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# From Users to Citizens: Some Thoughts on Designing for Polity and Civics

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## ABSTRACT

This paper presents an essay aimed at prompting broad discussion crucial in keeping the interaction design discourse fresh, critical, and in motion. We trace the changing role of people who have advanced from consumers to producers, from stationary office workers to mobile urban nomads, from passive members of the plebs to active instigators of change. Yet, interaction designers often still refer to them only as ‘users.’ We follow some of the historic developments from the information superhighway to the smart city in order to provide the backdrop in front of which we critically analyse three core areas. First, the issue of echo chambers and filter bubbles in social media results in a political polarisation that jeopardises the formation of a functioning public sphere. Second, pretty lights and colourful façades in media architecture are increasingly making way for situated installations and interventions fostering community engagement. And third, civic activism is often reduced to forms of slacktivism. We synthesise our discussion to propose ‘citizen-ability’ as an alternative goal for interaction designers to aspire to in order to create new polities and civics for a better quality of life.

## Author Keywords

Civic engagement; community engagement; polity; civics; media architecture; activism; smart cities; smart citizen; civic intelligence; participation; urban informatics

## ACM Classification Keywords

H5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

## INTRODUCTION

As both technology and technological practices evolve, human-computer interaction (HCI) has expanded its focus from the design and assessment of particular interaction styles, to encompass the role that interactive systems play in connecting people with their world. The focus of HCI is no longer grounded by the notion of the stationary user moored to a fixed desktop PC in an organisational

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context. Rather, users are interacting with technologies across many contexts and in all areas of their lives. The design and development of interactive technology has similarly broadened. These days, users are not only exposed to a standard TV set at home and a desktop computer at work, but to a plethora of different interfaces and interactive devices that blur many of the previously drawn boundaries between home and work, mobile and static, public and private. Despite an arguably richer and more nuanced perspective of *use* emerging from HCI research, there is a need to similarly expand the scope to encompass notions that provide alternative or complementary perspectives than just use and usability. In this paper, we provide an analysis of what they may be, by focusing on how political activism and civic engagement can give rise to the idea of ‘citizen-ability,’ that is, design not just in pursuit of a better user experience, but a better citizen experience and in fact a strengthening of the efficacy of our citizenry and its polity.



Figure 1: Occupy Central, Hong Kong, 2014

We argue that design research into fostering civic and urban engagement is a significant and timely topic for three key reasons: First, *place* – the feared ‘death of distance’ that had been heralded when the internet first became commercially successful, never happened. In the contrary, the bold rhetoric that predicted face-to-face to make way for a proliferation of e-commerce, distant education, telework, and other remote online transaction capabilities, never became entirely true as predicted. Local place thrives, and does so in ways ameliorated by new forms of situated engagement, locative media, and location-based services (Gordon & de Souza e Silva, 2011). This is further corroborated by the rapid pace of urbanisation that has tipped over 50% across the world, and reaches close to 90% in places such as Australia where the majority of the land is sparsely populated.

Second, *technology* – ubiquitous computing (UbiComp) has spilled outside the traditional HCI bastions of ‘work’ and ‘home’ into every aspect of human endeavour (Bødker, 2006). This trend brought about not just new technology and interface innovations but also new technical user practices that bridge the physical and the digital city: mobility, situated technology, embodied interaction, augmented reality, urban screens, big data.

Third, *people* – must no longer be understood as passive users or consumers placed by designers, developers and marketers at the receiving end of products and services, since they are increasingly able and empowered to also be producers (Bruns, 2008) and active agents of change (Foth, Forlano, Satchell, & Gibbs, 2011). Civic participation and engagement is thus a useful theme begging further exploration in light of cities turning more and more interactive and responsive (Foth, 2009), technology opening up new platforms and channels for citizens to be heard (Schuler, 2008), and people no longer being limited to conventional modes of citizenship (Burgess, Foth, & Klaebe, 2006) – or are they...?

In this paper, our understanding of ‘civic engagement’ is not as broad as what the term may entail; it does not include municipal services that are being provided or enhanced through digital means. It does not focus on the usual array of citizenship, such as voting, jury duties, consular assistance, legal rights and obligations, although it does not explicitly exclude them when they become relevant as a consequence of citizen action. This paper concentrates on what is usually termed ‘civic action,’ ‘citizen activism,’ and ‘grassroots community engagement.’ Prominent examples of innovations in this space that combine the aforementioned trends across people, place, and technology, include ushahidi.com – a citizen journalism and news aggregator that was initiated as a result of the 2007/2008 Kenyan post-election violence (Hirsch, 2011); the Occupy movement (Figure 1); crowdsourcing measurements of radiation levels around Fukushima following the 2011 nuclear disaster in Japan; and, the way social media and mobile devices were used to mobilise the masses from large scale, multi-country movements such as the ‘Arab Spring,’ to local issues such as ‘Stuttgart 21,’ a protest movement against a controversial railway and urban development project in southern Germany that contributed to the very first Greens Party politician to be elected Head of State of Baden-Württemberg.

What should the next generation of civic innovation look like? We call not only for new ‘digital soapboxes’ that urban citizens can use to have a voice and make themselves heard, but also for new strategies and approaches to close the gap between community activism that ‘only’ raises awareness of a particular civic issue on the one hand, and on the other hand traditional forms of top-down governance (Figure 2), polity, and decision making that may or may not bring about the societal change we need (Foth, Parra Agudelo, & Palleis, 2013). It strikes us that currently, there appears to be not just a disconnect but also an increasingly widening discrepancy in the level of interest and the pace of innovation on each

side. We hope that this paper can contribute towards the discourse in interaction design that informs the thinking of the HCI and UbiComp communities when designing new and innovative interfaces for civic and urban engagement.



**Figure 2: The House of Commons, London, UK**

The paper is structured into three main sections. We will first provide a brief history of some of the pertinent trends and developments not just in computing but also societal terms. We will then present our analysis of three interrelated areas across social, spatial and technical domains: (a) social media; (b) media architecture, and; (c) civic activism. These perspectives inform our synthesis section where we outline some of our thoughts on designing for polity and civics, and argue for a view that is broader than just the current focus on usability, and that includes notions of citizenship, values, and ethics.

#### **THE STORY THUS FAR**

We believe that we cannot look into the future if we cannot see the past. As such, we will first provide a brief recount of some key historic developments in computing – both technical and social. This will enable us to create an informed foundation on top of which we will construct our analysis and argument.

#### **From Information Superhighways to Digital Cities**

With the advent of the commercially viable internet in the mid/late 1990s, many scholars and commentators recognised the benefits that digital communication would bring to society. The ‘death of distance’ was heralded that would lead to shifting trends in economic and socio-cultural terms, such as online communities (Kim, 2000; Preece, 2000), e-commerce (Hagel & Armstrong, 1997; Hearn, Mandeville, & Anthony, 1998), and distant education (Dhanarajan, 2001). This debate quickly created a conceptual dichotomy between the ‘real world’ (offline) and ‘cyberspace’ (online).

However, as more and more internet-related technological innovations unfolded, were taken up by society, and in turn, translated and appropriated into new and changing technological practices conducted as part of everyday life, scholars started to collect compelling empirical evidence that this online/offline dichotomy was an artificial one. From different disciplinary perspectives came the clear message that the increasing ubiquity of internet connectivity, digital technology, web applications, and

location-based services allows for a seamless transitioning between both the online and offline aspects of our everyday lives as well as the visible and the invisible infrastructures of cities. Following on from Castells' (2000) *Information Age* trilogy, but also sharply critiquing Putnam's (2000) bleak outlook suggesting a correlation between internet uptake and a steep decline of (conventional) civic engagement, Wellman (2001) articulated a view that brought together notions of physical place and cyberspace: networked individualism. Similarly, other scholars in cultural geography and urban studies seconded this motion to re-evaluate the importance of place (Foth, Choi, Bilandzic, & Satchell, 2008; Pons-Novell & Viladecans-Marsal, 2006; Walmsley, 2000).

Mobile phones have become a well-established communication device – not only to connect with distant others, but also to coordinate social interactions in your physical vicinity, e.g. spontaneously organising collective actions (Rheingold, 2002). As Gordon and de Souza e Silva (2011) argue, place continues to matter in a networked world: *“The local still matters, and in fact, it may matter more than ever before because it can have an immediate and powerful global impact.”* (p. 168).

Social and Community Informatics have always emphasised the cultural and institutional contexts of ICT use (Gurstein, 2000; Kling, Rosenbaum, & Sawyer, 2005), and increasingly examine the significance of mobility and place in people's everyday experiences (Foth, Forlano, et al., 2011; Gordon & de Souza e Silva, 2011). Similarly, contributions in the field of Computer Supported Cooperative Work (CSCW) that deal with the way technology can assist people in improving their work environments, have recognised the importance of place metaphors in media space and even postulated early on the emergence of hybrid (physical and virtual) space (Harrison & Dourish, 1996).

Everyday technology has become increasingly ubiquitous: networked, embedded and accessible anywhere, anytime. Dourish and Bell (2011) argue that the design and development of UbiComp as well as the ability to access information in places other than the conventional desktop PC, call for a better appreciation of the “messiness of everyday life,” which ultimately requires social and cultural research skills such as ethnographically-informed approaches in addition to technical and design expertise. Williams et al. (2009) point out that ubicomp innovations enable HCI designers to design for a diversity of urban environments and urban citizens, rather than being limited to universal and homogeneous design outcomes. We agree with Odendaal (2006), who recommends qualitative methods to *“understand differing ways of life [and] to reveal a diversity of urban experiences”* (p. 36). In our work, we employ a design research methodology that considers *“urban experiences across different urban contexts that are created by new opportunities of real-time, ubiquitous technology”* (Foth, Choi, & Satchell, 2011).

### From Smart Cities to Smart Citizens

The future of civic engagement is characterised by both technological innovation as well as new technological user practices that are fuelled by trends towards mobile, personal devices; broadband connectivity; open data; urban interfaces; and, cloud computing. These technology trends are progressing at a rapid pace, and have led global technology vendors to package and sell the ‘Smart City’ as a centralised service delivery platform predicted to optimise and enhance the key performance indicators of cities – and generate a profitable market (Figure 3). The top-down deployment of these large and proprietary technology platforms have helped sectors such as energy, transport, and healthcare to increase efficiencies. However, an increasing number of scholars and commentators warn of another ‘IT bubble’ emerging. Along with some city leaders, they argue that the top-down approach does not fit the governance dynamics and values of a liberal democracy when applied across sectors. A thorough understanding is required, of the socio-cultural nuances of how people work, live, play across different environments, and how they employ social media and mobile devices to interact with, engage in, and constitute public realms.

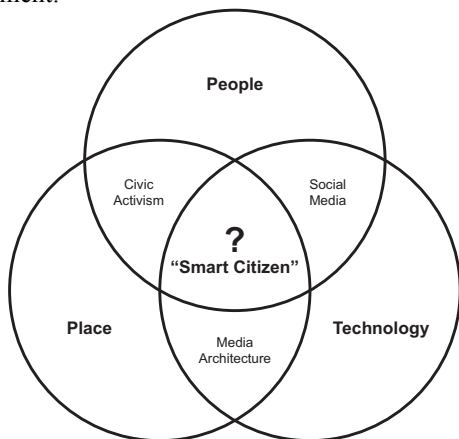


**Figure 3: IBM Smart City Control Centre in Rio de Janeiro**

Genuinely putting people, that is, a socio-culturally nuanced understanding of urban citizens, at the centre of a revised notion of the ‘smart city’ sounds simple, even trivial, but it is not. Similarly to how Bannon (1992) at the time called for a profound shift in attention *“from human factors to human actors,”* more and more commentators these days have started to critique the commercial and top-down-only vision of the smart city and consider alternative approaches that focus on the “smart citizens” (Foth & Brynskov, 2016, in press; Foth, Brynskov, & Ojala, 2016; Foth, Hudson-Smith, & Gifford, 2016, in press; Townsend, 2013; Waal, 2014).

We are far from witnessing another *Biedermeier* period – on the contrary: post-election violence in Kenya in 2008, the Occupy movements in New York, Hong Kong and elsewhere, the Arab Spring, Stuttgart 21, Fukushima, the Taksim Gezi Park in Istanbul, and the Vinegar Movement in Brazil in 2013. These examples of civic action shape the dynamics of governments, and in turn, call for new processes to be incorporated into governance structures. Participatory inquiries into these new processes across the

triad of people, place and technology are a significant and timely investment to foster productive, sustainable, and liveable human habitats. We seek to reframe the current debates in academia and priorities in industry and government to reconceptualise the citizenry as a collective agent in tackling societal issues and struggles. This calls for new participatory approaches for co-inquiry and co-design. It is an evolving process with an explicit agenda to facilitate change – change that requires new governance infrastructures and practices for civic engagement.



**Figure 4: Our analysis across people, place, technology**

**ANALYSIS**

The critical perspectives relating to the design of information technology and computing that we want to discuss, are positioned across a triad of people, place, and technology (Figure 4). We have identified three themes in the nexus of each area for further elaboration: social media; media architecture, and; civic activism.

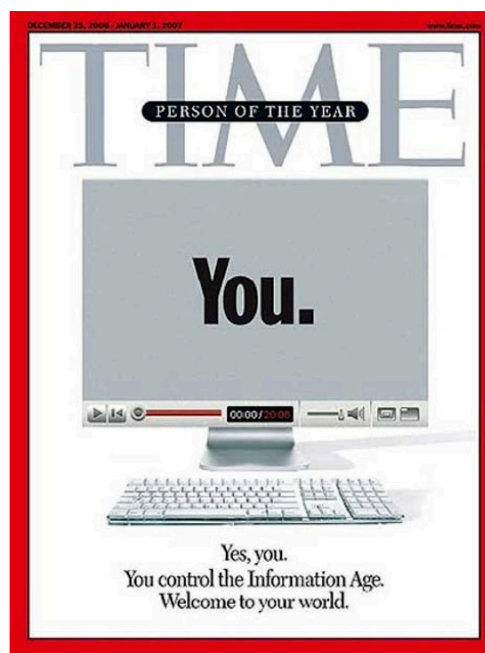
**Social Media**

In 2006, TIME Magazine published a picture (Figure 5) of a computer on its cover as the “Person of the Year” with the words “You. Yes, you. You control the Information Age. Welcome to your world.” The selection highlights the profound shift in the way that the World Wide Web has advanced to allow an increasing number of everyday people to not only access information, but contribute and participate in their own right. This trend has been popularised as, “Web 2.0,” or “the social media revolution” – Jenkins (Jenkins, 2006) coined the term, “participatory culture.” The ability for everyone to become a creator, publisher, remixer, recommender, sharer, and referrer has led to an exponential growth in content: Every 60 seconds on Facebook, 510 comments are posted, 293,000 statuses are updated, and 136,000 photos are uploaded (thesocialskinny.com). However, quantity of content does not imply quality, and thus with more sources of content, spread via more digital media channels, to more people, web users started to face the problem of information overload.

Corporations such as Facebook and Google have deployed sophisticated filters and recommendation systems designed to help us navigate the otherwise bloated social mediascape. The content displayed on Facebook’s news feed is selected based on a user’s profile, their location, interests, habits, online transactions

– what they post, share, recommend, and “like.” The popularity of social media stems from its power to create personalised spaces, walled gardens, which are tailored to individual preferences and favour content relevant to each user. An algorithm proprietary to each social media site determines what is deemed relevant: With the absence of a journalistic or editorial code of ethics, these algorithms determine the make-up of the Facebook news feed, Google’s top search results, and the recommendations on whom to follow on Twitter and what to buy on Amazon. They are optimised to prioritise content that will generate more traffic. Yet, Lotan (2014) warns that, “We’re not seeing different viewpoints, but rather more of the same. A healthy democracy is contingent on having a healthy media ecosystem. As builders of these online networked spaces, how do we make sure we are optimizing not only for traffic and engagement, but also an informed public? ... The underlying algorithmics powering this recommendation engine help reinforce our values and bake more of the same voices into our information streams.”

The compounding aspects of this polarisation of opinions in social media have been studied in political science and media and communication studies, e.g., echo chambers (Aiello et al., 2012) and filter bubbles (Pariser, 2011).



**Figure 5: TIME cover from 25 Dec 2006**

Although the advantages of using social media for civic engagement have been demonstrated in numerous studies (Foth, Forlano, et al., 2011; Rotman et al., 2011), we are wary that incremental improvements to the same platforms will not bring about a quantum change in the practice and impact of civic engagement. However, we see potential in the socio-cultural diversity that cities offer (Wood & Landry, 2007), and call for a focus on the touch points between ‘the city’ and its civic body, the citizenry. In order to provide for meaningful civic engagement, the city must provide appropriate interfaces (Foth & Brynskov, 2016, in press). Such urban interfaces can provide an innovative avenue for addressing these

issues by fostering depolarisation through engagement with civic media. Urban interfaces bring unique qualities, such as their ability to reach a diversity of citizens, and the absence of personalisation algorithms. Further research is required to examine how the arrival and uptake of urban interfaces and situated civic media can be integrated into our city environments to reach, support and engage citizens. In this context, we are particularly interested in their ability to break echo chambers and burst filter bubbles.

### Media Architecture

The discipline of media architecture is developing and growing as designers, architects, and planners realise the practice and promise that the combination of digital media and architecture can provide to enhance the experience of the built environment. Not only do the professionals in these disciplines need to consider how to incorporate the use of technology into the development of their profession, but they also need to understand how technology can be used to improve how people engage with the built environment.

According to Brynskov et al. (2013), “*Media Architecture is an overarching concept that covers the design of physical spaces at architectural scale incorporating materials with dynamic properties that allow for dynamic, reactive or interactive behavior. These materials are often digital, but not always, and they allow architects and (interaction) designers to create spatial contexts for situations using a variety of modalities.*” (p. 1-2). Media façades are a typical example of media architecture, with other forms including physical structures, urban screens, light projections, and tangible interfaces and installations.

Media architecture is closely related to the trend of ubiquitous computing to spill over into urban environments. However, it is now time to question and analyse the purpose and impact of many media architecture projects to date, beyond the cosmetic or decorative quality of ‘urban Christmas’ lights. As the UK graffiti artist Banksy provokes, “*twisted little people ... go out everyday and deface this great city. Leaving their idiotic little scribbles, invading communities and making people feel dirty and used. They just take, take, take and they don’t put anything back. They’re mean and selfish and they make the world an ugly place to be. We call them advertising agencies and town planners*” (cited in Sliwa & Cairns, 2007, p. 78). As some like Banksy may think that media architecture – if not considered and appropriated properly – runs the risk of polluting the city with more advertising and media ‘junk.’

Is there a role for media architecture to resurrect the significance and use of town halls, civic squares and public spaces of the city long lost to car parks and shopping centres? Have these places, like the Greek *agora*, ever existed in more recent times, or are they a long-lived phantom created by the romantic memories of the perpetually previous generation? Arnold (2003) argues that, “*Community is dynamic, and much angst is no doubt driven by nostalgia that fails to recognize the*

*strengths of contemporary communities and the changing forms of contemporary communities.*” (p. 78).



**Figure 6: Mègaphone by momentfactory.com, Montreal (Fortin, Neustaedter, & Hennessy, 2014)**



**Figure 7: Discussions in Space at Fed Square, Melbourne (Schroeter, Foth, & Satchell, 2012)**

Although the current practice in media architecture is often civically bleak, there are select projects that do show promise, such as the *Mègaphone* (Figure 6) (Fortin et al., 2014) and *Discussions in Space* (Figure 7) (Schroeter et al., 2012). Dade-Robertson (2013) makes the analogy between Graphical User Interfaces (GUIs) of personal computers with how he defines *Architectural User Interfaces (AUIs)* as buildings that mediate between computational information and people. In so doing, he connects the disciplines of architecture and human-computer interaction, arguing that not only does media and technology affect how people experience urban environments, architecture similarly has an effect on the development of computer technologies (Dade-Robertson, 2013). He believes that through the rise of ubiquitous computing the value of physical environments has been re-acknowledged – increasing the opportunities for architectural influence on the evolution of HCI practices. The call for architectural knowledge and input into HCI research is reinforced by Fischer et al. (2013) who claim that architecture provides spatial understandings that can assist in the development of urban HCI systems. They argue that through an architectural approach, media architecture can be refocused “*for a city beyond information and utility*” (p. 39).

We ask how can media architecture help people take control, appropriate place, and create communities. Acknowledging that media architecture is an emerging field that combines people, place, and technology in a similar way to related hybrid practices such as urban informatics (Foth, Choi, et al., 2011), it has an effect on the way the city is experienced and how people come together. We draw attention to the role that media architecture will have in facilitating communication and the interaction of city inhabitants.

We are also interested in identifying novel ways to put some of the creative process into the hands of laypeople, and in investigating the impact this may have on community engagement and citizen control. We thus ask if and how media architects as a community of practice should encourage and foster for ‘open-source’ our tools and approaches in order for laypeople to not only participate but become active instigators of change in their own right (Caldwell & Foth, 2014).

### Civic Activism

Dutton (2009) refers to the public participatory capabilities of the internet and the web as the ‘fifth estate,’ as distinct from the legislative, executive, judicial branches of government, and the media. In this section, we look at three forms of citizen activism and community advocacy that operate within the fifth estate: (1) established non-government organisations (NGOs) that embrace the web to extend their campaign efforts; (2) web-based petition sites that heavily employ social media for viral marketing of ‘people-powered politics’ and campaigns; (3) examples of ad hoc, impromptu, and in situ (at times, hyperlocal) activism that employs hybrid – combining physical and digital – forms of engagement.

### Old Dogs

Even before the advent of the internet, citizens sought to come together to form clubs, movements, societies, organisations, and associations for often non-partisan but issue-specific purposes. These non-government organisations (NGOs) often focus on broad societal issues such as development (Oxfam), environmental degradation (Greenpeace, WWF), or human rights (Amnesty International, HRC). Many of them have started to utilise the web to enhance their missions. How do people get involved? Options usually comprise: donating money, becoming a member or volunteer, join demonstrations or related events, sign petitions or letters of protest that are sent to elected constituents and politicians.

Although many NGOs transitioned from a single web *site* to a distributed web *presence* that encompasses several social media platforms, there are few examples of situated civic innovation that combine physical and digital means. Notable examples are often skewed to either the digital or the physical: Movember is a movement encouraging men to grow a moustache in the month of November to raise awareness and funds to help combat prostate cancer and depression in men. The moustache turns into a physical symbol, and social media is used to assist the campaign. The Leukaemia Foundation’s *Shave for a Cure* as well as the ubiquitous red ribbon worn on 1 Dec for World AIDS Day present similar examples. A digital case was a red

variation of the Human Rights Campaign (HRC) logo being adopted by millions of Facebook users in 2013 as their profile picture in – turning news feeds into a bold statement in support of same-sex marriage. At the time of writing, a rainbow of Facebook user profiles has just burst forth to celebrate the US decision to legalise same sex marriage.

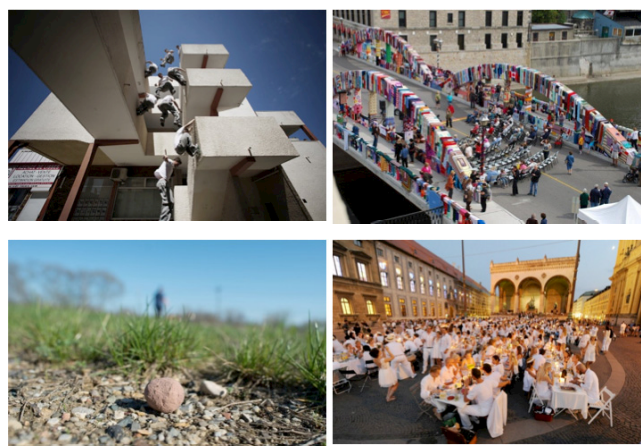
### New Kids on the Block

The above NGOs tend to focus on large-scale issues and so-called ‘wicked problems.’ Digital newcomers such as change.org, getup.org, avaaz.org, one.org, have specialised in more local and regional issues using predominantly online campaigning. Offering multiple topics allows these sites to cross-fertilise their campaigns. Some have also recognised a need for DIY campaigning, allowing users to employ the power of their mobilisation capabilities to start and maintain their own campaigns, e.g., communityrun.org.

Despite progressive uses of social media, the array of what users can do remains limited, and tends to stay online-only. Is clicking a ‘Like’ button or sending a petition email sufficient to solve today’s societal problems, or is it just slacktivism (Lee & Hsieh, 2013; Rotman et al., 2011)? How could NGOs and citizens employ civic media to not only raise awareness, but also participate and engage in new forms of polity and civics?

### Urban Guerrillas

Ideas and inspiration may be drawn from what futurists call ‘weak signals,’ that is, innovative small-scale movements or sub-cultures with the potential to grow and mainstream. Ad hoc gatherings in public places such as dancers in ‘flashmobs’ and cyclists in ‘Critical Mass’ use both realms of the digital (to organise, document, scale up) and the physical (to gather, perform, create spectacle). Related hybrid examples of situated engagements that are being assisted by digital means include seed bombing, permablitz, guerrilla knitting, Park(ing) Day, Dîner en Blanc, parkour, and various artistic and media performances and installations (Caldwell, Osborne, Mewburn, & Crowther, 2015) (Figure 8).



**Figure 8: parkour, yarn and seed bombing, dîner en blanc**

The crafting of place (or DIY placemaking or participatory city making) is a concept that encompasses a range of such urban interventions for the purpose of appropriating public spaces to assist in civic engagement,

the communication of often political messages, or to simply improve the quality and experience of a place. Iveson (2013) proposes DIY urbanism as a link between the small actions and appropriations of urban space such as, guerrilla gardening, parkour, and graffiti, into a larger understanding or vision that affects the socio-cultural and civic experience of cities. What links these small actions is that urban residents imagine and create a tailored city within the city by occupying or transforming urban spaces through the injection of new meanings and functions. These inhabitants are motivated by their own purposes and often operate at the fringes or even outside existing policies and laws; they take action upon their rights as inhabitants of the city (Foth et al., 2016).

**SYNTHESIS**

We have unpacked and analysed some of the perspectives and issues in the related fields of social media, media architecture, and civic activism. We will now try to synthesise these findings in order to combine them to reconnect with larger theories and debates in the field. In order to do so, we briefly refer to three previous examples of categorisations that also sought to make sense of the field of HCI.

Grudin (2005) divided the development of HCI into three “faces”, which roughly correspond with technical development stages at the time. Similarly, Bødker (2006) coined the notion of “waves” to articulate three distinct successions, from main frames, to CSCW, to now ubiquitous computing. Finally, and famously, the 2007 alt.chi paper by Harrison, Tatar, and Sengers (2007) review three paradigms of research in HCI, that is, human factors, classical cognitivism and information processing, and phenomenologically situated approaches. Figure 9 illustrates these three popular categorisations, yet, without making any claims whether each ‘phase’ correspond with their respective neighbours. For the purpose of our argument, we are more interested whether the aforementioned trends we analysed, constitute enough of a rationale to question whether HCI is now on the cusp of another wave, face, or paradigm, and if so, why, and what does it entail? One goal of this paper is to ask just that. Without pre-empting a definite answer, we will use some of the insights from our analyses in order to cast light on these questions.

Conventional dichotomies and simplistic divisions such as local / global, online / offline, private / public, large / small, mobile / static, have been created in the past to describe some of the qualities and characteristics of interfaces and their usages. However, under scrutiny and closer examination, they increasingly lose their analytical relevance, as more and more scholars recognise that the black and white nature of these dichotomies does not adequately represent the fluid and agile capabilities of many interactive applications, interfaces, and devices.

Applying mediation theory as a lifebuoy to escape the dichotomy conundrum, Verbeek (2014) suggests to embrace shades of gray, namely, *hybridity*, or more nuanced “trans-scalar” means of interaction design (Tripodi cited in Foth, Fischer, & Satchell, 2013), that is, ways in which new and emerging forms of interaction

provide a range functionality, without being locked into either end of a scale. In the following, we will discuss three examples.

	<b>Waves</b> (Bødker, 2006)	<b>Faces</b> (Grudin, 2005)	<b>Paradigms</b> (Harrison et al., 2007)
1	Main Frame	Computer Operation	Human Factors
2	PC at Work / CSCW	Information Systems Management	Classical Cognitivism / Information Processing
3	Ubiquitous Computing	Discretionary Use	Phenomenologically Situated

**Figure 9: Waves, Faces and Paradigms of HCI**

**Digitisation vs Fabrication**

The last two or three decades of computing venturing out into every aspect of everyday life has arguably heavily focused on digitisation – atoms becoming bits. This trend brought about an avalanche of new opportunities and challenges, such as participatory culture, new forms of (digital) literacies, new frontiers in law and intellectual property, and even changes to the way many people perceive the pace of time, and the division between work and leisure.

Similarly, fabrication – the reverse process of turning bits back into atoms – will bring about many opportunities and challenges of similar magnitude. Maker cultures and the DIY (Do-It-Yourself) and DIWO (Do-It-With-Others) movements are well underway, and in tandem with technological progress and innovation with regards to fabrication devices such as 3D printers, will see profound shifts and change in many aspects of society. For example, web services, such as the eMachineShop.com, allow anyone to use CAD software, upload their design, and create custom metal and plastic parts that are shipped to their home address the next day.

It is imperative for HCI designers to closely follow and keep abreast of these developments. Reminiscent of the original *raison d’être* of HCI that called for an interdisciplinary exchange between the domains of engineers, computer scientists, human factors, and psychologists, it is now time to take stock of where we are, break out of the HCI silo that we ourselves have created, and renew the vows of interdisciplinarity by reaching out to new disciplinary frontiers. Those that seem pertinent to the quest of fabrication appear to include architecture, urban design, chemistry, and material sciences.

**You vs We**

If TIME Magazine’s 2006 Person of the Year was ‘You,’ perhaps we should also ask ourselves what we, as interaction designers and computing professionals can do to change this image that is all too often attached to



Wellman's notion of networked individualism (Wellman, 2001, 2002) and often construed as egocentric and selfish. If TIME Magazine's 2016 Person of the Year was to be 'We,' what would that entail, and how do we get there?

Some promising ideas have already been proposed. First, there is Schuler's long standing advocacy for community intelligence and civic intelligence (Schuler, 2008, 2009), as well as his proposal for the world citizen parliament (Schuler, 2013). Second, proposing agonistic design, Ehn (2014) suggests a framework that interrelates innovation, design, and democracy. And third, DiSalvo (2012) suggests designerly ways to break out of the aforementioned echo chambers by questioning conventional approaches to political issues. That there is an urgent need to closely examine the ways that technology design can provoke and engage the political is illustrated by the innovative practices of the Occupy movement (Figure 1), which still fall on death ears in the way that the old chambers of power are set up (Figure 2).

### Usability vs 'Citizen-ability'

Not everyone will welcome technological innovation (Selwyn, 2003). As technology becomes more pervasive, the increasing digitisation of our cities has the potential to alienate and disenfranchise citizens. This is especially true with urban interfaces and civic media that expose their message to all who pass by. The ubiquity of these technologies means that all passers-by – both users and non-users – should be considered stakeholders whose needs should influence design decisions. Therefore, rather than contextualising the design for the needs of the technically savvy end users, we have to aim to also incorporate the needs of 'non-users' into the design process (Satchell & Dourish, 2009).

Both Baumer et al. (2014), and Satchell and Dourish (2009) draw attention to the non-use of social media and computing technology. An empirically grounded understanding of the way in which urban interfaces and civic media are understood by their users and non-users alike, is required. Such interfaces can become an opportunity space that provides a platform to help disseminate community and civic information to non-users of social media who otherwise might not have access or be exposed to such information. Therefore, urban interfaces, through their very ubiquity, become a valuable platform for engaging the non-user of mainstream and social media.

In addition to the issue of non-use, there is also the question we asked at the start of this paper, that is, what comes after use and usability? A search across the ACM Digital Library for 'beyond usability' finds 10 articles on the topic, ranging from safety, intuitive use, emotions, to robotics. For the purpose of our argument, the paper by Huh et al. (2007) offers the most relevant perspective, as it asks HCI designers to take "*social, situational, cultural, and other contextual factors into account.*" One of these factors that is close to our heart for the purpose of designing community and civic engagement, is citizenship, or our oddly formed term: 'citizen-ability.' What this neologism is trying to convey is the need for HCI designers to think of ways that our expertise, skills,

and the infamous 'design thinking' can be employed to designing for new polities and civics.

### CONCLUSIONS

It may be apt to briefly speculate about the future before concluding this paper. First, leading with the main point of our argument, we want to re-think the usefulness and merits of the usability fetish, and explore alternatives. We propose 'citizen-ability' as such an alternative, yet, it has to still be formed and shaped into a more mature and tested framework, ideally by design-in-use.

Second, we further speculate about the balance of power, and welcome the addition of the Fifth Estate (Dutton, 2009). However, our analysis of key trends indicates that the might of the Fifth Estate will greatly increase once a coalition between the digital and the physical, between the internet and the city, has been formed. De Waal (2014) postulates 'the city as interface' and we concur with him. A Sixth Estate even?

Third, what usability is for designers, is the growth imperative for economists and business, and this, we feel, has to change, too, as it is not sustainable. With all the advances in technological innovation, automation, and societal progress, we often end up being rushed, having less time for family and friends, working longer hours and wait longer until we are able to retire, we suffer from stress and other preventable diseases, and are less happy overall. This is not only ironic, but a disappointing report card for humanity. Since designers are at the core of so many human interfaces, perhaps it is time to subscribe to *happiness and wellbeing* as the primary KPIs over and above growth, financial prosperity, and – usability.

In summary, we argue that it may be useful to apply the lessons learnt from the way situated civic engagement is enacted by the urban guerrillas, to the so far mainly online focussed campaigning efforts of civil society organisations. However, the more pressing and challenging issue is to find new ways to expand the toolbox that is available to citizens to take action and bring about change (DiSalvo, 2012; Dourish, 2010). Can we offer more options than the usual array of petitioning, protesting, volunteering, and donating? Or, how can we improve the way that they are performed? How can interaction designers use their expertise, skills and craft to make a contribution to better the connection, the exchange, and the dialogue between community advocacy and activism on the one hand, and polity, governance, politics, civics, and decision making instruments on the other hand? How do we exploit and influence the role that new technology plays in this context, such as mobile devices, next generation screens, gestural and human-brain interfaces, fancy watches, and augmented reality glasses?

Interaction designers collectively created the tools that helped transform consumers turn into 'producers' (Bruns, 2008). Let's apply these skills to augment notions of citizenship with that of *citizenability*.

### REFERENCES

Aiello, L. M., Barrat, A., Schifanella, R., Cattuto, C., Markines, B., & Menczer, F. (2012). Friendship

- prediction and homophily in social media. *ACM Trans. Web, 6*(2), 1-33. doi:10.1145/2180861.2180866
- Arnold, M. (2003). Intranets, Community, and Social Capital: The Case of Williams Bay. *Bulletin of Science, Technology & Society, 23*(2), 78-87.
- Bannon, L. (1992). From human factors to human actors: the role of psychology and human-computer interaction studies in system design *Design at work* (pp. 25-44): L. Erlbaum Associates Inc.
- Baumer, E. P. S., Ames, M. G., Brubaker, J. R., Burrell, J., & Dourish, P. (2014). *Refusing, limiting, departing: why we should study technology non-use*. Proc. CHI '14 Extended Abstracts on Human Factors in Computing Systems, Toronto, Ontario, Canada.
- Bødker, S. (2006). *When second wave HCI meets third wave challenges*. Proceedings of the 4th Nordic conference on Human-computer interaction: changing roles, Oslo, Norway.
- Bruns, A. (2008). *Blogs, Wikipedia, Second Life, and Beyond: From Production to Producers*. New York, NY: Peter Lang.
- Brynskov, M., Dalsgaard, P., & Halskov, K. (2013). Understanding Media Architecture (Better): One Space, Three Cases *Proc. of the Workshop on Interactive City Lighting, CHI 2013*. New York: ACM.
- Burgess, J., Foth, M., & Klæbe, H. (2006, Sep 25-26). *Everyday Creativity as Civic Engagement: A Cultural Citizenship View of New Media*. Paper presented at the Communications Policy & Research Forum, Sydney, NSW.
- Caldwell, G. A., & Foth, M. (2014). *DIY media architecture: open and participatory approaches to community engagement*. Proceedings of the 2nd Media Architecture Biennale Conference: World Cities, Aarhus, Denmark.
- Caldwell, G. A., Osborne, L., Mewburn, I., & Crowther, P. (2015). Guerrillas in the [Urban] Midst: Developing and Using Creative Research Methods – Guerrilla Research Tactics. *Journal of Urban Technology, 22*(3), 21-36. doi:10.1080/10630732.2015.1040288
- Castells, M. (2000). *The Rise of the Network Society* (2nd ed.). Oxford, UK: Blackwell Publishers.
- Dade-Robertson, M. (2013). Architectural User Interfaces: Themes, Trends and Directions in the Evolution of Architectural Design and Human Computer Interaction. *International Journal of Architectural Computing, 11*(1), 1-20. doi:10.1260/1478-0771.11.1.1
- de Waal, M. (2014). *The City as Interface: How New Media Are Changing the City*. Rotterdam, NL: NAI010 Publisher.
- Dhanarajan, G. (2001). Distance Education: Promise, Performance and Potential. *Open Learning, 16*(1), 61-68.
- DiSalvo, C. (2012). *Adversarial Design*. Cambridge, MA: MIT Press.
- Dourish, P. (2010). HCI and environmental sustainability: the politics of design and the design of politics *Proceedings of the 8th ACM Conference on Designing Interactive Systems* (pp. 1-10). Aarhus, Denmark: ACM.
- Dourish, P., & Bell, G. (2011). *Divining a digital future: Mess and mythology in ubiquitous computing*. Cambridge, MA: MIT Press.
- Dutton, W. H. (2009). The Fifth Estate Emerging through the Network of Networks. *Prometheus, 27*(1), 1-15. doi:10.1080/08109020802657453
- Ehn, P. (2014). *Utopias lost and futures-in-the-making: marginal notes on innovation, design and democracy*. Proceedings of the 13th Participatory Design Conference, Volume 2, Windhoek, Namibia.
- Fischer, P. T., Zollner, C., Hoffmann, T., Piatza, S., & Hornecker, E. (2013). Beyond information and utility: Transforming public spaces with media facades. *IEEE Computer Graphics and Applications, 33*(2), 38-46. doi:10.1109/mcg.2012.126
- Fortin, C., Neustaedter, C., & Hennessy, K. (2014). *The appropriation of a digital "speakers" corner: lessons learned from the deployment of mégaphone*. Proceedings of Designing Interactive Systems, Vancouver, BC, Canada.
- Foth, M. (Ed.) (2009). *Handbook of Research on Urban Informatics: The Practice and Promise of the Real-Time City*. Hershey, PA: IGI Global.
- Foth, M., & Brynskov, M. (2016, in press). Participatory Action Research for Civic Engagement. In E. Gordon & P. Mihailidis (Eds.), *Civic Media: Technology, Design, Practice*. Cambridge, MA: MIT Press.
- Foth, M., Brynskov, M., & Ojala, T. (Eds.). (2016). *Citizen's Right to the Digital City: Urban Interfaces, Activism, and Placemaking*. Singapore: Springer.
- Foth, M., Choi, J. H.-j., Bilandzic, M., & Satchell, C. (2008, Oct 7-9). *Collective and Network Sociality in an Urban Village*. Proc. MindTrek, Tampere, Finland.
- Foth, M., Choi, J. H.-j., & Satchell, C. (2011). *Urban Informatics Proceedings CSCW '11*. New York: ACM.
- Foth, M., Fischer, F., & Satchell, C. (2013). From movie screens to moving screens: Mapping qualities of new urban interactions. In J. Geiger, O. Khan, & M. Shepard (Eds.), *Proceedings of MediaCity 4* (pp. 194-204). Buffalo, NY: University at Buffalo.
- Foth, M., Forlano, L., Satchell, C., & Gibbs, M. (Eds.). (2011). *From Social Butterfly to Engaged Citizen: Urban Informatics, Social Media, Ubiquitous Computing, and Mobile Technology to Support Citizen Engagement*. Cambridge, MA: MIT Press.
- Foth, M., Hudson-Smith, A., & Gifford, D. (2016, in press). Smart Cities, Social Capital, and Citizens at Play: A Critique and a Way Forward. In F. X. Olleros & M. Zhegu (Eds.), *Research Handbook on Digital Transformations*. Cheltenham, UK: Edward Elgar.
- Foth, M., Parra Agudelo, L., & Palleis, R. (2013, Sep 8). *Digital Soapboxes: Towards an Interaction Design*

- Agenda for Situated Civic Innovation. In HiCUE 2013: Human Interfaces for Civic and Urban Engagement, UbiComp Adjunct Proceedings, Zürich, Switzerland. New York: ACM, pp. 725-728. doi: 10.1145/2494091.2495995
- Gordon, E., & de Souza e Silva, A. (2011). *Net Locality: Why Location Matters in a Networked World*. Chichester, UK: Wiley-Blackwell.
- Grudin, J. (2005). Three Faces of Human-Computer Interaction. *IEEE Ann. Hist. Comput.*, 27(4), 46-62. doi:A68e0687-6a30-4c46-9df7-7e0a4ae9fe20
- Gurstein, M. (Ed.) (2000). *Community Informatics: Enabling Communities with Information and Communication Technologies*. Hershey, PA: IGI.
- Hagel, J., & Armstrong, A. G. (1997). *Net Gain: Expanding Markets Through Virtual Communities*. Boston: Harvard Business School Press.
- Harrison, S., & Dourish, P. (1996). *Re-Place-ing Space: The Roles of Place and Space in Collaborative Systems*. Proc. CSCW conference, Boston, MA.
- Harrison, S., Tatar, D., & Sengers, P. (2007). The Three Paradigms of HCI. *Proceedings of CHI, alt.chi*. New York: ACM.
- Hearn, G., Mandeville, T. D., & Anthony, D. (1998). *The communication superhighway: social and economic change in the digital age*. Sydney: Allen & Unwin.
- Hirsch, T. (2011). More than Friends: Social and Mobile Media for Activist Organizations. In M. Foth, L. Forlano, C. Satchell, & M. Gibbs (Eds.), *From Social Butterfly to Engaged Citizen: Urban Informatics, Social Media, Ubiquitous Computing, and Mobile Technology to Support Citizen Engagement*. Cambridge, MA: MIT Press.
- Huh, J., Ackerman, M. S., Erickson, T., Harrison, S., & Sengers, P. (2007). *Beyond usability: taking social, situational, cultural, and other contextual factors into account*. Proc. CHI '07 Extended Abstracts on Human Factors in Computing Systems, San Jose, CA, USA.
- Iveson, K. (2013). Cities within the City: Do-It-Yourself Urbanism and the Right to the City. *International Journal of Urban and Regional Research*, 37(3), 941-956. doi:10.1111/1468-2427.12053
- Jenkins, H. (2006). *Fans, Bloggers, and Gamers: Exploring Participatory Culture*. New York: New York University Press.
- Kim, A. J. (2000). *Community Building on the Web: Secret Strategies for Successful Online Communities*. Berkeley, CA: Peachpit.
- Kling, R., Rosenbaum, H., & Sawyer, S. (2005). *Understanding and Communicating Social Informatics*. Medford, NJ: Information Today, Inc.
- Lee, Y.-H., & Hsieh, G. (2013). *Does slacktivism hurt activism?: the effects of moral balancing and consistency in online activism*. Proceedings of CHI, Paris, France.
- Lotan, G. (2014). Israel, Gaza, War & Data: Social networks and the art of personalizing propaganda. Retrieved from <https://medium.com/i-data/israel-gaza-war-data-a54969aeb23e>
- Odendaal, N. (2006). Towards the Digital City in South Africa: Issues and Constraints. *Journal of Urban Technology*, 13(3), 29-48.
- Pariser, E. (2011). *The filter bubble : what the Internet is hiding from you*. New York: Penguin Press.
- Pons-Novell, J., & Viladecans-Marsal, E. (2006). Cities and the Internet: The end of distance? *Journal of Urban Technology*, 13(1), 109-132.
- Preece, J. (2000). *Online communities: designing usability, supporting sociability*. Chichester: John Wiley.
- Putnam, R. D. (2000). *Bowling Alone: the Collapse and Revival of American Community*. New York: Simon & Schuster.
- Rheingold, H. (2002). *Smart Mobs: The Next Social Revolution*. Cambridge, MA: Perseus.
- Rotman, D., Sarah Vieweg, Sarita Yardi, Ed Chi, Jenny Preece, Ben Shneiderman, Peter Pirolli, and Tom Glaisyer. 2011. From slacktivism to activism: participatory culture in the age of social media. In CHI '11 Extended Abstracts on Human Factors in Computing Systems (CHI EA '11). ACM, New York, NY, USA, 819-822. doi: 10.1145/1979742.1979543.
- Satchell, C., & Dourish, P. (2009). Beyond the User: Use and Non-Use in HCI. *Proceedings of the 21st Annual Conference of the Australian Computer-Human Interaction Special Interest Group (OZCHI '09)* (pp. 9-16). New York: ACM.
- Schroeter, R., Foth, M., & Satchell, C. (2012). People, content, location: Sweet spotting urban screens for situated engagement. *Proceedings of the Designing Interactive Systems Conference* (pp. 146-155). Newcastle Upon Tyne, UK: ACM.
- Schuler, D. (2008). *Liberating voices: A pattern language for communication revolution*. Cambridge, MA: MIT Press.
- Schuler, D. (2009, Jun 25-27). *Communities, Technology, and Civic Intelligence*. Paper presented at the 4th International Conference on Communities and Technologies, University Park, PA.
- Schuler, D. (2013). Creating the world citizen parliament: seven challenges for interaction designers. *Interactions*, 20(3), 38-47. doi:10.1145/2451856.2451867
- Selwyn, N. (2003). Apart from technology: understanding people's non-use of information and communication technologies in everyday life. *Technology in Society*, 25(1), 99-116.
- Sliwa, M., & Cairns, G. (2007). Exploring Narratives and Antenarratives of Graffiti Artists: Beyond Dichotomies of Commitment and Detachment. *Culture and Organization*, 13(1), 73-82. doi: 10.1080/14759550601167321
- Townsend, A. M. (2013). *Smart cities: big data, civic hackers, and the quest for a new utopia*. New York: W.W. Norton & Company.

- Verbeek, P.-P. (2014). *On Icarus' Wings: Craft and the Art of Hybridization*. Keynote presented at the Designing Interactive Systems (DIS) conference, Vancouver, BC.
- Waal, M. d. (2014). *The city as interface : how digital media are changing the city*. Rotterdam: nai010 publishers.
- Walmsley, D. J. (2000). Community, Place and Cyberspace. *Australian Geographer*, 31(1), 5-19.
- Wellman, B. (2001). Physical Place and Cyberplace: The Rise of Personalized Networking. *International Journal of Urban and Regional Research*, 25(2), 227-252.
- Wellman, B. (2002). Little Boxes, Glocalization, and Networked Individualism. In M. Tanabe, P. van den Besselaar, & T. Ishida (Eds.), *Digital Cities II: Second Kyoto Workshop on Digital Cities* (Vol. LNCS 2362, pp. 10-25). Heidelberg, Germany: Springer.
- Williams, A., Robles, E., & Dourish, P. (2009). Urbane-ing The City: Examining and Refining The Assumptions Behind Urban Informatics. In M. Foth (Ed.), *Handbook of Research on Urban Informatics: The Practice and Promise of the Real-Time City* (pp. 1-20). Hershey, PA: IGI Global.
- Wood, P., & Landry, C. (2007). *The Intercultural City: Planning for Diversity Advantage*. London: Earthscan.