

The smart city you love to hate

Exploring the role of affect in hybrid urbanism

Michiel de Lange

Utrecht University: Media and Culture Studies

The Mobile City

Amsterdam, Netherlands

mdelange@bijt.org

Abstract. This contribution wishes to contribute to the present controversies and discussions about smart cities by sketching a framework for the affective smart city.

Keywords: affect; emotion; smart city; digital media; ownership

I. INTRODUCTION

A wide range of information- and communication technologies have become enmeshed in the urban landscape and city life. This has spurred a cross-disciplinary research and development agenda about the hybrid relationships between ICTs and urban culture. The ‘smart city’ has emerged as the newest incarnation of urban hybrid form. Catching up on the avant-garde of media makers, architects, artists and academics who for decades have occupied themselves with ICT-urban hybrids, this powerful new business and policy vision takes hold of cities worldwide. In close collaboration with technology companies and university tech and engineering departments cities develop smart city policies to optimize urban processes by deploying a variety of digital technologies. The smart city is touted to help solve a wide range of pressing urban issues and therefore to improve people’s quality of life in the city. Different cities obviously face different problems, but in general issues that smart cities address include mobility, clean energy, water and food production and distribution, health, living and public participation.

Further below we see that smart city ideals and practices have come under considerable criticism. Here I want to contribute another element to the present controversies and discussions by arguing that the smart city needs to be more sensitive to affect. The smart city taps into the potential of digital technologies to help solve urban issues. As it operates on mixed fields of digital and urban design it has to have a certain underlying take of the hybrid nature of cities, however implicit. Part of this paper is devoted to unearthing these foundations by enquiring into the underlying epistemologies of the smart city.

This work-in-progress research paper traces and discusses three dominant epistemological foundations of theorizing the hybrid nature of cities. Seeing the city as a hybrid form, a particular recombination of two or more distinctive elements, stands in a long tradition and continues to heavily influence how we conceive of our cities today. In the first, called the ecosystem view, the early modern metropolis is conceived as a particular socio-environmental system that forms the backdrop for typical behavior and mentality deemed metropolitan. The second, which I label the cognitive view, tries to bridge spatial and mental domains by focusing on people’s perceptual and mental experiences of cities. The third, which I call the affective view, shifts attention to emotional relationships between a range of different actors in techno-urban

environments. I briefly discuss the central concepts of affect and emotion and their relation to urbanism before turning to several converging trends that explain why affect is rising to the fore in the study of hybrid urban experiences. This is followed by the argument that the smart city builds upon the ecosystem and cognitive views but is lacking in taking the affective point of view into account. It therefore remains stuck in limited conceptualizations of hybrid urban space and culture. The smart city does not appeal to the emotions and as a result insufficiently engages citizens. Finally, I sketch the framework for a proposed ‘affective smart city’ that tries to deal with the concerns raised and contribute to the design of smart cities.

Some caveats must be stated upfront. First, these foundations are presented as more or less successive stages. As we will see however they are not entirely. Second, these are by no means the only conceptual hybrids in urban theory. A staggering number of notions relate one aspect of the city to something else, typically using expressions like “The X or Y City” or “The City as X or Y”. Such relational notions connect and compare, describe processes of interaction and mutual shaping, draw analogies and metaphorically conjure up associations. Often they aim to tease out a singular and very specific perspective on the city. For example, they may pertain to urban economic functions as in Mumford’s ‘courttown’, ‘commercetown’, ‘coketown’ [32: 446-474], spatial form and mode of production as in Sassen’s ‘global city’ [43] mental and poetic aspects as in Raban’s ‘soft city’ [17: 249], or even the lack of any local specificity as in Koolhaas’ ‘generic city’ [20]. Third, this proposal of the ‘affective smart city’ runs the risk of being a singular and possibly one-dimensional narrative, a ‘concept-city’ [8: 95], that the smart city is criticized for.

To address these caveats, I do not claim to present a historical account of hybrid city theorizing. Instead I dig out three dominant hybrid foundations that are epistemological (how can we understand the city?) rather than ontological (what is the city?). These foundations are not restricted to spatial, social or mental spheres but tie them together to approach the broad question of urbanism as a way of life. Uncovering these foundations allows us to pose particular questions that fertilize the debates about the ‘smart city’.

II. THE HYBRID CITY IN THREE LAYERS

A. *Ecosystem view*

A powerful solution to the problem of studying cities and how people live in them has been to approach urbanism in ecological terms. Emblematic of this ‘ecosystem view’ is the Chicago School of urban sociology. At the beginning of the twentieth century, sociologists like Robert Park, Ernest Burgess and Roderick McKenzie described the city in

evolutionist vocabulary as an ecosystem in which people compete for space and scarce resources [34][35][36]. In their view a range of specialized functions sprout from the city's distinct spatial qualities (high density and layout) and demographics (high numbers of socially heterogeneous people), analogous to what happens in ecological niche environments. The city serves as a more or less closed container for a wide range of 'species' - frequently birds of strange feather like hobos, taxi-drivers, ballroom dancers, street-corner boys - who compete for scarce resources and struggle for survival, while engaging in Darwinian relationships of conflict, dominance, symbiosis, assimilation, succession, and so on. People belonging to the same species frequently cluster in the same neighborhood, which leads to the formation of specific functional urban zones. These milieus then could be mapped, as Burgess did in his famous diagram of Chicago [17: 29][3].

Not surprisingly, this ecosystem view has a very limited view on affect and emotions. Relations between people and between people and the urban environment are strictly utilitarian. Social solidarity is not based on sentiment and habit but on community of interests [34: 587]. The city is nothing but a backdrop for action, a 'psychophysical mechanism' providing resources [34: 578]. On the psychological level the early metropolis feeds a range of mostly negative emotions, like permanent instability, crisis, potentially self-destructive sensory stimulation and pleasure-seeking, even alienation. The mob and the crowd, driven by suddenly flaring emotions, were seen as threats to the public order. As I note elsewhere [24: 152-155], despite the keen eye these sociologists had for heterogeneity and the 'mobile' character of urbanism their ecological framework rests on a rather 'sedentary metaphysics' [7: 26] in which 'a sense of place' ideally means engaging in long-term social relations tied to fixed locations. It is very difficult to get close to what these Chicago School authors feel drives people emotionally. The city seems a life-sized version of a Skinner box *avant-la-lettre* where evolutionary drives are the parameters and stimuli that propel people to feel, behave and think in certain ways.

B. Cognitive view

A very different strand of thought explores how people experience their cities at the level of sensory impressions and cognitive understanding. Exemplary is Kevin Lynch's work *The Image of the City* [30]. As electronic media became ever more widespread, sensitivity for mediated visions of the city too was growing.¹ Urbanist Lynch famously argued that people move through the city by 'reading' the cityscape. He studied how people orient themselves in three different American cities (Boston, Jersey City, and Los Angeles) and compared these cities on the basis of their 'legibility' (alternatively called 'imageability' and 'visibility') as the extent to which the cityscape can be 'read' [30: 2-3]. People moving through the city need to be able to recognize and organize their environment into a coherent pattern. They orient themselves by composing 'mental maps' of the urban environment [30: 1-13]. These mental or cognitive maps are made up of publicly visible and generally recognized items, like paths (routes people take while moving through the city), edges (boundaries and breaks in the continuity of

the urban landscape), districts (areas with shared characteristics), nodes (strategic focus points for orientation like squares and junctions), and landmarks (external points of reference, usually an easily identifiable physical object in the urban landscape) [30: 46-48]. Lynch presented his work as an agenda for urban designers. In his opinion urban elements should not be hermetically designed but offer urban inhabitants room to actively shape their own 'image of the city'.

Other than the ecosystem view this approach does emphasize human agency, but almost entirely at the level of conscious, rational cognition. According to Lynch, clear mental maps of the urban environment counter the always-looming fear of disorientation and bring a sense of emotional security. According to Lynch mental maps heighten the depth and intensity of everyday human experience. Here too we see that the range of possible emotions that arise from interactions with the city remains fairly limited to psychological extremes: disorientation, fear, security and a sense of control. Lynch' focus on experience to improve the city by making better urban navigation is extrinsically motivated and departs from a highly individualized take on how people experience the city.

C. Affective view

Urban space and culture is increasingly often conceptualized in affective terms. We see affect play a role in locative media art and its tight intellectual ties with actor-network theory, as it seeks to trace and map complex relationships between places, people, technologies in 'emotional cartographies' [33]. Ubicomp and urban informatics researchers develop similar ideas about cities possessing some form of 'sentience' [45]. Affect also figures in explorations of how digital media can strengthen citizen engagement by fostering a sense of 'ownership' [26]. In the field of urban design many interventions target the affective realm often by stirring emotions and desires through play or poetic 'sense of place' projects. This affective view gets more attention in the next section.

III. AFFECTIVE URBANISM

I propose that three trends are converging and spurring the theorizing of contemporary urban life and culture in affective terms. These are the rise of affect in geography and urban studies; the rise of affect in computer research and media studies; the rise of a politics of affect around ownership. But let us first take a brief look at some of the terms that so far have remain unexplained.

A. Discussion of terms

Affect is associated with emotions and feelings that influence action. The word emotion roots in Latin *emovere*: moving out of. Interestingly this implies two types of movements: to move something (to excite) as well as being moved out of one's habitual state of mind. In a rich article Nigel Thrift proposes to take the politics of affect as central to the life of cities. He identifies four conceptual approaches to affect [49]. First is the phenomenological focus on sensorial and embodied knowledge and ways of being in the world. Second is the psycho-analytical tradition that builds on Freudian notions such as drive and desire and proceeds from there. Third is a more abstract naturalistic view that translates affect as the capacity to have an effect on and be affected by others through interactions. Fourth is a neo-Darwinian view on the evolutionary origins and universality of emotional expressions like anger, fear, sadness, disgust and enjoyment

i. Earlier authors like Simmel, Benjamin, and Wirth prefigured this focus on cognition with their writings about the mediated urban experience and mentality.

[49: 64]. In each of these approaches “affect is understood as a form of thinking, often indirect and non-reflective” that escapes representation [49: 60, emphasis removed]. Relegating emotions to the realm of the irrational or the realm of the sublime ignores this point about affect as “a different kind of intelligence about the world” [49: 60]. From this we can take the idea that affect may be a missing component when considering what is truly smart about smart cities.

Thrift uses emotion, affect and feeling rather interchangeably. Several authors in the field of geography however point out that there is a difference between affect and emotion [50][39] and between affect, feeling, and emotion [1]. For Anderson, affect, feelings, and emotions respectively correspond to the capacity of a body (human or non-human) for movement, corporeal and embodied expressions, and qualification into meaning [1: 735-737]. In Pile’s interpretation this distinction is one between non-cognitive affect, pre-cognitive feeling, and cognitive emotion [39: 9-10]. Although I acknowledge the risk of ‘conceptual underdetermination’ [1: 734], I shall not go into these differences any further here, both for lack of space and because it matters little for my general point about the almost complete neglect of the realm of affect and emotions in ‘smart city’ discourses.

What is important to add here is that affect has nothing to do with romantic ideals of prereflexive unmediated directness, as opposed to reflexive conscious cognition [1: 737]. Rational cognition and emotional affect are not opposites as much as different yet complementary. Affective computing researcher Rosalind Picard underlines this point by noting: “there is a distinction between *thinking* about an emotion, e.g., “this is disturbing” and *feeling* disturbed” [38: 36]. Picard makes a useful distinction between emotional *state* as someone’s internal dynamics when having an emotion, emotional *experience* as someone’s conscious self-perception of an emotion, emotional *expression* as the voluntary or involuntary communication of emotion, and *mood* as referring to a longer-term affective state [38: 24-25]. Moreover, Picard points to research about the gendered differences in communication, with men apparently preferring “thinking” and women tending towards “feeling” [38: 9-10].

Following these authors, I take affect as a fundamentally relational way of being knowledgeable about the world. Connections between the inner world and outer world are made not just via rational cognition and its translation into words and facts but through the capacity to move and be moved. All interactions with situations and events, with other people and with the self have this affective component.

B. *The rise of affect in geography and urban studies*

Multiple authors argue that until the early 2000s, affect has been largely absent in human geography. Pile says that since 2003 an emotional or affective turn in human geography has taken off [39]. Thrift claims that the affective register is conspicuously absent from the study of cities and provides three reasons why this amounts to “criminal neglect” [49: 57-58].ⁱⁱ

First, systematic knowledges of the creation and mobilisation of affect have become an integral part of

the everyday urban landscape: affect has become part of a reflexive loop which allows more and more sophisticated interventions in various registers of urban life. Second, these knowledges are not only being deployed knowingly, they are also being deployed politically (mainly but not only by the rich and powerful) to political ends: what might have been painted as aesthetic is increasingly instrumental. Third, affect has become a part of how cities are understood. As cities are increasingly expected to have ‘buzz’, to be ‘creative’, and to generally bring forth powers of invention and intuition, all of which can be forged into economic weapons, so the active engineering of the affective register of cities has been highlighted as the harnessing of the talent of transformation. Cities must exhibit intense expressivity. [49: 58]

I would respond to Thrift’s claim that emotions have been a pervasive yet underspecified theme in urban research from the very beginning of theorizing the modern European and American metropolis. Two recurring emotional extremes have already been mentioned: stress and disorder on the one hand, and excitement and a sense of liberation on the other. In most urban literature affect is approached negatively, in terms of causing stress, fears, loneliness, mental breakdown, and disorderly shock experiences. An unbroken line runs from Simmel’s “sensory overflow” and Benjamin’s “shock experiences” to Wirth’s “personal disorganization and mental breakdown” to Milgram’s “emotional overload” and Fischer’s “psychological strain” [13: 46-53].

A more positive view on affect emerges in J.K. Wright’s 1947 presidential address to the Association of American Geographers, in which he proposes that geographers pay attention to intuitive and aesthetic imagining and subjectivity in what he dubs ‘geosophy’ [55]. From there the thread gets stronger. Bachelard’s poetic inquiry into intimate places is an example [2], as is Tuan’s exposé on how the geographical emphasis on analytical thought and measurable knowledge tends to falsely ignore human experience, feeling and aesthetic response [51: 200]. “Emotion tints all human experience, including the high flights of thought” [51: 8] A focus on experience looks at people’s sensation, perception and conception of reality. Tuan then zooms in on a wide variety of emotional relationships people have with place, like attachment to the homeland, a sense of security, pleasure or awkwardness in embodied interactions with places and other people, intimacy, and spiritual connection through myths. Massey argues against the division between an abstract space and concrete local place, a distinction too often phrased as a “dualism between Emotion (place/local) and Reason (space/global).” [31: 184]

Many authors observe that economic and cultural realms in the post-Fordist metropolis converge into a “production of symbolic forms” that delivers goods and services with significant emotional or intellectual content [44]. This new economy is primarily located and developed in ‘creative cities’. Aesthetic experience is no longer confined to the domain of culture (e.g. the neoclassical city of grandeur, or the utilitarian functionalism of the modern metropolis) but becomes a central aspect of the economy of desire and cultural consumption. In reaction to the seemingly homogenizing global economy, affect is invoked as a way to monetize the local. According to Scott: “...there ... tend to be powerful and recursively intertwined relations between the meanings that adhere to the urban

ii. The three converging trends sketched here partially coincide with Thrift’s analysis.

landscape and the symbologies of the goods and services produced in the local area” [44: 17]. Affect is the glue between cities and this ‘symbolic economy’ [44], experience economy’ [40][48] or ‘affective economy’ [18].

Even architecture itself is turning to affect by exploring how emotions, information systems and the built form might intersect. In the Dutch city of Doetinchem architect Lars Spuybroek in collaboration with medialab V2_ built the D-Tower that emits differently colored light based on the changing emotions of its citizens.ⁱⁱⁱ

C. *The rise of affect in computer research and media studies*

In 1997 Rosalind Picard proposed a future agenda for computer research called ‘affective computing’ [38]. People spend an increasing portion of their lives interacting with computers and since affect is part of human communication it is also present when people interact with computers, Picard says. She argues that emotions are not simply burdensome elements that have to be left out in order to reach rational decisions. On the contrary, emotions are a necessary aspect of communication. As ICTs are being used more pervasively for information- and communication tasks, they need to communicate well and be able to deal with information properly. Thus: “if we want computers to be genuinely intelligent, to adapt to us, and to interact naturally with us, then they will need the ability to recognize and express emotions, to have emotions, and to have what has come to be called ‘emotional intelligence’” [38: x]. Affective computing means that computers should understand emotions in others, they should be able to display emotions themselves and they should act upon emotions in meaningful ways. Too much but also too little emotion can impair decision-making. Computers have tended towards too little [38: 11]. Picard acknowledges problems in affective computing research like the lack of universality of emotional expressions. Moreover, experiments tend to focus on universal patterns instead of recognizing personal patterns. Mobile computing, out on the streets, should solve this problem: “As the computers become lightweight and wearable, they can measure emotional responses wherever and whenever they occur, both for individuals and for larger groups” [38: 34-35].

Interestingly, the underlying ideal of affective computing appears to aim for optimal communication between man and machine. In that sense it fits perfectly with the discourse of complete communicative transparency that has been a philosophical theme from the ancient Greeks [37] all the way to recent mobile media [9].

Affect also figures in new media studies, such as game studies [16], software simulations [5], and software studies in general [10]. In (mass) media studies affect has been on the research agenda for a while, particularly in studies that look at media pleasures and play [14][47]. More recently the attention for play and digital media has surged [46][21][19][41][24]. I return to play below. In an editorial to a special issue of Fibreculture Journal called *Exploring Affective Interactions* the editors suggest: “affect also has a further role to play as a kind of ‘disciplinary-glue’, making disparate practices resonate through the conceptual development and practical exploration of affect” [15: 2]. Here, affect acts as yet another anchor between new media studies and urban theory. Affect is even starting to

appear in (almost) ready-for-market technological products.^{iv} In 1999 Ben Russell envisioned in his *Headmap Manifesto*: “you can search for sadness in New York” [42], something we are now approaching in some way.^v

D. *The rise of a politics of affect around ownership*

Seemingly opposed to the commodification of culture in the ‘experience economy’, yet inextricably bound up with it, we see the rise of new collectives in the urban realm. These ‘networked publics’ [52] convene around shared issues of concern [29]. Instead of allowing digital media technologies to make their world smaller, people are seeking new connections to their urban environment and each other. This can be through sharing resources like food or pooling private goods like cars in collaborative consumption, or organizing ad hoc spontaneous events in smart mobs, or establishing DIY cooperatives for distributed energy provision [26][27][28]. These new collectives are political in the sense of building upon a shared and inclusive ethics of do-it-yourself, derived in part from online culture, and acting upon it. The role of various media is central. Thrift writes: “this redefinition of what counts as political [for example animal rights] has allowed more room for explicitly affective appeals which are heavily dependent upon the media...” [49: 65]. People need to *feel* something about an issue in order to take action, it needs to *feel right* to be moved.

To summarize this section, the city increasingly often figures as an active agent in shaping people’s emotions and instigating change. In this view the city no longer is a passive backdrop for behavior, or a canvas on which urbanites paint their everyday mental experiences. It becomes an active agent in a hybrid mesh of human-techno-socio-spatial interrelations. Crucially, in this view the city allows for a gamut of emotions instead of eliciting just the extremes.

IV. THE SMART CITY ‘PASSIFIED’

The smart city has been criticized for ignoring the active role of citizens and for proposing ‘technological fixes’ to complex problems (for a short review of strands of critique, see [27][28][53]). The argument I try to develop here however goes a step further: the smart city strips the city itself of its barely conceived agency and capacity to affect people on an emotional level. On the surface, the notion of the smart city appears to attribute the city with the power to actively intervene, mainly because of proposed ‘responsive’ and ‘interactive’ information systems and architectures. In fact this smart city paradigm involves a return to the systems perspective of the city as a passive backdrop for action. Technological visions of (near-)future smart urbanism depict how computing has escaped from the fixed work mainframe and home PC, and is now embedded in a myriad of urban situations and processes. Urban life becomes saturated with new technologies that make everyday life easier, safer and efficient. In a sense the smart city seems to follow in the footsteps of Archigram’s plugin city ideal to offer active responses to the wishes of its citizens. Yet a city that only caters to the wishes of individual citizens is not an active agent that has the capacity to affect but a passive canvas for personal desires.

iv. “A Smart Phone that Knows You’re Angry”, MIT Technology Review, January 9, 2012. <http://bit.ly/Vt8j2f>.

v. See “The Geography of Happiness According to 10 Million Tweets”, The Atlantic, February 19, 2013, <http://bit.ly/YxcwEz>.

iii. See <http://v2.nl/archive/works/d-tower>.

It is *reactive* not (*inter*)*active*. Smart city narratives uncritically conjure up images of everyday life, daily experiences, and normalcy. The stated ‘normalcy’ of smart technologies rhetorically acts to emphasize an unavoidable path towards the future [11]. However, as Ehrman among others remind us, there is nothing self-evident about the ‘everyday’ [12: 33]. It is precisely this uncritical evocation of the everyday as pre-given, as a neutral backdrop for acting in the world that pushes the city back into being a passive receptacle. It ignores how the everyday is constantly made and remade, emerging from complex affective interactions and struggles. Picturing the smart city as the passive recipient of unavoidable near-future technologies in the same movement pacifies it in the sense of robbing the city of its potential for political mobilization, as a place that brings together people with conflicting interests, activating citizen initiatives that bypass or run counter to vested institutional interests. At best, if indeed there is a more developed perspective on citizen experience and engagement, it assumes people as rational deliberative agents. It is rather telling that smart city experiments often incubate in that most sterile and rationalized of all environments, the (living) lab. To me that doesn’t seem like a good place to study potential solutions for urban issues on the plane of affect.

V. FRAMEWORK FOR THE AFFECTIVE SMART CITY

Smart city discourse takes the necessary affective political angle out of social change by proposing rational technocratic solutions for complex ‘wicked’ problems. Through gauging and measurement, quantification, and impressive visualizations complex problems are all too often presented as abstracted and objectified facts that can then be rationally handled and acted upon. However, to me it seems that issues like air quality in cities, vacancy are highly emotionally charged by nature, since they affect people’s sense of well-being, connection to their environment and others. Therefore the most promising ways to tackle these issues should play upon the realm of affect instead of ignoring it. My argument thus is that affect and emotions must be given a central position in the design of future cities with the help of digital media technologies. What then could an affective approach to the smart city look like? To address current criticisms waged against the smart city imaginary and open up room for more interesting developments, a framework for emotional involvement with the smart city needs to be developed along multiple lines.

One way is to look at the smart city through the lens of an inclusive and participatory sense of ‘ownership’: the extent to which people feel they belong to the city and the city belongs to them. Elsewhere we have addressed the question how we can engage new publics to act on collectively shared issues [26][27][28]. We identify several promising developments that strengthen citizen ownership of urban issues, shaped partly by digital media technologies, including changes in bringing out issues of concern; using new resources; alternative ways to engage new stakeholders and networked publics.

A. Issues

Any solution that claims to be smart must begin with a clear view of the problem it tries to solve. Instead of proposing technocratic solutions for abstract glib problems, smart city interventions must depart from people’s emotional attachment, or lack thereof, to shared urban issues. Putting complex collective issues like vacant

buildings and wastelands, shrinking cities, sustainable food, water and energy supplies, (youth) employment and social equity, mobility, environmental quality, safety, bridging the gap between citizens and policy, etcetera, on the agendas of citizens and institutional parties not only requires an appeal to reason but to emotions as well. Complex collective issues are by definition difficult to get a grip on because of conflicts between stakeholders, between individuals and collectives, between short and long term, and because people often do not agree on a definition of the issue, let alone on a solution. The starting question is what matters to people, not just because they know about it but also because it moves them and they feel they could have an impact on it. This capacity to affect provides the first steps towards a possible solution. If we look at mobility issues for example, some scholars and artists have emphasized that mobility is not simply about traveling from A to B as efficiently as possible [7]. Moving has its own affective connotations, which depends to a large degree not only on the spatial context and social situation but also the affective qualities of the transport- and communications media that are part of being on the move nowadays. Any smart city proposal that wishes to solve congestion and mobility problems must take this emotional experience of movement into account.

Sensing technologies and data visualizations are used to capture and evoke ‘matters of concern’ [29: 87-120] that would otherwise be hard to make public, like air or noise pollution. Obviously such high-tech visualizations appeal to the emotions. These data visualizations frequently evoke a stunning sense of the technological sublime and convey hopeful promises of a clean technological fix. Unfortunately that may work counterproductive in dealing with the messy reality of changing people’s attitudes and behaviors.^{vi} The challenge in mapping and visualizing matters of concern instead of matters of fact, seems to forge connections to lived experience. This means moving away from high-tech imagery and towards the implications for people in recognizable situations

B. Resources

Digital data and information have become new resources. More and more data sets are made available for public use. Often this ‘data-commons’ is handled as impersonal and anonymous as possible. While this is understandable in the light of privacy and surveillance concerns, this partially robs data of its capacity to affect. Instead we may think of how aggregated personal data resources are tied to people’s emotions and identities, perhaps by considering them as ‘transitional objects’ [54: 1-14]. These are objects that take up an intermediary position between the subject and the outside world, like the child that fuses together with the doll as its first “not-me possession”. In rethinking relationships between people and responsive urban environments, Beesley and Khan suggest that transitional objects help to achieve both self-exposure, actualization and mutual relationships [4: 21-22]. When applied to informational objects, personal data is ‘mine’ and therefore my responsibility to act upon but also a way to exchange something of value with the world and other people. The quantified self movement, as much as it extends regimes of ‘qualculation’ [6][48: 24, 90, 98] by

vi. “Where are the people?” Christian Nold commented on the bulk of urban new media visualizations, during the 2008 The Mobile City conference in Rotterdam. See <http://www.themobilecity.nl/conference-reports/keynote-talks-video/christian-nold/>.

measuring and quantifying experience, may actually be an interesting way to explore how collections of data might form narratives and speak to people.

C. Stakeholders

How can new stakeholders and networked publics be engaged to collaborate in city making? Up to now insufficient connections are made between institutional stakeholders and bottom-up initiatives. I believe play and games provide an almost endless vat of possibilities [21][22][25]. The lab is a controlled setting that emulates reality and tends to elicit artificial responses. Play provides an open setting that is deliberately artificial and tends to stimulate genuine emotions. In play something is at stake. People will feel emotionally attached to both the activity and the outcome. By forging bonds between players, teammates and opponents, play and games create ad hoc communal relationships. Play therefore can be a driving force behind collective action without necessarily requiring solidified and local identity categories. Play also acts as safe space for experimentation, since in play failure usually does not have grave consequences. While playing people temporarily assume different roles and illusory identities. Through play people thus can experience the position of one's habitual adversary. Furthermore, play can be subversive and a tactical way to cope with top down institutions and systems through deviant play like bending rules, counterplay, cheating, even acting as a spoilsport. As a last point, although there are many more to make, play is autotelic, that is, intrinsically motivated. Playing is fun. Thus, well-designed play experiences counterbalance one-dimensional and misguided behaviorist and rationalist approaches to attitudinal and behavioral change through conditioning with rewards or appeal to reason.

VI. CONCLUSION

The hybrid city needs hybrid forms of understanding that span across and connect multiple disciplines. In this contribution I have explored affect as a hybrid notion that glues together fields like human geography, urban studies, new media studies, social sciences and humanities, and potentially also urban design and policy. As said in the introduction, it is a work in progress and therefore somewhat speculative at times. Still, I believe we can conclude that affect may have profound implications for designing smart interventions that make cities more livable and lively, more interesting and better places to live in. Attention to affect foregrounds the question who decides what those notions mean instead of sweeping them under the carpet of rationalized policies and utilitarian ethics. Actual change in how we deal with urban problems occurs when we move away from ideals and rhetorics about 'everyday technologies' and how they are 'seamlessly integrated' into 'normal life'. The 'everyday' implies a continuation of business as usual and takes the political angle out of making the city truly smart. The aim instead is to try to use these technologies to *move* people and situations, make a veritable difference, instead of being easy plugins that are a continuation of normalcy and sameness. Smart city techno-urban interventions - like so many technological developments - are profoundly political in the sense of *le politique*, the political or everyday politics. They either dissolve or help to create new collectives around shared issues of concern. We must shift attention from technologies that seamlessly blend in with everyday life, towards technologies that move people and enable them to move others.

Nonetheless, we must not celebrate affect as the answer to all woes. Several authors warn about possible downsides to affect like manipulating people at the pre-conscious level, new power relations, localism and parochialism, inequalities and racism [39: 14][49][31: 186]. Affect can be a potential danger and a potential strength. It can be dangerous when people are affected only at the local level, and anything outside is equated with abstract space, impersonal machineries and otherness. But affect can also be useful to deal with the problematic notion of localness as a catch-all solution to urban issues. In the current mediatized world where many more relationships exist that transgress boundaries of the local, affect may help to overcome parochialism as people realize that they too can move and be moved by other people or issues that transcend the purely local 'ours'.

Repeating affect's relational capacity "to have an effect and be affected by", we must get rid of the one-sided focus on designing techno-urban environments that are serviceable and responsive to people and also think about how to design cities to which people can respond. This responsiveness resides not just on the plane of rational deliberation and functional use but also on the plane of embodied interactions and feelings. That includes feelings of attachment, responsibility, trust and ownership.

REFERENCES

- [1] Anderson, Ben. 2006. Becoming and being hopeful: towards a theory of affect. *Environment and Planning D: Society and Space* 24 (5):733-752.
- [2] Bachelard, Gaston. 1964. *The poetics of space*. New York: Orion Press.
- [3] Ball, Susan, and Petros Petsimeris. 2010. Mapping Urban Social Divisions. *Forum Qualitative Sozialforschung / Forum: Qualitative Social Research* (2), <http://www.qualitative-research.net/index.php/fqs/article/view/1480>.
- [4] Beesley, Philip, and Omar Khan. 2009. Responsive Architecture/Performing Instruments. In *Situated Technologies Pamphlet series*, ed O. Khan, T. Scholz and M. Shepard. New York: The Architectural League of New York <http://www.situatedtechnologies.net/files/ST4-ResponsiveArchitecture.pdf>.
- [5] Budd, Lucy, and Peter Adey. 2009. The software-simulated airworld: anticipatory code and affective aeromobilities. *Environment and Planning A* 41 (6):1366-1385.
- [6] Callon, Michel, and John Law. 2003. On Qualculation, Agency and Otherness. <http://www.lancs.ac.uk/fass/sociology/papers/callon-law-qualculation-agency-otherness.pdf>.
- [7] Cresswell, Tim. 2006. *On the move: mobility in the modern Western world*. New York: Routledge.
- [8] De Certeau, Michel. 1984. *The practice of everyday life*. Berkeley: University of California Press.
- [9] De Vries, Imar O. 2012. *Tantalisingly Close: An Archaeology of Communication Desires in Discourses of Mobile Wireless Media*. Amsterdam: Amsterdam University Press.
- [10] Dodge, Martin, Rob Kitchin, and Matthew Zook. 2009. How does software make space? Exploring some geographical dimensions of pervasive computing and software studies. *Environment and Planning A* 41 (6):1283-1293.
- [11] Dourish, Paul, and Genevieve Bell. 2011. *Divining a digital future: mess and mythology in ubiquitous computing*. Cambridge, Mass.: MIT Press.
- [12] Ehrmann, Jacques, Cathy Lewis, and Phil Lewis. 1968. Homo Ludens Revisited. *Yale French Studies* (41):31-57.
- [13] Fischer, Claude S. 1982. *To dwell among friends: personal networks in town and city*. Chicago: University of Chicago Press.
- [14] Fiske, John. 1987. *Television culture*. London ; New York: Methuen.
- [15] Fritsch, Jonas, and Thomas Markussen. 2012. Editorial: Exploring affect in interaction design, interaction-based art and digital art. *Fibreculture Journal: special issue "Exploring Affective Interactions"* 21:1-9.

- [16] Graham, Ian, Ronald Shaw, and Barney Warf. 2009. Worlds of affect: virtual geographies of video games. *Environment and Planning A* 41 (6):1332-1343.
- [17] Hannerz, Ulf. 1980. *Exploring the city: inquiries toward an urban anthropology*. New York: Columbia University Press.
- [18] Jenkins, Henry. 2006. *Convergence culture: where old and new media collide*. New York ; London: New York University Press ;.
- [19] Kerr, Aphra, Julian Kü cklich, and Pat Brereton. 2006. New media - new pleasures? *International Journal of Cultural Studies* 9 (1): 63-82.
- [20] Koolhaas, Rem. 1995. The Generic City. In *S, M, L, XL: small, medium, large, extra-large*, edited by R. Koolhaas, B. Mau, J. Sigler and H. Werlemann. New York: Monacelli Press.
- [21] Kü cklich, Julian. 2004. Play and Playability as Key Concepts in New Media Studies. Report on research undertaken during Marie Curie fellowship at Dublin City University, 2003-2004.
- [22] Lange, Michiel de. 2009. From always on to always there: Locative media as Playful Technologies. In *Digital cityscapes: merging digital and urban playspaces*, edited by A. de Souza e Silva and D. M. Sutko. New York: Peter Lang.
- [23] Lange, Michiel de. 2009. The Mobile City project and urban gaming. *Second Nature: International journal of creative media, special issue "Games, Locative & Mobile Media"* 1 (2):160-169.
- [24] Lange, Michiel de. 2010. Moving Circles: mobile media and playful identities. PhD dissertation, Philosophy, Erasmus University Rotterdam, Rotterdam.
- [25] Lange, Michiel de. unpublished. Playing the media city: the citizen as urban planner. In *The Playful Citizen: Power, Creativity, Knowledge*, edited by R. Glas, S. Lammes, M. d. Lange and J. Raessens. Amsterdam: Amsterdam University Press.
- [26] Lange, Michiel de, and Martijn de Waal. 2012. Ownership in the Hybrid City. Amsterdam. <http://www.virtueelplatform.nl/ownership>.
- [27] Lange, Michiel de, and Martijn de Waal. 2012. Social Cities of Tomorrow: conference text. <http://www.socialcitiesoftomorrow.nl/background>.
- [28] Lange, Michiel de, and Martijn de Waal. (2013, forthcoming). Owing the city: new media and citizen engagement in urban design. *First Monday, special issue "Waves Bits And Bricks: Media & The Production of Urban Space"*.
- [29] Latour, Bruno. 2005. *Reassembling the social: an introduction to actor-network-theory, Clarendon lectures in management studies*. Oxford ; New York: Oxford University Press.
- [30] Lynch, Kevin. 1960. *The image of the city, Publications of the Joint Center for Urban Studies*. Cambridge [Mass.]: Technology Press.
- [31] Massey, Doreen B. 2005. *For space*. London ; Thousand Oaks, Calif.: SAGE.
- [32] Mumford, Lewis. 1961. *The city in history: its origins, its transformations, and its prospects*. [1st ed. New York,;: Harcourt.
- [33] Nold, Christian, ed. 2009. *Emotional Cartography: Technologies of the Self*. London.
- [34] Park, Robert E. 1915. The City: Suggestions for the Investigation of Human Behavior in the City Environment. *American Journal of Sociology* 20 (5):577-612.
- [35] Park, Robert E., and Ernest W. Burgess. 1921. *Introduction to the science of sociology*. Chicago, Ill.,: The University of Chicago press.
- [36] Park, Robert E., Ernest W. Burgess, and Roderick D. McKenzie. 1925. *The city*. Chicago: University of Chicago Press.
- [37] Peters, John Durham. 1999. *Speaking into the air: a history of the idea of communication*. Chicago, Ill. ; London: University of Chicago Press.
- [38] Picard, Rosalind W. 1997. *Affective computing*. Cambridge, Mass.: MIT Press.
- [39] Pile, Steve. 2010. Emotions and affect in recent human geography. *Transactions of the Institute of British Geographers* 35 (1):5-20.
- [40] Pine, B. Joseph, and James H. Gilmore. 1999. *The experience economy: work is theatre & every business a stage*. Boston: Harvard Business School Press.
- [41] Raessens, Joost. 2006. Playful Identities, or the Ludification of Culture. *Games and Culture* 1 (1):52-57.
- [42] Russell, Ben. 1999. Headmap Manifesto.
- [43] Sassen, Saskia. 1991. *The global city: New York, London, Tokyo*. Princeton, N.J.: Princeton University Press.
- [44] Scott, Allen J. 2001. Capitalism, Cities, and the Production of Symbolic Forms. *Transactions of the Institute of British Geographers, New Series* 26 (1):11-23.
- [45] Shepard, Mark, ed. 2011. *Sentient city: ubiquitous computing, architecture, and the future of urban space*. Cambridge, MA: MIT Press.
- [46] Silverstone, Roger. 1999. *Why Study the Media?* London: Sage.
- [47] Stephenson, William. 1967. *The play theory of mass communication*. Chicago: University of Chicago Press.
- [48] Thrift, N. J. 2008. *Non-representational theory: space, politics, affect, International Library of Sociology*. Milton Park, Abingdon, Oxon ; New York, NY: Routledge.
- [49] Thrift, Nigel J. 2004. Intensities of feeling: Towards a spatial politics of affect. *Geografiska Annaler* 86B (1):57-78.
- [50] Tolia-Kelly, Divya P. 2006. Affect - an ethnocentric encounter? exploring the 'universalist' imperative of emotional/affectual geographies. *Area* 38 (2):213-217.
- [51] Tuan, Yi-Fu. 1977. *Space and place: the perspective of experience*. fourth printing 2005 ed. London and Minneapolis: University of Minnesota Press.
- [52] Varnelis, Kazys, ed. 2008. *Networked publics*. Cambridge, Mass.: MIT Press.
- [53] Waal, Martijn de. 2013. *The City as Interface: How New Media Are Changing the City*. Rotterdam: NAi010 Uitgevers.
- [54] Winnicott, D. W. 1971. *Playing and reality*. London: Routledge, 1991.
- [55] Wright, John K. 1947. Terrae Incognitae: The Place of Imagination in Geography. *Annals of the Association of American Geographers* 37:1-15.