experiences and events that are linked to familiar locations and accessible to everyone. As the name suggests, it aims to knit together many layers of narrative and discourse over the topography of the city. Urban Tapestries seeks to provide a forum for ordinary people to write and remember their stories and share them with others, enabling an alternative to the single authored storytelling in our museums, history books and media. By collecting these stories a community's memory may grow on many levels with a hierarchy defined only by a user accessing what is of interest to them (Jungnickel 2004:3).

The final case history presented in my dissertation is *Urban Tapestries*, a project developed by the London-based research and design collective Proboscis, in collaboration with partners in government, industry and academia, between 2002 and 2004. The *Urban Tapestries* prototypes were designed to combine mobile and internet technologies with geographic information systems to facilitate an activity Proboscis refers to as "public authoring," or "a kind of Mass Observation for the 21st Century."

Like the founders of Mass Observation in the 1930s, we were interested in creating opportunities for an "anthropology of ourselves" – adopting and adapting new and emerging technologies for creating and sharing everyday knowledge and experience; building up organic, collective memories that trace and embellish different kinds of relationships across places, time and communities (<http://urbantapestries.net/>).

The *Urban Tapestries* interaction model uses mobile devices to “annotate” particular places with images, sounds, text, etc., and the map-based interface also allows users to find and access other people’s annotations. This is, in a very real sense, what Phil Stenton, in the *Mobile Bristol* case (Chapter 5, Section 5.3), called “depth of field” and what other Hewlett-Packard researchers allude to when they say “We think the physical world and the virtual world would both be richer if they were more closely linked” (Kindberg and Barton 2000:365). It also involves what I described above as the extensibility of the city, and the “endlessly disclosable” (Michael 2006:114) or dense quality of technologised space.



(Photo: Proboscis 2004)



(Photo: Proboscis 2004)

But *Urban Tapestries* began, one of the principal investigators Giles Lane explained, because he believed that too many technology research proposals were being put forth without any interest in “real people” or any social or cultural issues in mind. When they were interested in people, the projects Giles had witnessed were “all about consumption” and he thought that this was a “very narrow” view to take. He gave the example of an application that would provide housing prices *in situ*, and explained that while he had no desire to eliminate such projects, he felt compelled to investigate other options and additional possibilities:

Giles Lane: “We’ve been able to, through our particular set of perspectives, point out the deficiencies of some of more situated tools and technologies. We’ve pointed out that we actually need quite broad technologies that are flexible enough to be reconfigured to suit micro-contexts. One of the problems with situated technologies is that they are too determined and our research has shown that they speak to too few people, ordinary people. So our solution is to make the superstructure configurable, very configurable, and instead of designers designing the context stuff, allow ordinary people to design the context stuff. But to help them do that, you have to give people examples because these are new

technologies. They involve paradigm shifts and you have to give people hooks."

Alice Angus: "I think what is important is that we're not just designing a tool and parachuting it in so that people can use it whatever way they want. What we're doing is looking very carefully at how people might use a tool, developing scenarios and ideas around that tool, and continuing to develop the tool with that kind of feedback."

Giles: "In parallel to what Alice has described, we also look at what people cannot do. We look at [if] this technology [can] offer something in addition to what already exists? So it's an augmentation of daily life, so that yes we can still stop someone on the street and ask directions. Urban Tapestries won't stop that, it's not intended to in any way. But if we had stuff to share, without necessarily having to be stopped on the street, is there a way we can overlay that in the places where that context-aware information is available, and for it to be there to access if and when they want, and for people to respond to it? That is new. Broadcast models may not be the best avenue to explore that. Mobile, location-based technologies might be the best way to explore that..."

Me: "Can you please describe how you think Urban Tapestries can impact our experience of events, spaces and place?"

Giles Lane: "Urban Tapestries does not collect data as such. It is a set of protocols for building relationships between locations and places that are linked thematically to content (text, audio, visual). It is about using place and the hinge in new relationships between people, and the things they wish to share and communicate with each other. People annotate and upload data in the form of sounds, words and pictures that are associated to places. In future, the client software should be able to take advantage of functionality on the server which will enable users to define 'places' rather than just a set of coordinates. This would make possible the association of ideas/information with an area, not just a single long/lat location. All data is accessible to the people who have contributed it via a web interface - allowing participants in the trial to continue to add and edit information in their own time, as well as explore the system for things embedded by others..."

As in the other cases, Giles emphasised that location-based services were valuable only in so far as they tied 'meaning' to a place. He stressed that he did not see

applications like *Urban Tapestries* “replacing” everyday life and social interaction, but simply “augmenting” it for anyone who was interested. The emphasis on public participation, and ground-up media creation and sharing, is also crucial to the *Urban Tapestries* vision and I will return to it in depth below.

At the project level, *Urban Tapestries* was again primarily self-described as a research endeavour, not technological product development. While the technology prototyping was participatory, iterative and well-documented online, it always seemed clear that Proboscis was using technology as a social research tool as much as they were researching technology in society:

Giles Lane: “I think the whole project, as a research project, is about how we make relationships and how we inhabit urban space. The [technological] tool is just a mode of describing these things and looking at the possibilities. It’s not about mobile phones. That’s why there’s the whole conceptual design part of the project, the whole catalog of ideas. It’s not just about making a viable product for mobile phones. It’s about the whole gamut of relationships we develop to places, and the different kinds we might want to develop with different tools. *Urban Tapestries* operates on several levels. It operates on the level of relationships to place. It’s also a way of describing and building a database that can reflect the complexity of these relationships. And on another level it’s about how we can begin to map and share the information that enables us to construct those relationships.”

Here again we return to the layered city, where not only is information embedded in space—put in place—but people are too:

Me: “What’s the difference between owning a space and belonging to it? Are they oppositional?”

Giles Lane: “I think that taking ownership implies a sense of belonging. I think that if you take ownership of a

space...I don't think they're oppositional at all. Part of that feeling of not belonging, of dispossession, it's interesting that it's all about owning. If something belongs to you, you therefore own it. It represents something you feel you have an investment in."

Me: "So we can belong to others as well? Like a slave belongs to his master? He's owned."

Giles: "Well I think that's an interesting side to take. But I see this as being more about the construction of identity. I don't think of it as owning in terms of objects, in that sense. It's not so much that you own that bench, or that tree, or even the house that you live in...It's not about owning capital, it's about owning experience. Urban Tapestries isn't a location-based technology, it's a technology based on relationships. It's about how do you construct relationships between people that are all based around places and notions of belonging to a place, and taking ownership of it implies that you belong there. I think that if you feel like you don't belong somewhere it's maybe because you don't have enough investment in a place. And it strikes me that if you can inject some aspect of your personality into a place then it provides a vicarious sense of ownership, and therefore a sense of belonging..."

I asked who these people were, and what they wanted to belong to:

Giles: "There is a huge range of individuals to design for, but if you start to look for the universal things, the stuff that cuts across economic barriers, social divides, those are the things that everyone has to engage with, no matter how rich or poor you are. You need to know about things like nappies. Where do you get them? How do you get them? If you've never been a mother before, this is all stuff you have to learn. There's a lot of information out there, but it's not situated information. You have to know how to find it, where to go to get it in the first place.

So what if in our application there's a thread, you can see it really easily in a mobile phone, or someone tells you that someone has created a whole thread for your neighbourhood with all the clinics, all the shops you need to buy this or that, what things cost, comparisons... what if that was all just there? Situated so that it could take you to the place where you actually needed to get? One of the things we found, and we're educated, relatively well-off, we know where to find this information but it's still a pain to actually go round and gather it all. And actually, interacting with institutions is not pleasurable, no matter how well educated or not you are. They're unpleasant

environments. Hospitals, clinics. They're not nice. People are put off. If you can identify the universal or generic scenarios, then you can get at a 'real' person, doing 'real' things."

By this point, it should be getting clearer that in the case of *Urban Tapestries*, as well as the other examples presented here, the 'real' is effectively the mundane but somehow meaningful part of everyday life. Augmenting reality, then, is not about using technology to replace people, places or activities, but rather seeking (and expecting) to amplify or extend the most vital qualities of our lives in order to multiply possibilities for future connections. However, just as with *Sonic City*, the expectation or promise is that individuals will be able to 'tune' the city in more meaningful ways, and that normative desire deserves to be questioned further.

6.5.1 Sensing cities and affective spaces

Looking at the actual use of the *Urban Tapestries* prototypes adds another layer to this story. Proboscis, from the outset of the project, collaborated with sociologists at the London School of Economics, and substantive user studies and socio-cultural analyses further distinguish *Urban Tapestries* as a collaborative research project interested less in technology than in people and places. For example, approximately six months before the first field trial a small group of participants was invited to give feedback on mock-ups of what the *Urban Tapestries* system might look like, and the findings of these early bodystorming activities were used in consort with further exercises to help Proboscis shape and design the actual UT prototypes.

Silverstone and Zujon's (2005) report on one of these workshops asked whether or not people could "use UT in meaningful and interesting ways," and concluded that indeed they could. However, as they point out, the more important question is what constitutes "meaningful and interesting" engagement, and in this case it was how people used the *Urban Tapestries* mock-ups to negotiate social and spatial boundaries. Claiming that participants used *Urban Tapestries* "in order to negotiate boundaries and mark their territories, stake claims and identify their personal preferences," Silverstone and Zujon (2005:33) focus their analysis on individual knowledge production and aesthetics.

First, participants are reported as having an interest in delineating the spatial boundaries of the field trial, and differed in their boundary-making based on familiarity with the neighbourhood, and whether or not they marked boundaries based on geographical space or social activities. "The point here is that the pathways and places respondents are drawn to reflect not only their knowledge of Bloomsbury, but also allows for the customization of place, by facilitating a kind of geographic aestheticization" (Silverstone and Zujon 2005:35). This recalls Bull's (2000) discussions of how people use personal stereos to claim territory, or manage urban space. It is also consistent with Giles Lane's explanation above of what it means to belong to a place.

But a different kind of aestheticisation also occurred, and it was similar to something also described by Bull (2007). He explains that iPod users often

treated, or experienced, the city as if it were a film with a soundtrack, as these examples indicate:

Karen: "I sort of feel like I'm in my own music video."

Berklee: "It feels as if I'm in a movie at times. Like my life has a soundtrack now."

Jason: "My world looks better. I get more emotional about things, including the people I see and my thoughts in general. Sometimes I project the lyrical content of songs on to the people I see while I'm listening" (Bull 2007:41-43).

Urban Tapestries trial participants also reported (Jungnickel 2004:9) feeling the desire to 'make up' things about the city and its people, again suggesting that both perceptual and imaginative (playful) spaces were being enacted through people's uses of the mobile technologies:

My mind started drifting and I was eager to start writing a fictional story about the people entering the cafe, to be picked up as a thread by someone else on another day, a rambly fictional story of a real place. But I couldn't post a thread and the creative moment was lost. Shame.

Posted by Lawrence at December 11, 2003 07:40 PM

I'd like to go out on different days in different moods and sometimes write biographical stuff, sometimes complete fantasy.

Posted by Jemima at December 14, 2003 07:39 PM

This sort of customising or aestheticising approach to cities indeed conjures urban environments that are made richer or more meaningful through the use of mobile, networked and context-aware technologies. While personal stereos and applications like *Sonic City* are not sharing, and therefore explicitly social, technologies, *Urban Tapestries* was designed to be. Participants in the early bodystorming activities repeatedly mentioned that part of what they enjoyed about using *Urban Tapestries* was how it facilitated a feeling of presence, both in

terms of using the application with other people and connecting with absent others (Silverstone and Sujon 2005). But the question remains if this sort of “deepening” of connections (Latour 2004) or “disclosability” (Amin and Thrift 2002) of space actually enriches social and cultural interaction in more than highly individualised ways.

If the *Urban Tapestries*' field trails are any indication, then it may be fair to suggest that such future computing applications would actually encourage the individual use of technologies for social or collective purposes. For example, Katrina Jungnickel (2004) analysed the 2003 London-based field trial from the perspective of how users “imagined multi-sensory annotations of the urban landscape.” She begins by explaining that pervasive computing stands to

affect our sensory experience of the city by augmenting how we look, listen, talk and connect, search and find objects, places, people and information. In turn our language is being adapted to our device's reactions to ubiquitous computing environments as they sniff, see and read things we ourselves cannot ... [W]e don't know what the long-term effects of ubiquitous computing and location based wireless networks will have on society. What we do know is that rapidly emerging adoption has created a field for inquiry not only about what they are, how they are created, but what they are intended for versus how they are used and what reactions they catalyse (Jungnickel 2004:2).

Similar to what the *Sonic City* researchers described, the primary reaction of the first set of *Urban Tapestries* users was that the application served as

a catalyst to re-experience the city and connect with other users. They describe their heightened sensory awareness of the city and rather than just a visual experience, *Urban Tapestries* stimulated them to sense other elements of city life (Jungnickel 2004:5).

As Jungnickel (2004:5-9) notes, trial participants reported feeling differently about their surroundings during, and after, using the application:

I love the idea of creating or reading individual stories or information about a city. It is like a bunch of short stories threaded together in a common area. It is almost like walking around in a book of short stories, except you can feel, hear, smell, and see the same things that the other authors of the pockets and threads did.

Posted by Jennifer at December 11, 2003 07:47 PM

...the conceptual experience of walking in a content rich environment was interesting – as it was possible to speculate further about where this will go. ...I feel like I wanted more detail and more personal experiences, rather than information I wanted a sense of presence from a previous passer by.

Posted by gomes at December 11, 2003 03:38 PM

Knowing that there was content around me made me think and behave differently in otherwise familiar streets and squares. I looked around more, and thought more about information I could usefully offer to others.

Posted by david at December 13, 2003 04:09 PM

Enjoyed reading content created by other people. Made me think about what's happened throughout history... and behind the various walls. Would like to have read about discourse between people that had passed through the same spaces, and experienced similar things.

Posted by Noam at December 14, 2003 07:54 PM

.... it will be fascinating to see what virtual geographies might emerge, overlaid on our cities, and whether, like the geographies we have in our heads and trace in our journeys, they gradually eclipse the physical ones from which they spring.

Posted by Ant at December 13, 2003 06:18 PM

I'd like to go out on different days in different moods and sometimes write biographical stuff, sometimes complete fantasy.

Posted by Jemima at December 14, 2003 07:39 PM

The affective draw of *Urban Tapestries* should not be underestimated, although it is impossible to say whether people were reacting to novelty and, if so, how long

people could be affectively mobilised by such applications. It also remains unclear how, or if, such applications would actually create the types of socially meaningful experiences the artists and designers envisioned.

6.5.2 Public Authoring

Situated knowledges are about communities, not about isolated individuals. The only way to find a larger vision is to be somewhere in particular.... Its images are not the products of escape and transcendence of limits (the view from above) but the joining of partial views and halting voices into a collective subject position that promises a vision of the means of ongoing finite embodiment, of living within limits and contradictions - of views from somewhere (Haraway 1996: 259).

As Giles Lane hinted at in the conversations excerpted above, and does again below, the greatest potential of—and expectation for—*Urban Tapestries* was to support place-based knowledge sharing:

Me: "Can you please describe what you think the social and cultural implications of this and related technologies might be, including advantages and disadvantages."

Giles Lane: "Urban Tapestries is designed to create asynchronous interactions that are essentially anonymous centred on places. It is easy to imagine future users deciding to create 'buddy lists' of friends/neighbours (even unknown familiar strangers) and using such additional layers of inter-relation to band together to address specific issues -- perhaps over local housing or public space issues. In a sense, Urban Tapestries could be described as a system designed to support anonymous collection communication - offering opportunities for people to animate their environment through shared knowledge building. Outcomes of this might well have other manifestations such as demonstrations, community parties, etc."

There is an extensive literature on how people mark boundaries between different communities through visible (as well as more subtle) signs and signals in the physical

geography. This helps give structure to local identities and can be inclusive as well as exclusive. It is also clear that the concept of people being part of specific immutable and stable communities is shifting (especially in urban contexts) to an appreciation of the multiplicity of communities that overlap each other, and that people may simultaneously belong to many different communities. *Urban Tapestries* is designed to support such markings of territories, borders and boundaries, as well as mapping the overlaps and the inter-relations that this implies. We believe that this could have a major impact on people's understanding of the diversity of the cultural landscape they inhabit. We'd hope that this leads to more tolerance and acceptance of difference and diversity through greater and more effective communication, but may of course have far different outcomes in practice."

The process of personalising urban spaces with anecdotal stories or commercial recommendations—as *Urban Tapestries* users most often did—can be seen to express the ability of such applications to foster a kind of “social currency” exchange (Silverstone and Zujon 2005:41) that indeed bolsters a sense of collective meaning and identity. In other words, this kind of small-talk or gossip can be a powerful social binder, as people regularly use it as a way of including or excluding others, and negotiating shared values (see for example Fine 1985; Coupland 1991). However, as Silverstone and Sujon (2005:42) suggest, more extensive use of such technologies, and research in these areas, would also help social scientists better understand if such recommendation activities “indicate that [people] are ‘stuck’ in consumer patterns of behaviour and struggle to imagine social interactions or public behaviour outside of consuming something or making exchanges.”

Concerns stemming from the actual content people chose to ‘embed in the city’ return us to *Urban Tapestries*' notion of “public authoring” and its potential as a

form of "Mass Observation for the 21st century." It is immediately clear that *Urban Tapestries* shares a common interest in capturing the everyday in much the same way as the early Mass-Observation movement did (see Highmore 2002; Hubble 2006), including the implications for citizenship and civil society. For example, Giles Lane's (2004:4-5) explanation of how he understands agency and authorship is worth quoting at length:

I believe that the future for our society lies in broadening the capabilities of its members to be actors, agents and authors, not merely consumers of a culture created by others employed in the 'culture industry'. The control of information and communications has long been understood to shape how societies develop and behave; using network technologies to gather, create and share knowledge at grassroots – no matter how informal – offers the possibility of profound changes to the way in which we engage with our environment and the people who inhabit it.

By making available simple tools of authorship and communication (which are also asynchronous and anonymous) to people going about their everyday lives, it is possible to imagine a rich and vibrant culture of exchanging stories and local knowledge, where our sense of how we value our neighbours is derived from the richness of the knowledge we all share. *Urban Tapestries* is built on the notion that these network technologies should enable communication between people at all levels, and not be forced into the straitjacket of consumption and consumerism – repurposing the print and broadcast media created and designed for a different age to sell as 'high-value' location-based content.

If, as is so often claimed, content is king, then surely the most valuable and relevant content about local places for local people is not going to come from media companies, but directly from their peers and neighbours? And if this is the case, then surely the point of sharing such information is not to sell media content but to communicate?

A key issue for developing this sense of personal agency will be our changing perception of citizenship and its role in how we construct our identity. Is it an attribute bestowed upon us by the State and government according to our place of birth or sworn allegiance? Or will it become something we assert through practice and inhabitation, through participation in community life? The impact of the revolution in communications has been to shift our perceptions of space and territory so that we are no longer defined or our horizons limited by the (particularly nineteenth century) concept of nationhood. Our sense of where, to whom and what we belong to alters too. In an age of conflicting loyalties and populations that are less and less ethnically or religiously homogenous, this presents a major problem to the traditional apparatus of power, yet offers extraordinary possibilities for individuals and communities.

By explicitly tying “public authoring” to matters of civil society and citizenship, expectations and hopes for future technologies, at least as enacted in *Urban Tapestries*, begin to take on a more explicitly political tone. Put otherwise, the tendency to use urban computing and locative media as aesthetical tactics opens up the possibility of them becoming ethical tactics as well.

Rather than having to do with morals, ethics also refers to *ethos*, or the characteristic spirit and sentiment of a people. Following Maffesoli (1991) ethical action and aesthetic experience are always already productively combined in everyday life. As Shields (2002:205) further explains, “Ethics alone is insufficient to make changes or guide actions. It is a content that requires a form – an aesthetics . . . Aesthetics alone is equally insufficient, for it leads to an aestheticized politics of manipulation and of form alone without content.” In the case of *Urban Tapestries*, the emergence of a bottom-up ethics depends greatly on participating publics. However, given the exploratory nature of technological prototypes, and the lack of commercial availability of any of the applications discussed in this dissertation, it is very difficult to figure out who—if anyone—would actually use such technologies in the future.

Some of the potential barriers to the use of *Urban Tapestries* discussed by Silverstone and Sujon include cost, interest and social context, and for some of their study participants,

the threat of losing control over who would interact with you, how much and what kind of information you would be exposed to and the risk of being flooded with [device] beeps and irrelevant stories overshadowed any appeal UT might have held (2005:46).

However, it is also clear that other workshop participants were quite excited about emergent (and less socially demanding) relations they could have with the city and with the technology. As we saw with *Sonic City*, while sociability and connection with non-human actors may be seen to increase, the matter of interpersonal relations remains far less clear.

One possibility—hinted at earlier and in the other case histories—is that relations between people, places and objects could become more playful. As one *Urban Tapestries* bodystorming participant put it, “It seems like a recreational thing. It’s kind of an adult toy isn’t it?” and Silverstone and Sujon (2005:48) replied,

UT is in some ways a toy. A toy that helps users make sense out their own locations, test their boundaries, solidify their connections to place and play with memories, fantasies in and through their spatial practices.

In sum, *Urban Tapestries* can be seen to have a very well articulated desire for present and near-future relations to technology and media that are based on increased public agency and creativity—both of which, it is hoped, will lead to positive changes in citizenship and civil society. The final section of this chapter will look more closely at what such playful cities and politics might look like—and how that relates to expectations around future technologically-mediated forms of spatialisation, temporalisation and embodiment.

6.6 MOBILE PUBLICS AND THE PLAYFUL CITY

[T]he development of cities ... favors the confrontation of different cultural traditions, which tends to expose their arbitrariness practically, through first-hand experience, in the very heart of the routine of the everyday order, of the possibility of doing the same things differently, or, no less important, of doing something different at the same time (Bourdieu 1977:233).

[A]s a place of encounters, focus of communication and information, the urban becomes what it always was: place of desire, permanent disequilibrium, seat of the dissolution of normalities and constraints, the moment of play and of the unpredictable (Lefebvre 1996:129).

I began this chapter with a brief discussion of the performative qualities of urban computing and locative media projects, including a notable research interest in pervasive games or pervasive play. First, what I wanted to do was reiterate the idea that the most general expectation underpinning all the projects presented here is that pervasive computing will be centred on embodied interaction rather than cognitive abstraction. As McGonigal (2006:5) puts it, "It is not the mimetic references or cognitive concepts that ubicomp wants to proliferate; it is rather interactive experiences and phenomenal affordances that will be made pervasive." This also suggests that urban computing and locative media researchers believe that such a focus is currently lacking, and their promise is to try to enable it in the future. Second, I wanted to begin to draw out the spatial and cultural implications of the active and creative publics enacted in these alternative technosocial scenarios.

6.6.1 Mobile publics

The idea of 'public' as both actor and audience has long been connected to technological development, especially as related to media production and

consumption in urban spaces. For example, in the mid-1800s Kierkegaard implicated mass media and communication technologies when he blamed 'the press' for turning 'the public' into a "monstrous abstraction, an all-encompassing something that is nothing" (1978:79). Kierkegaard's 'public' was indifferent, and people were left with an inability to act, which has serious consequences for matters of collective aesthetics and ethics. At the turn of the century, Georg Simmel (2004:13) conjured a similar kind of political impotence in his descriptions of the "blasé attitude" and faster, increasingly technologised, urban life where "punctuality, calculability and exactness" are considered to encourage "the exclusion of those irrational, instinctive, sovereign human traits and impulses" that would otherwise construct a vital, internally-generated life.

However, drawing on Walter Lippmann's (1925) notion of publics, Noortje Marres (2005:214) argues that a public—in much the same ways as the potential future users of applications like these—is "precisely not a social community." Or more specifically, the 'community' is not pre-existing; it is created by particular people implicated by particular issues, or people brought together around shared interests and concerns. However, rather than falling prey to impotent abstraction these publics rally force in their inconsistency and contingency:

[T]he agency of the public derives in part from the fact that this entity is not fully traceable. That is, the force of the public has to do with the impossibility of knowing its exact potential [...] The fact that the public cannot be definitively traced back to a limited number of identifiable sources is thus crucial to the effectiveness of the public: this is what endows publics with a dangerous kind of agency (Marres 2006:80).

The “phantom public,” then, has power precisely because its potential is both unknown and, in many ways, infinite. Its ethics are situational but actionable, and it will continue to congeal and dissolve new publics, aesthetics and ethics as needed—or at least as possible.

Elements of individual and collective uncertainty, potential and transition also appear in the work of Mikhail Bakhtin. Of particular interest here is how Bakhtin positions action at the level of the practical everyday, and how reasoned ethics are seen to emerge from particular places and situations. These kinds of bottom-up ethics and micro-politics elicit something far more unstable and unruly than Habermas' (1989) ideal public sphere, and perhaps more in line with the complex situations and issues conjured by Lippman and Marres above.

As Gardiner (2004:38) points out, where Habermas saw “sober and virtuous debate” using “ideal speech” in a “public sphere,” Bakhtin witnessed in the carnival a “tumultuous intermingling of diverse social groups and widely divergent styles and idioms of language...including the use of parodic and satirical language, grotesque humour, and symbolic degradations and inversions.” Public gatherings like the carnival privileged radical difference and multiple voices in many of the same ways as Lippman's publics, but also made clear that these kinds of coming-together can be transformatively transgressive:

[A]ll were considered equal during carnival. Here, in the town square, a special form of free and familiar contact reigned among people who were usually divided by the barriers of caste, property, profession, and age (Bakhtin 1984:10).

"Feast crowds" were also described by Elias Canetti (1998:62) as ones in which "everyone near can partake." Canetti's feasts, like Bakhtin's carnivals, are situations of difference, excess and potential:

There is more of everything than everyone together can consume and, in order to consume it, more and more people come streaming in. As long as there is anything there they partake of it, it looks as though there would be no end to it...Nothing and no-one threatens and there is nothing to flee from; for the time being, life and pleasure are secure. Many prohibitions and distinctions are waived, and unaccustomed advances are not only permitted but smiled on. For the individual and the atmosphere is one of loosening, not discharge. There is no common identical goal which people have to try and attain together. The feast *is* the goal and they are there. The density is very great, but equality is in large part an equality simply of indulgence and pleasure. *People move to and fro, not in one direction only. The things which are piled up, and of which everyone partakes, are a very important part of the density; they are its core.* They were gathered together first, and only when they were all there did people gather round them. It may take years before everything is ready and people may have to endure a long period of want for this brief abundance. But they live for this moment and work steadily towards it. Men who can otherwise rarely see each other are ceremoniously invited with their own groups. The arrival of the various contingents is vigorously acclaimed and each fresh arrival raises the level of universal joy (Canetti 1998:62 emphasis mine).

Working within this metaphor, we can see feasting publics to be those gathered around shared objects and concerns—or more specifically, and in similar ways to Lippmann's publics, their 'goal' is to be/come together. In other words, Canetti's feast crowds are dense with all sorts of different objects, rituals and people that have similar disruptive potentials to Bakhtin's carnival and Lippmann's phantom public.

If we continue to understand 'public' to comprise situational assemblages of people, places, objects and ideas, then there is probably no area of technological research and development that better explores and exemplifies these complex relations than do recent activities in mobile and context-aware computing. Given

the imperatives to locate and connect (see for example Green et al. 2005) that are embedded in otherwise diverse technologies, it should come as no surprise that today's wireless and wearable devices and applications offer unique glimpses into crucial sets of values and expectations surrounding 'the fate of the public.' Here we might also recall the description of urban computing and locative media research trajectories in Chapter 5, Section 5.4, and their focus on public interventions.

Increasing calls within social and cultural studies for a spatial or 'mobilities' turn (see for example Bauman 2000; Cresswell 2006; Urry 2000) have been echoed in books like Hoete's (2003) *ROAM: Reader on the Aesthetics of Mobilities* and Turner and Davenport's (2005) *Spaces, spatiality and technology*. More to the topic at hand, social and cultural interests in mobile technologies have so far concentrated on local and global mobile phone usage, wireless infrastructure and pervasive computing, with exemplary research in anthropology (see Horst and Miller 2006; Ito et al. 2005), cultural studies (see Galloway 2004; Goggin 2006; Mackenzie 2005), sociology (see Castells 2006; Glotz et al. 2005; Katz 2006; Katz and Aakhus 2002; Kopomaa 2000; Ling 2004; Sheller and Urry 2006), social geography (see Graham and Marvin 2001), architecture (see McCullough 2004; Mitchell 2004; Greenfield and Shepard 2007) and computer-supported cooperative work research (see Brown et al. 2001; Hamill and Lassen 2005; Ling and Pedersen 2005), as well as recent multi-disciplinary volumes (see Kavoori and Arceneaux 2006; Seijdel 2006), technology design books (see Greenfield

2006; Sterling 2005) and more popular sociological accounts (see Agar 2005; Levinson 2004; Rheingold 2002).

However, by returning our focus to matters of 'mobile publics' it quickly becomes clear that relatively few of these publications actually tackle the question head-on. A recurring theme in mobile technologies discourse is the intrusion of 'private life' into 'public space' through the use of mobile phones, although there is substantially less engagement with any sort of 'reverse' process involving 'public' intrusions into 'private' life with the exception of more recent surveillance studies (see for example Lyon 2006; Lyon 2003). Extending this to the realms of urban computing and locative media practice, we can also see a general and quite prolific focus on technological interventions in 'public space' requiring 'public participation.' However, most discussion and activity surrounding mobile publics as political forces employ notions of social and political networking, such as in the Annenberg Center for Communication's *Networked Publics* (<http://netpublics.annenberg.edu/>) research project, and network analyses such as those by Castells (2000) and Larsen et al. (2006). Other wireless commons research (see Schmidt and Townsend 2003) and public projects include the *Canadian Mobile Digital Commons Network* (<http://www.mdcn.ca/>) and Montréal's *Île Sans Fil* (<http://ilesansfil.org/>) community wi-fi project, all of which also rely heavily on network metaphors and networked urban infrastructures.

And so before we can return to the notion of 'public' laid out earlier—one in which different people, objects and ideas converge and dissolve—we may need to distance ourselves a bit from what Sheller (2004) has described as the "mathematically precise" or "'hard' imagery" of networks, and focus instead on "more liquid or messy social structures" and "softer visions of porous sociality." Put otherwise, the network model or metaphor is not well equipped to deal with uncertainty, inconsistency and instability—conditions outlined as integral to the sense of 'public' I constructed from the ideas of Lippmann, Marres, Bakhtin and Canetti. However, discussions of mobility, liquidity and flow (see Bauman 2000; Deleuze and Guattari 1983b; Shields 1997; Urry 2000) offer alternative ways of understanding the kind of assemblages and assemblies at stake here.

After all, as White (1992:337-338) points out,

We are creatures living within social goos, shards, and rubbery gels made up by and of ourselves. We, like gels, may dissolve into a different order under some heat. Even the frozen shards exhibit only limited orderliness, and even then an orderliness lacking in homogeneity, and an orderliness made more problematic through its dual relation to physical space.

And Sheller (2004:49-50) concludes,

It is the capacity for coupling and decoupling in various ways that enables social action and the emergence of persons ... If 'persons' emerge as identities out of this social gel, it could likewise be argued that collective actors emerge in the same way—that is, as 'more or less rickety ensembles', or sociotechnical assemblages, 'energised in some situation and style' ... Publics are not only collective actors, emerging situationally as action gels around particular issues or debates, but also the slippery quality that allows for persons to slip from one identity to another in the first place ... The mobilisation of publics, then, is not simply predicated on increasing the density or intensity of face-to-face ties (as in a network), but depends instead on the entire context of communication gelling, which enables momentary stabilisations of collective identities as publics ... Mobile publics can perhaps best be envisioned as capacitors for moving in and out of different

social gels, including the capacity to take on an identity that is able to speak and to participate in specific contexts.

This kind of temporary coming-together, gelling, or coupling is the kind of public and political agency put forth above, both in the case histories I presented and the subsequent theoretical discussion. For example, the inclusion of 'the public' in research and design activities is one way in which dystopian/industry and utopian/artistic dichotomies are broken down, or blurred. At the same time, envisioning a vital, playful and creative public helps valorise visions of urban computing and locative media—recruiting particular allies and easing translation efforts. In the final section of this chapter I return to the kind of playful and transformative experiences that are expected to accompany urban computing applications and locative media.

6.6.2 Playful Cities, Playful Lives

The social significance of play (see for example Callois 1961; Huizinga 1970; Sutton-Smith 1997) is too vast to tackle here, but play is most often seen to involve a reversal of what is rational, normal, everyday, practical and expected. In this way, play is a means by which people test boundaries and expand limits, escaping, if only temporarily, our everyday constraints. To clarify, following Lefebvre (1991b), Stevens (2007:29) points out the "dialectical tension underlying escape through play: escape is impossible, illusory, but this illusion in itself constitutes a perceptual and social reality." The playful, or ludic, city then

can be seen as fundamentally affective or expressive, "an alternative system of spatial (dis)ordering where transitional identities may be sought, sensual and imaginative experimentation indulged" (Edensor 1998:219).

Recalling Linda Doyle's comments on the *Passing Glances* project, part of the appeal of technologically augmenting urban spaces is being able to give "people access to interesting content" or to make a place more interesting "because you're giving people access in places they don't expect it." Similarly, Lalya Gaye said of *Sonic City*: "Everyday familiar spaces are transformed into resources for musical interaction. In *Sonic City* we...augment something that users are familiar with, but not in terms of making music with it." In the case of *Urban Tapestries*, we might also recall the pleasure people derived from experiencing, and imagining, the city in new ways. And the collective potential of such experiences was considered by the researchers to be the primary value of *Urban Tapestries* as a sharing technology. This desire to defamiliarise the familiar also has a strong tradition in theories and critiques of everyday life (see Gardiner 2000; Highmore 2002), and especially within De Certeau's (1984) work and Situationist approaches to the city (see Sadler 1998), from which all three cases presented here clearly take inspiration.

A primary expectation that informs all these research projects is that future technological applications would, and should, facilitate playful or transformative experiences, dense with aesthetical and ethical action. This can be seen as fundamentally tied to what it means to use technology to make everyday life more

meaningful—a driving force behind much urban computing and locative media research. However, the potential publics implicated here are best understood not in terms of masses or even network models, but rather as temporary assemblages: those people, places, objects and ideas that are made co-present through the situational use of such context-aware technologies. These are multiple publics that can be/come together through new forms of spatialisation, temporalisation and embodiment that seek to amplify or augment the vital aspects of everyday life. In other words, these applications allow people to play with identities and relations in highly situated ways. However, an alternative reading (see for example Felski 1999/2000) suggests that all the cases likewise mobilise particular race, gender and class-based understandings of the everyday as something that needs to be made 'creative' or 'playful,' or to 'progress' much like technology is believed to do—a point that deserves further examination.

Nonetheless, while total transformation it is certainly a familiar trope in discourse surrounding new technologies and technological 'progress', I am not convinced that it is actually expected to happen at the global scale predicted by so many of the large stories I discussed in Chapter 5. Looking at the smaller case histories helps temper the totalising visions that are seen to characterise much pervasive and ubiquitous computing. While broadly utopian in their perspective, none of the projects presented here seemed overly naïve to me. They often located the potential to improve people's lives at the most mundane levels, and in the most situated ways. Use scenarios, and system architectures, were kept purposely ambiguous and open-ended, seeking to put control in the hands of

(particular) users. In other words, future publics in the ludic city would be free to move and be moved. As Crang and Graham (2007:810) put it, pervasive play “transforms the city space into [a] game board so that the familiar space of the city is transformed into a new and unexpected environment” and these kinds of applications can “work to create and foster new social communities, or sociotechnical communities through locative performances.” Recalling Michael’s (2006) comments on the density of the technologised city, Crang and Graham further emphasise that

these artistic media are trying to densify the liquid – not solidify places ... [which] may offer the possibility of enriched community formation. Not indeed the embedded and static version of community but community as assemblage in flux, as turbulence and eddies in the data stream (2007:810-811).

In short, the kinds of users or audiences expected to take part in these technological futures are not *the* public, but many (partial) publics. While undoubtedly historically embedded within individualising Western consumer culture, the expectation and promise of urban computing and locative media also points to dissatisfaction with the current status quo. By focussing on creative agency, technosocial innovation or change is tied to playful practices. Without dismissing the real social concerns raised above, in the final chapter of my dissertation I will return to Bakhtin’s carnival and Canetti’s feasts in order to further explore the implications of such a present, and future.

6.7 SUMMARY

This chapter shifted focus to the smaller stories of individual urban computing and locative media research projects in order to question what, exactly, is

expected in some of these future scenarios. Contrary to the discursive construction of pervasive computing as 'everywhere,' these projects tended to locate technologies 'somewhere.' Context-aware computing, researchers suggested, enacts particular but dynamic spatialisations, temporalisations and embodiments. In doing so, city spaces and social behaviours are expected to become more affective and expressive, and potentially more meaningful. This extensibility and transmissibility of the city, along with an increased ability to be embedded within in, was a shared expectation amongst all the cases presented here.

Passing Glances was described as an imagined future where images could be embedded in the built environment and triggered by text message, augmenting urban waiting spaces with random and emergent narratives as well as the potential for random and emergent social interactions. *Sonic City* was positioned as both a listening and composing technology that promises the city itself as media co-creator. Although it was not considered an interpersonal technology, it can be seen to expect new relationships between people and places. *Urban Tapestries* was likewise described as expecting a reinvigorated sense of social and spatial belonging based on the ability to play with boundaries and identities.

Ultimately, I argued that the desire to augment reality is not a desire to use technology to replace people, places or activities, but rather one that seeks to

amplify or extend the most vital qualities of our lives in order to multiply possibilities for future connections. Nonetheless, such visions exclude particular people and ways of living; left out of this 'enriched' technological future is anyone who falls outside these assumptions. For example, taking for granted the ideals of consumer capitalism, and firmly situating them in urban rather than rural contexts, the presumed user of these applications both desires, and is able to afford, being 'connected' at all times.

A primary expectation that also informs all these research projects is that future technological applications would, and should, facilitate playful or transformative experiences, dense with aesthetical and ethical action. In this way they position themselves against a totalising vision of ubiquitous computing, and situate their applications as temporary or partial interventions into everyday urban life. However, as I have written before, researchers and designers still need to make explicit what, exactly, it is about everyday life that needs to be augmented or improved, especially if these technologies are meant to become part of the everyday (Galloway 2004a:402).