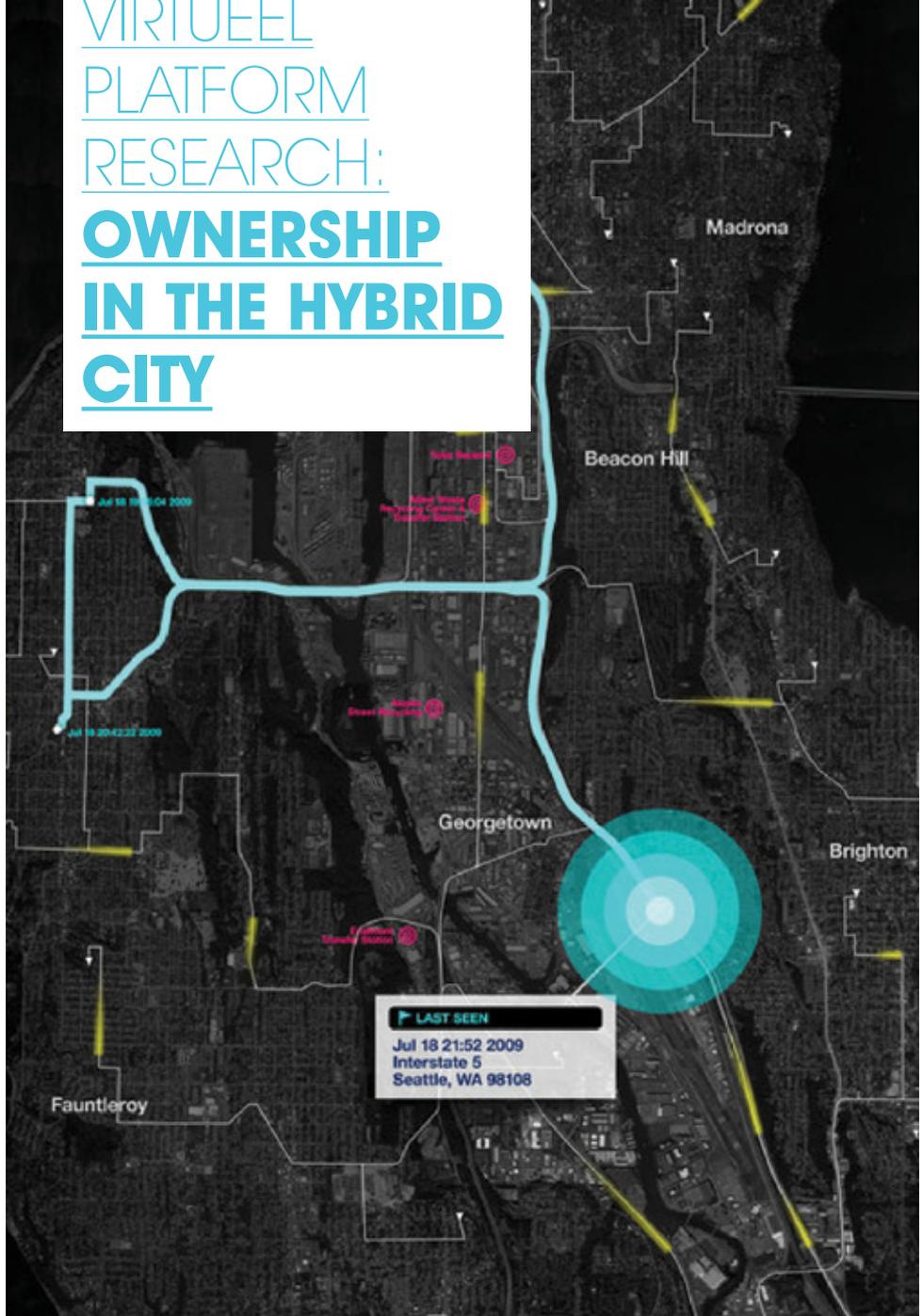


VIRTUEEL PLATFORM RESEARCH: **OWNERSHIP IN THE HYBRID CITY**



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VIRTUEEL
PLATFORM
RESEARCH:
OWNERSHIP
IN THE HYBRID
CITY

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← Cover image: Trash Track from MIT's SENSEable City Lab uses self-devised electronic tags to track various kinds of waste on its final journey to processing plants in New York, London and Seattle. The information produced by the tags is displayed on dynamic maps where it is analysed and monitored.

<http://senseable.mit.edu/trashtrack/>

FOREWORD

This study explores the concept of ownership as a design approach for the contemporary city. Digital media technologies are becoming increasingly influential in daily urban life. How can we implement these technologies in such a way that they make and maintain the city as a liveable and vibrant environment? How can we best design urban areas where citizens feel at home, feel empowered to engage with shared issues and interests, and feel a sense of 'ownership' in these issues? In what ways can the e-culture sector contribute to bolstering a sense of ownership in urban society?

Virtueel Platform is the sector body for e-culture in the Netherlands. It commissioned mobile media and urban design experts Michiel de Lange and Martijn de Waal from The Mobile City to conduct research into this field. Virtueel Platform's goal is to create a theoretical framework for a wide range of projects and developments in Dutch cities, concentrating primarily on work by artists or researchers in the area of digital culture. Virtueel Platform organised the Stad_Spel_Data_experts meeting that took place on 27 May 2011. It focused on the question of how new media and the rapidly expanding availability of data in the city can stimulate city dwellers to become more involved in their immediate living environment, and it was in this context that The Mobile City presented its research. Virtueel Platform will continue to develop the theme of ownership in the coming period. The results of the study are published here along with a selection of projects from the Netherlands and abroad that serve as practical examples. ←

1. CITY, MEDIA AND OWNERSHIP

1.1 RESEARCH ISSUE AND AIMS: OPPORTUNITIES FOR THE E-CULTURE SECTOR

It is difficult to imagine everyday life in modern cities without media technologies. Information networks connect them with huge numbers of other locations around the world. And at local level too, information technologies play a major role in the urban experience, saturated as it is by mobile communication, WiFi, GPS navigation, RFID cards, camera surveillance, urban screens in the public space, and so on. For a long time, the domain of digital media was viewed as virtual, as something separate from physical reality. But now these two worlds are tightly interwoven. The contemporary city is a hybrid city with physical and digital infrastructures, services and processes at all levels.

One relatively recent development is the 'smart city', which sees cities and technology companies working together to organise urban processes more efficiently, with sensor and network technologies gauging and optimising energy and water supplies, transport and logistics, and air and environmental quality – the hope being that this will improve the quality of life.¹ But the far-reaching digitisation of urban life is also bringing along potential new problems, with critics arguing that electronic customer cards, localised mobile services and narrow-casted messages aimed at individuals are combining to transform the city into a site for optimised consumption. Moreover, the city is threatened with becoming a tightly controlled



Transitietekaart.nl provides an overview of premises left unoccupied due to urban transformations, in order to facilitate their possible temporary use for cultural and other purposes. The transition map also provides information about ownership and other parties involved in these premises so that new plans can be implemented more easily.

1] In Amsterdam, for example, the Amsterdam Smart City project has been running since 2009. See <http://www.amsterdamsmartcity.nl>. The impetus for the Smart City agenda comes not only from local authorities but also from technology companies, including IBM, Cisco, HP, Philips and Fraunhofer. See also Schaffers, H., Komninou, N., Pallot, M., Trousse, B., Nilsson, M. & Oliveira, A., Smart Cities and the Future Internet, in J.D. Dominique (ed.), et al., *Future Internet Assembly: Lecture Notes in Computer Science*, pp. 431-46 (Berlin, Heidelberg: Springer, 2011). Link: <http://www.springerlink.com/content/h6v7x10n5w7hkj23/fulltext.pdf>.

quasi-military zone with ubiquitous camera surveillance running face- or walk-recognition software, cards with chips that save login data in databases, and telecom companies that map the physical movements of individuals.² Others signal the emergence of a 'capsular society' characterised by the withdrawal of individuals into their own secure media cocoon.³ These scenarios are typified by city dwellers no longer engaging with strangers around them, a lack of space for spontaneous encounters and public life, and a general lack of involvement with the immediate environment.⁴ As a counterweight to these phenomena, however, attempts are being made to reclaim ownership through artistic media interventions focusing on visualisation, storytelling and playful situations. These approaches are often an 'anti' response in that they are founded on notions of a lost ideal of urban life and seek to counteract perceived negative tendencies.

So how can we preserve the liveability and liveliness of our cities as they become ever more complex as a result of these developments?⁵ This question is

2] See Crang, M. & Graham, S., *Sentient Cities: Ambient Intelligence and the Politics of Urban Space*, in *Information, Communication & Society*, vol. 10, no. 6 (2007), pp. 789-817; De Waal, M., *The Urban Culture of Sentient Cities: From an Internet of Things to a Public Sphere of Things*, in M. Shepard (ed.), *Sentient City: Ubiquitous Computing, Architecture, and the Future of Urban Space* (Boston, Mass.: MIT Press, 2011).

3] See De Cauter, L., *The Capsular Civilization: On the City in the Age of Fear* (Rotterdam: NAI Publishers, 2004).

4] There may be reason to doubt that the situation is all that bad: a rough estimation made in 2006 by Hurenkamp and Tonkens suggests that in the Netherlands there are somewhere between 200,000 and 300,000 small-scale informal civil initiatives. See Hurenkamp, M. & Tonkens, E., *De onbeholpen samenleving: Burgerschap aan het begin van de 21e eeuw*, p. 43 (Amsterdam: Amsterdam University Press, 2011).
Link: <http://www.nicis.nl/dsresource?objectid=213811>.

5] One splendid digital instrument for signalling quality of life issues in the Netherlands is the Ministry of the Interior's Liveability Barometer (*Leefbaarometer*). Using an interactive map, citizens can find out how local residents assess their living environment, on a district, community and even postcode level. Livability is defined according to 49 indicators in six sub-sections: living conditions, public space, demographics, social cohesion, security, and proximity to natural environment. The survey is repeated every two years. See <http://www.leefbaarometer.nl> and Leidelmeijer, et al., 2008.

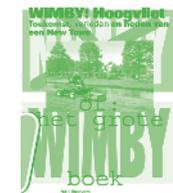
central to our exploration. We will demonstrate that the increasing influence of digital media technologies in urban life affords a number of significant opportunities for the e-culture sector, a field that was previously less intensely engaged with urban issues. In what ways can media makers and designers deploy new media in ever-changing urban society? How can they best go about forging new connections with stakeholders in urban issues, such as local authorities, housing corporations, and non-governmental organisations representing the full range of non-profit representational organisations? And how can they best appeal to new audiences?

In attempting to answer these questions we will take the concept of ownership as our 'design approach', a point of departure for designers contemplating interventions in urban society. The concept of ownership will be explored more thoroughly below, but in brief it engages with the question to what extent city dwellers feel a sense of responsibility for, and involvement in, their surroundings, their fellow citizens and changing conditions.

Our first step is to provide a number of conceptual tools that media makers can use to address urban issues together with stakeholders. This will be followed by a discussion of three examples of existing e-culture projects that contribute to urban ownership. Several experts in the field will also have their say. We conclude with a series of recommendations for the e-culture sector.

1.2 WHAT IS OWNERSHIP AND WHY DOES IT MATTER?

In today's cities, our everyday lives are increasingly shaped by digital media technologies, from smart cards and intelligent GPS systems to social media and smartphones. Can digital technologies enable citizens to act on collectively shared issues? Can principles from online culture help to form new collectives around communal resources in an urban context? Can media technologies bring about a sense of place and connection among urbanites, and a feeling of 'ownership' of their environment? We use the word ownership when referring to the degree to which city dwellers feel a sense of respon-



Wimby.nl

Welcome in my

Backyard was a project run in 2007 by Crimson Architectural Historians and Felix Rottenberg in the Hoogvliet district of Rotterdam. Its aim was to raise the level of the major restructuring of Hoogvliet through a variety of interventions ('acupuncture') with local residents.

sibility for common interests and can take action on them. So just what are these common interests? Who is responsible for them and under what conditions can ownership take place? In order to answer these questions, it is useful to first make a distinction between three forms of ownership, namely *res publica*, *res privata* and *res communis*,⁶ the latter being of most important in the context of this study.

Res publica (public issue) refers to public services for which responsibility has been passed to a single legitimate authority. In many cases this is the government (*res publica* is also the etymological root of the word 'republic'). Increasingly, public tasks such as security and infrastructure are being outsourced to private organisations. City dwellers neither need nor want to take ownership of each and every aspect of urban life; traffic light management and the laying of underground fibre-optic cables are typical of the sorts of activities we would rather leave to the government.

Res privata relates to exclusive ownership rights. In most cases it is obvious when a possession is private – who wants strangers in their home or back garden, for example? Processes of appropriation also take place in shared public space. This may involve groups of people who temporarily 'colonise' a space for private ends or privatised squares and streets owned by businesses. This process is facilitated by media technologies; examples include the regulation of admission to buildings and infrastructures using RFID chips and interlinked databases, CCTV camera surveillance in public and semi-public spaces, or the holding of private mobile telephone conversations in public space.

Res communis, or the commons, refers to communal resources, which are managed by multiple parties. It is difficult to exclude other people from the use of *res communis* – and in this respect it contrasts with *res privata*. The distinction between *res publica* and *res communis*, however, is more subtle and is often overlooked. One difference lies in the extent to which individual use has impact on the resource as a whole, affecting how other individuals can make use of it. To return to the example of traffic lights we used when defining *res publica*: it makes



Bijlmereuro.net
The 'Bijlmer Euro' initiative was set up by Christian Nold. It is a local currency that residents of the Bijlmer district of Amsterdam can use to get discounts at participating local shops. The aim is to keep a circulation of money continually invested in the local area rather than having it flow out to the headquarters of multinational companies. The local flow of the currency can be tracked and mapped using the RFID scanners in the shops and RFID chips in the money itself.

6] See Berry, D., 10 The Commons as an Idea Ideas as a Commons , 2005. Link: <http://fsmsh.com/1092>.

no difference how many people use this resource, it must be present – and preferably in the hands of a single institution. In the case of a *res communis* park, however, it does matter how many people use it: overuse is undesirable, as is underuse. How do people make use of this resource? Do they dispose of their rubbish in a bin, play loud music, and have a friendly bearing towards fellow users? The ability to direct people's attitudes to the commons from above is very limited. This requirement for a substantial degree of self-control is another factor that distinguishes *res communis* from *res publica*.⁷

When should we consider something to be a commons issue? Defining the commons in absolute terms is problematic. Shared gardens with limited accessibility and gated communities in which residents withdraw into collective privatised neighbourhoods are privately owned (*res privata*), but their management and use is a commons issue (*res communis*). And if an illegal activity were to take place there, it would become matter of public concern (*res publica*). We have therefore taken a pragmatic approach, defining the commons as coming into existence when people form collectives around specific issues they consider important. More often than not this means taking positions that conflict with the interests of other groups or institutions. An example might be the creation of a communal garden at the cost of parking spaces or a playground.

It is impossible to give a definitive answer to the question of who is responsible for management of the commons. One complicating factor is that commons issues (and controversies surrounding them) take place at various levels. Some issues are global, such as environmental health; water, food and energy supplies; and social equality. Other issues have a specifically local or regional character. At community and street level, people are faced with issues such as litter, accessibility, or loitering youth. In regions outside the Netherlands only major conurbation, the Randstad,⁸ towns and cities are faced with an increasingly age-

7] Alternative terms are *non-exclusiveness*, *subtractability*, and *self-governance*. See Ostrom, E., *Governing the Commons: The Evolution of Institutions for Collective Action* (Cambridge: New York: Cambridge University Press, 1990).

8] The Randstad consists of the four largest Dutch cities: Amsterdam, Rotterdam, The Hague and Utrecht.

ing population and urban exodus. The authors of the report 'Citizenship in Active Democracy' (*Burgerschap in de doe-democratie*, 2010) identify four national social issues between macro and micro level: lack of social cohesion between various population groups, consumerist and antisocial behaviour, social exclusion and the gulf between citizens and government.⁹ In general terms, however, we are able to formulate a number of conditions for the creation and management of the urban commons: shared access to collective services; the opportunity, knowledge and skills to initiate one's own actions; and reciprocity based on mutual trust between fellow users – in the assumption that everyone is dedicated to the common good. But here, too, a problem arises. In an influential article in *Science* in 1968, biologist Garrett Hardin describes the problems that arise when several farmers allow their livestock to graze on shared ground. For each farmer involved, the individual economic benefit from allowing more of his cows to graze on the commons outweighs the collectively shared ecological degradation of the field that this causes.¹⁰ In other words, the pros are privatised and the cons are socialised. Hardin's 'tragedy of the commons' opens up the question of what organisational form is needed to manage shared resources in a sustainable way, with the benefits being reaped by the community. Can it best be achieved through regulatory bodies such as the government? Or should it be left to the free market? Or is it perhaps possible to come up with alternative forms of organisation – forms in which new media could play a role?

Using the concept of ownership, we can choose to approach urban issues as commons issues.¹¹ Although this is by no means the only possible



Bikes.oobrien.com is a real-time digital map displaying the number of bikes available from bike-sharing schemes at distribution points in various major cities, including Barcelona, London, Bordeaux and Boston.

9] See Wijdeven, T. v. d., & Hendriks, F., 12 *Burgerschap in de doe-democratie*, 2010, p. 11. Link: <http://www.nicis.nl/dsresource?objectid=161879>.

10] See Hardin, G., 12 *The Tragedy of the Commons*, in *Science*, vol. 162, no. 3859 (1968), pp. 1243-8. Link: <http://www.sciencemag.org/content/162/3859/1243.full>.

11] The idea of viewing the urban environment as a resource is certainly not a new one. The concept was suggested by early twentieth-century urban sociologists at the Chicago School as well as by more recent thinkers, including Adam Greenfield. Link: <http://urbanomnibus.net/2010/07/frameworks-for-citizen-responsiveness-towards-a-readwrite-urbanism>.

approach, its advantage is that it allows us to define specific kinds of urban problems, while also offering a possible course of action. In contrast to the *res privata / res publica* paradigm and the exclusive / passive rights to ownership it assumes, *res communis* is all about inclusive and active ownership. Furthermore, urban commons issues consistently involve complex networks of actors. In the first place there are the citizens themselves, but these networks also include local authorities and policymakers, housing corporations, a wide array of social organisations and knowledge institutes involved in urban affairs, as well as local and other businesses. We believe that e-culture producers and institutes can play an active role in such networks by contributing to research and identifying opportunities and obstacles when it comes to urban problems – and to the development of solutions. Media makers can stake a claim for this active role because new media are themselves bringing about shifts in urban commons issues.

1.3 NEW MEDIA AND SHIFTING OWNERSHIP

The emergence of new media in the urban landscape is bringing about change in ownership. These changes comprise **A** new forms of commons; **B** new forms of shared management; and **C** new stakeholders or 'publics'.

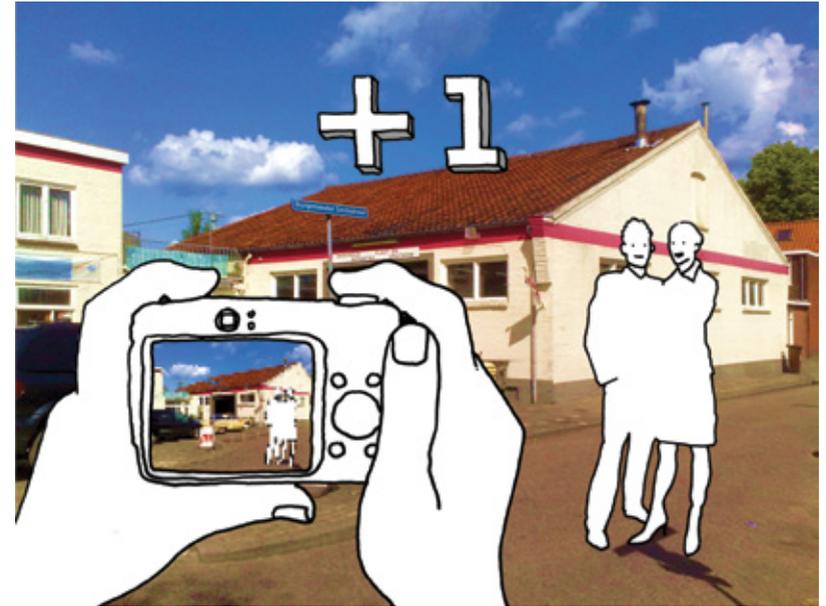
A - The city as a platform for the data commons

One current development is that of the 'city as platform', which involves the city being viewed as an information generating system. A wide range of technologies collect an enormous amount and variety of data. These are then exchanged, reacted upon, visualised and interpreted. Examples include: the speed and concentration of cars on ring roads; points saved on loyalty cards by consumers; observation using GSM transmitters of user distribution; measurement of air quality or sound pollution; and details of city dwellers' everyday lives through social networks. Consciously or unconsciously, citizens contribute to the accumulation of data on the use of all manner of products and services. These collections of data are a new resource containing valuable →



Collaborativeconsumption.com

Digital media make it possible to manage and share all sorts of materials and services. Examples include car sharing with neighbours (<http://www.wheels4all.nl>, <http://www.mywheels.nl>), and the lending and borrowing of tools (<http://beta.neighborrow.com>) and cooking equipment (<http://www.sharesomesugar.com>). There is even a site for fitting solar panels ([lbog.org](http://www.lbog.org)).



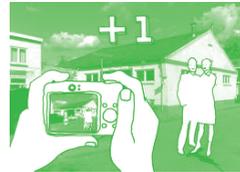
← ↓ ↑ Credits Kars Alfrink.



information for urban planners.¹² We can describe these combined collections as a 'data commons'. Scarcity takes on another meaning in this context because what we are concerned with here are not finite physical goods and services (such as Hardin's common land), but infinitely replicable digital data. Conditions for the creation of the data commons include the availability of, and access to, open data and the skills citizens have to use the data in a meaningful way.¹³ This raises issues of ownership: does the data commons strengthen possession rights of a limited number of players (particularly governmental authorities and private companies), or is it possible for it to foster ownership by citizens? The data commons offers potential opportunities for the design of interventions involving individual use that improves the commons rather than depleting it. In the field of biology this principle is known as mutualism. In contrast to Hardin's farmer who is 'parasitising' on shared resources by introducing an extra cow to the meadow, mutualism requires that all parties involved benefit from collaboration.¹⁴ These conditions are demonstrated by the example of users calling up local traffic information services, thereby contributing information about the density and flow of traffic; using the service improves the service.

B - Collective action, co-creation and self-organisation

Digital media have created new mechanisms for managing the commons and coordinating collective action. Traditional commons suffer from a lack of information leading to less than optimal decision-making. Using mobile and location-based media, people can share more information more quickly and base adaptive decisions on it. One example is the exchange – in real-time – of information about air



Koppelkiek
(Couple Snapshot, whatsthehubbub.nl/projects/koppelkiek/) is a social photo game designed by Hubbub for the deprived area of Hoograven in Utrecht, with the aim of bringing local residents together in a spontaneous way.

¹²] We use the broad term ¹⁶ urban developer here to describe anyone engaged in urban design and organisation, including architects, planners, local policymakers, housing corporations, as well as media makers working in an urban context.

¹³] One important point here is the non-exclusiveness of the data commons. To what extent does everyone have access to the data concerned and also have the knowledge to exploit this resource?

¹⁴] Examples from nature include cleaner fish who feed off the skin of larger fish, and plants whose root systems offer a safe environment to bacteria, which in turn supply nutrients to the plant.

quality using portable sensors and mobile networks. Online communities have been managing collective activities successfully for some time now. The terms 'co-creation' and 'crowdsourcing' are applied to processes characterised by common issues being tackled and managed collaboratively – with new participants having an active role. This concept lies behind the development of open source software and the online encyclopaedia Wikipedia as a knowledge commons. It would be an illusion to view these phenomena as exclusively bottom-up processes, because these commons also require their own sets of rules, ones that are often based on alternative forms of supervision and sanctions enforced not by top-down institutions, but by distributed means organised by the users themselves.¹⁵ What can we learn from online forms of commons management such as these? Is it possible to take the principles of self-organisation and collective action found in e-culture and apply them to urban commons issues?

C - New stakeholders and publics

The drawing of citizenry into urban developments has been taking place for several decades. Town planners, for example, operate according to the 'place making' principle, characterised by local people having their say within a community-driven process.¹⁶ And policymakers, housing corporations, politicians and knowledge institutes have also been engaging with the subject of citizen participation and control for some time now. Developments emanating from digital media technologies and the hybrid city have led to a reshuffling of opportunities and responsibilities. One of the first Internet initiatives in the Netherlands was The Digital City (*De Digitale Stad*), set up in 1994. This online network of Amsterdam residents had a distinctly bottom-up

¹⁵] Examples from the Internet include reputation management, moderation by fellow users, and sanctions ranging from reprimands by respected members to permanent IP bans.

¹⁶] See Beyea, W., Geith, C., & McKeown, C., *Place Making Through Participatory Planning*, in M. Foth (ed.), *Handbook of Research on Urban Informatics: the Practice and Promise of the Real-Time City*, pp. 55-67 (Hershey, PA: Information Science Reference, 2009); Hunt, B., *Sustainable Placemaking*, 2001. Link: <http://www.sustainable-placemaking.org/about.htm>.

approach.¹⁷ Five years later, local authorities started to take over the role of city-related IT developments.¹⁸ These experiments with 'knowledge districts' were often top-down in nature. At the same time, national and local government funds were being used to set up 'digital playgrounds', community centres where occupants learned to work with computer technology, gained new skills and got to know each other better, thus boosting the social capital of the local area.¹⁹ At national level there were governmental initiatives aimed at fostering 'e-participation'. The Citizen Link (*Burgerlink*) program, for example, was set up to, 'use information and communication technology to more closely involve citizens in the improvement of public services, civil administration and social cohesion'.²⁰ Meanwhile, citizens themselves were setting up websites and local WiFi networks for their local communities, creating new methods of maintaining contact with present and future neighbours.²¹ This was the emergence of 'networked publics', groups that were no longer organised according to predetermined locations, times or social categories. Instead, they used new media to gather around specific shared interests.²² One consequence was that the design of the urban living environment was no longer reserved for professionals in design disciplines such as architecture and urban planning, or for institutions such as established power structures and housing corporations. The field of influence shifted,

17] See Castells, M., *The Internet Galaxy: Reflections on the Internet, Business, and Society* (Oxford: Oxford University Press, 2001); Rustema, R., *The Rise and Fall of DDS: Evaluating the Ambitions of Amsterdam's Digital City* (Unpublished Masters thesis, University of Amsterdam, Amsterdam, 2001).

18] One example of just such an urban IT initiative is the Cyburg project, in which the inhabitants of Amsterdam's Zeeburg neighbourhood were encouraged to acquaint themselves with the technology and each other. See <http://www.digitalegemeente.nl/kenniswijk>.

19] See Van den Steenhoven, J., De Lange, M., & Lenos, S., *Toekomst van de trapvelden: een digitale injectie voor sociale kwaliteit in de wijk* (The Hague: SQM/KCGS, 2003). Link: http://www.media4me.org/9353225/d/digitale_injectie_sociale_kwaliteit.pdf.

20] See <http://www.burgerlink.nl/Documenten/eparticipatie/eParticipatie.html>.

21] See Besters, M., *Internetgemeenschappen in de buurt: een zoektocht naar succesfactoren* (Amsterdam: Stichting Nederland Kennisland, 2003).

22] See Varnelis, K.(ed.), *Networked Publics* (Cambridge, Mass.: MIT Press, 2008).

and technically minded amateurs found themselves able to intervene in the urban living environment.²³ It is impossible to draw a sharp distinction between top-down participation approaches initiated by institutionalised parties, on the one hand, and citizen-run, bottom-up community initiatives, on the other. Policy organisations, knowledge institutes, housing corporations and so on are also made up of 'ordinary citizens'. And the reverse is also true, because through institutions, citizens can engage in debates about the design of their city. Moreover, as mentioned earlier, it is an illusion to think that bottom-up participation can run by itself, without the support of institutions. The question is whether – and if so, how – new media can feed the creativity and ideas of non-institutional citizens into existing stakeholding structures. 'The city as platform' is a new playground for four emergent models of social organisation that do not acknowledge any distinction between bottom-up and top-down approaches. Terms such as 'wisdom of the crowds', 'crowdsourcing', 'collective intelligence' and 'swarm intelligence' are used to demonstrate that the sum of individual actions can give rise to more or less coherent forms of knowledge, understanding and behaviour. Trade and industry is also increasingly taking upon itself an ownership role with respect to commons issues when it comes to corporate social responsibility and sustainability. And major technology companies are active in the area of 'smart cities'.²⁴ The opportunity therefore seems to exist for collaborations to take place between governmental authorities, trade and industry, citizens and media makers that will unite socially responsible enterprise and new business. ←



Betavilla
(<http://bxmc.poly.edu/betaville>) is an online multiplayer environment for an open source exchange and discussion of ideas for urban development.

23] Examples include Wireless Leiden, which saw local residents setting up their own wireless network in Leiden (see <http://www.wirelessleiden.nl>), and the Geluidsnet (Soundnet) project (www.geluidsnet.nl), which involved people living around Schiphol airport carrying out sound measurements using cheap technologies because they did not trust the official figures.

24] IBM, for example, provides city management services that they claim increase transparency and, by extension, public confidence. See http://www.ibm.com/smarterplanet/us/en/smarter_cities/solutions/index.html. The jury is still out, however, on whether top-down approaches such as these truly lead to increased citizen engagement. Critics also point to potential greenwashing: profiteering by presenting a green image.

2. CASES

2.1 OPEN DATA EINDHOVEN:

OPENING UP THE DATA COMMONS

The Open Data Eindhoven platform attempts to open up government data for meaningful reuse. In 2010, a working group was set up with a variety of participating local stakeholders: Eindhoven local authority, North Brabant provincial authority, Eindhoven Technical University, Fontys Academy, the Eindhoven Regional Historical Centre, the Eindhoven-based media labs MAD lab and Fablab, and various developers. René Paré from MAD lab – one of the project's initiators – explains that the aim of the platform is to get data source holders and potential users to work together to achieve good provision of services for citizens. Rather than creating a discordant atmosphere by compelling the release of governmental data using freedom of information legislation, priority is placed on the common interest. Paré explains that all the parties involved agree with the principle that government data should be public. Nonetheless, in practice authorities are rather unresponsive when it comes to releasing data. This is partly because they themselves are not sure how to deal with privacy issues. And then there is the chicken-and-egg situation of authorities wanting to know which data are required, while developers would rather have all the data and figure out what they can use. A shift in attitude is taking place, however. This is partly because of the inspiring talks about open government by Tim Berners-Lee on TED.²⁵ In parallel, there is a growing realisation that data is valuable and that investments in the opening up of public sector information can yield a multiplicity of benefits.

How are new media technologies being used?

Three platforms are currently in use: the website openeindhoven.nl; the wiki (<http://www.openeindhoven.nl/wiki/>); and the Ning community (<http://openeindhoven.ning.com/>), none of which contain datasets – in principle these remain with the responsible authorities concerned. They determine who has access and who can update it with new information. Additionally, on many occasions developers have set about building open

25] See http://www.ted.com/talks/tim_berniers_lee_the_year_open_data_went_worldwide.html.

data applications. On 4 March 2011, the App in a Day even took place (<http://www.7di.nl/projecten/app-in-a-day040>) as part of the 7 Days of Inspiration event (<http://7di.nl/>). The primary underlying idea was to get people to donate their efforts for the greater good and free of charge, with value being determined only at a later stage. In just a single day, 20 programmers in five teams came up with a concept prototype for an open data app. A 24-hour 'hackathon' took place on 8 and 9 April 2011, focusing on the Internet of Things (see <http://www.madlab.nl/?P=1578>). This collaborative project with Rob van Kranenburg's Internet of Things Council was all about how to get devices to communicate with one another. This linked up with the networked global event organised by the international Pachube community.²⁶

What forms of organisation and approach are being used?

Open Data Eindhoven unites several stakeholding parties. Paré stresses that the group is not intended to allow a single party to take the lead, and the roles of other parties are equal to the role of the governmental organisations involved. For some time now, Eindhoven has been home to the Brainport, a 'triple helix' comprising government, private enterprise and knowledge institutes,²⁷ a list that Paré believes should include the citizen: he advocates a 'quadruple helix' that also includes roles for citizens, users and developers. In his view, initiatives such as this should not be organised on a top-down basis, although he does recommend top-down authorisation. At present, this does take place through the endorsement and policy emanating from the EU and Maxime Verhagen, the Dutch Deputy Prime Minister and Minister of Economic Affairs, Agriculture and Innovation, who has spoken out as a proponent of this form of initiative. Paré also points out the importance of including play elements in the process. Playful situations such as competitions or collaborative design processes create safe zones for experimentation. Through play, the participants discover and create new rules for reusing open data. →



[Geocommons.com](http://geocommons.com) is a website where users can create visual maps of data streams, providing an understanding of specific issues relating to a given district or city.

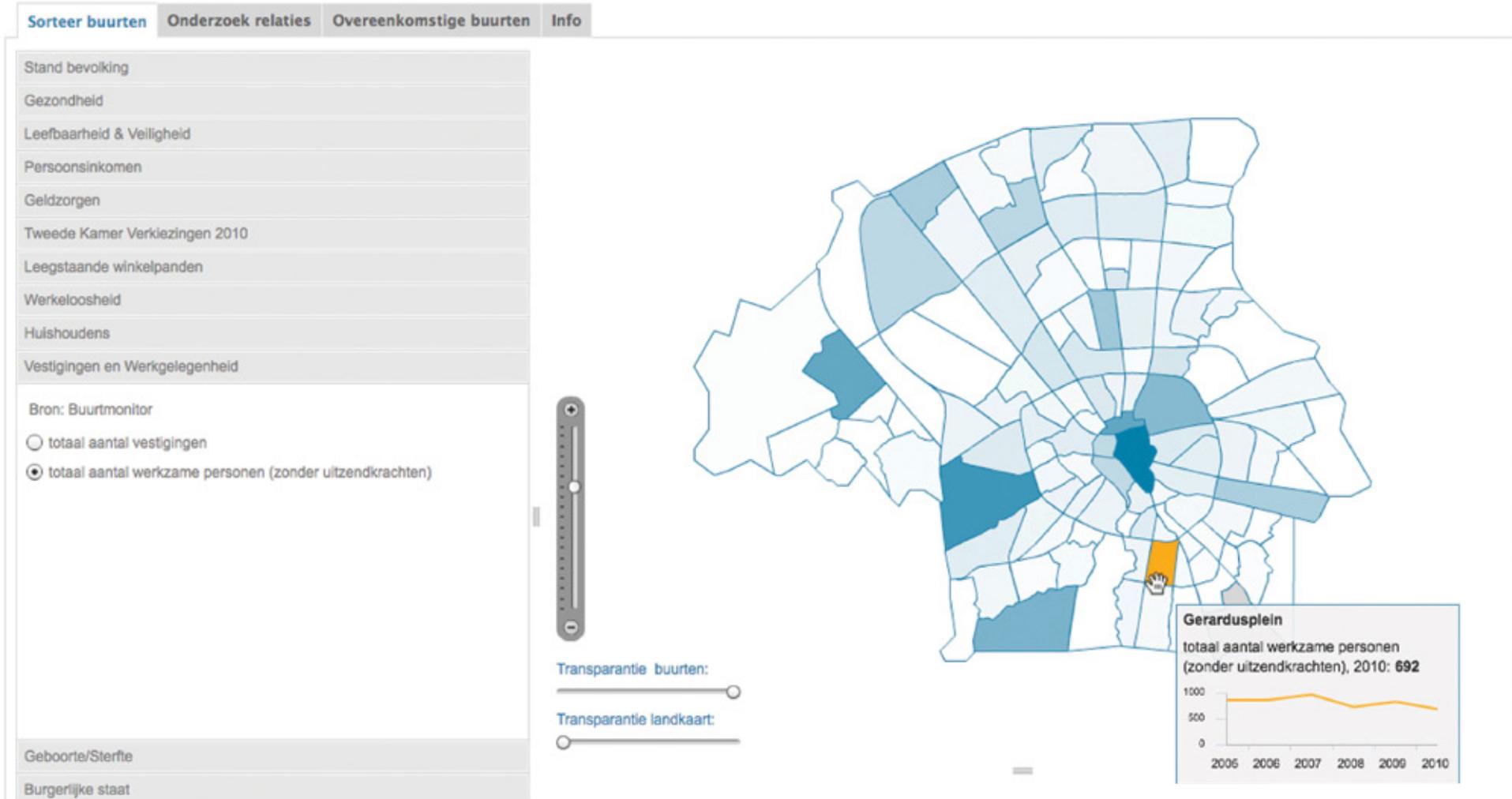
26] Pachube is a platform for publishing open data and creating what is sometimes called 21 the Internet of Things.

Link: <http://www.madlab.nl/?p=1667#more-1667>.

27] See <http://www.sre.nl/web/show/id=79553>.

Buurtvergelijker :: Eindhoven

Zie ook: [Rotterdam](#) [Enschede](#) [Utrecht](#)



↑ The Buurtvergelijker neighbourhood comparison tool enables comparison of neighbourhoods within the same administrative district. The Buurtvergelijker is configurable, allowing it to be used by other district authorities. For example, it is presently being used by the Utrecht and Enschede local councils. It will be distributed over time, initially to municipalities where open data activities are

being rolled out. Tjoa Design won first prize at the Apps for Eindhoven Challenge, which was awarded at the Open Data Eindhoven symposium on 10 June 2011.

<http://www.openeindhoven.nl/apps-voor-eindhoven-challenge/apps-inzendingen/buurtvergelijker/>

Which underlying concept of ownership does this convey?

By opening up datasets, public institutions transfer their exclusive ownership rights to an inclusive system of ownership that allows citizens to gain access to the data. Making this data available is only the first step, argues Paré, because a certain level of curiosity is required about the invisible information processes taking place in the background. Paré characterises this underlying principle with the words, 'Everyone is a hacker'. People need to develop a sixth sense for omnipresent information – a sense that goes further than merely being media literate, because it is also important to apply the knowledge usefully. Only when this takes place do citizens truly become 'owners' of these data. The government should go with the flow of our times, argues Paré. He describes the open data movement as, 'a battle against the bureaucratisation in the functioning of government and other organisations'. Open data is a way of achieving transparency, simplification, exchange and creative re-combinations in a relationship between citizens and government authorities. The process of releasing data and using it creatively for social purposes runs parallel to this – they reinforce one another. The matter of ownership in the context of open data therefore impacts on mutually connected and highly topical issues: bridging the gap between citizens and government, on the one hand, and increasing citizen-involvement in local issues, on the other.

What can we learn from this?

The process of applying open data is still in its infancy, and what is taking place in Eindhoven is no exception. One example of data that has already been released is the water board's dataset on the River Dommel, which flows through the city. The data includes details of water and pollution levels. So what does a dataset such as this yield? Paré believes that it can contribute not only to raising citizen awareness about water, ecology and pollution issues, but also to a culture of governmental transparency. Open Data Eindhoven is characterised by its attempt to bring together as many stakeholding parties as possible in an informal consultative body in which each has a different but equal role.

2.2 FACE YOUR WORLD: CO-CREATION IN URBAN DESIGN

Face Your World is a long-term project by the artist Jeanne van Heeswijk in collaboration with architect Dennis Kaspori (<http://www.faceyourworld.nl>). It involves young people and members of the local community taking on the role of urban designer by participating in an artwork that brings together town planning, computer technology and creative linking. The first phase of the project started in 2002 in the U.S. town of Columbus, Ohio, where children from deprived neighbourhoods were taken on a bus tour of various downtown districts. Using computers and digital cameras, they were able to upload their own material to a 3D computer environment called the Interactor. Here, they could work together with other users and negotiate about the design of their own living environment. The results were displayed on screens in the public space – at bus stops.²⁸ The second version of the project took place in Amsterdam in 2005 and in Rotterdam in 2006. In Amsterdam, Van Heeswijk and Kaspori created the Face Your World Stedelijklab (Urban Lab), a practical educational model focusing on enabling primarily lower-stream secondary school (VMBO) students to participate in the Staalman Park urban regeneration project taking place in the Slotervaart district. The project focused on a 13,500m² park planned for the heart of the Staalman Square area. Van Heeswijk and Kaspori set up camp in a disused school building near the planned location and transformed it into a city laboratory where local residents, interested parties and experts collaborated for six months on an alternative proposal for the design of the park. They presented their plan to the local authority, which accepted it with only minor modifications. The project brought together a variety of urban issues including urban regeneration, practical education, community participation and art in public space.²⁹ The park was officially opened on 6 July 2011.

In what ways are new media technologies used?

The design software used is called the Interactor. This multi-user environment represents the urban living environment and allows users to add and adapt elements such as photographs. It differs from other simu-



delootlondon.co.uk

Following the riots in London in the summer of 2011, a number of people took the initiative of setting up a site where citizens could upload their stories about specific shops that had been looted. Local residents were encouraged to shop in these stores to provide them with moral and practical support and to breathe life back into the area, or as they put it: 'Now it's our turn to deloot them: by spending our money there and helping our neighbourhood businesses get back on their feet'.

28] See <http://www.jeannetworks.net/> > projects > Face Your World, 2002.

29] See <http://www.faceyourworld.nl/slotervaart.php>.

lated environments such as SimCity in that there is a direct relationship with the user's own living environment. Van Heeswijk explains that the Interactor had to be sophisticated because people from deprived areas would not be prepared to work with clunky software. The project in Amsterdam differed from the one in Ohio, where learning to work with new technology formed part of the goal, and the Interactor was used primarily as a tool. The second version was more complex, including as it did an integrated chat function to support collaboration. The first version of the software was designed with the help of V2_ in Rotterdam; the second version was made by IJsfontein and Blixem Media with the support of the Foundation for Art and Public Domain (SKOR).

What forms of organisation and approach are being used?

The project ran for six months, four hours a day, with two meetings each week per group' a total of 60 young people participated. It started with a preset curriculum exploring what design entails. As the project progressed, the participants contributed to the form of the curriculum. Van Heeswijk explains that when they realised that the project was actually going to be carried out, the young people started to bring along family members and other local people to discuss the future of their neighbourhood. She notes that many commissioning organisations prefer tight planning, with clear steps marked by the design proposal, the final design, implementation and completion. This impacts negatively on the playful component and limits the possibility for iterative learning. Some describe Van Heeswijk as an 'urban curator', but she herself would no longer use this term, characterising her role not as director but as co-participant.

Which underlying concept of ownership does this convey?

Van Heeswijk believes that cities need inclusive forms of organisation. She is particularly interested in what she describes as proto-urban conditions – the fabric of the city. The city is a field of interactions and relationships between physical space and the emotional experiences of its inhabitants, argues Van Heeswijk. Her projects examine those relationships and seek out



Bomenkap.nl is an initiative set up by Milieucentrum Amsterdam (Amsterdam Environment Centre) to inform citizens of plans to cut down trees in the city. Local residents can submit their e-mail address to receive messages when trees in their local area have been nominated for felling, enabling them to take action to protect the local green environment if desired. The site, which was developed by Apps for Amsterdam, also provides information about tree-felling permits and public consultation procedures (see also apps-foramsterdam.nl).

how they can best be set in motion. In this context, media art is there to literally give oneself a visible presence in the public domain and thus gain traction on everyday reality. Van Heeswijk denounces the 'cleansing' of the city, a process whereby mono-functional and purely utilitarian spaces are created under the pretext of improving security and aesthetics. Van Heeswijk counteracts this ideal of a simplified frictionless city by attempting to create moments of engagement through getting people to contemplate participating. She believes that making the public space accessible and transparent to the citizen enables the citizen to form it and place him or herself within it and in relation to it. In this project, there are again two forms of actorship: engagement as a co-designer in one's own physical environment, and visualisation of one's physical environment and place within it, thereby transforming oneself from a passive consumer in our mediated world into an active producer.

What can we learn from this?

Around 600 people participated in the Slotervaart Face Your World Stedelijklab and over 3000 people attended various related events. Van Heeswijk stresses, however, that in her opinion the success of a project such as this cannot be quantified using such statistics. She believes it is all about contributing to society through a long-term involvement in the public domain, and that media art should more frequently engage with public space. It was of crucial importance to Face Your World that the makers physically 'set up camp' in the area and built up a long-term relationship with local people within the framework of the common issue.

2.3 IMPROVE THE NEIGHBOURHOOD: INVOLVING NEW AUDIENCES IN THE COMMUNITY

Improve the Neighbourhood (Verbeterdebuurt, www.verbeterdebuurt.nl) is a residents' platform that is intended to draw the local council's attention to problems in their area and to suggest improvements. Improve the Neighbourhood makes a distinction between the reporting of existing problems ('public space reports' in municipal terminology) and suggestions for improvement. After the person reporting the problem has been sent an e-mail verification, →



BaasopZuid.nl (Boss of the South) is an online game in which players take administrative decisions relating to the renovation of suburban South Rotterdam. Should they renovate, or build regular apartment blocks or detached residences? Players have a limited budget, so money used for creating new car parks is no longer available for youth facilities, for example. In this way, the players gain an understanding of the complex issues that have to be considered in the management of their neighbourhood. They also have an opportunity to pass on suggestions for improvements to the local authority.



↑ Face Your World is a project by Jeanne van Heeswijk and Dennis Kaspori. <http://www.faceyourworld.nl>



↑ Face Your World, 2005, photy by: Dennis Kaspori

↑ Young people create a new urban planning design for the future Staalman Park. Photo: IJsfontein.



↑ Commissioned by Slotervaart district council and Alliantie housing corporation, Face Your World organised this art project together with residents of Amsterdam's Slotervaart district, young people from Streetwise and De Blaauwe Olifant. The artist Florentijn Hofman designed the statue.

the problem is passed on to the responsible body, but for an idea to qualify for consideration, ten people must first have voted for it. Local residents are responsible for collecting these votes, for example, by using their social network on various other platforms such as Twitter and Facebook. The project started in 2009, following the example of the English Fixmystreet project.³⁰ Carl Lens, one of the founders of Improve the Neighbourhood sees Fixmystreet as largely being a complaint forum, where citizens can offload their problems onto the local authority. Fixmystreet also lacks any social interaction component for members of the same local community. And, finally, it is not aesthetically appealing. Improve the Neighbourhood distinguishes itself from Fixmystreet in three ways. Firstly, Improve the Neighbourhood had a more socially oriented structure from the outset, because local residents can respond to each other's reports and vote on their ideas. Secondly, it has a relatively greater role for citizens because it allows for their own ideas. And thirdly, Improve the Neighbourhood has a revenue model: upon payment, a link can be made with the local authorities' own reporting system.³¹ This difference in approach is reflected in the project's name, with Fixmystreet stressing the responsibility of government, while Improve the Neighbourhood places citizens' personal initiatives centre stage.

In what ways are new media technologies used?

The interface for Improve the Neighbourhood consists of a dynamic map based on Google Maps. Problems and ideas can be shared via the website and with a variety of mobile applications including an iPhone app and a layer on the augmented reality platform Layar (www.layar.com). Improve the Neighbourhood can also be incorporated into local authority or neighbourhood websites.³² Different inputs appear as icons on the map: a red drawing pin indicates a reported problem, a yellow light bulb indicates an



Trashtrack (senseable.mit.edu/trashtrack) works in a similar way to the In the Air project in that it seeks to engage citizens with a previously 'invisible' subject - in this case waste processing. For the duration of the project, mobile sensors followed the routes taken by a number of discarded items that could be followed live through attractive visualisations.

30] See <http://www.fixmystreet.com>.

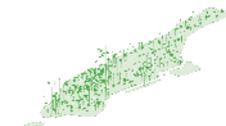
31] The technology behind this is the standard exchange format (StUF) used predominantly in government organisation information chains. See <https://wiki.noiv.nl/xwiki/bin/view/OpenStandaarden/StUF>.

32] Improve the Neighbourhood (Verbeterdebuurt) has open Advanced Programming Interface (API) specifications that enable communication with other software. This allows for easy integration with other IT services and infrastructures.

idea, and a green flag indicates a solved problem. Viewing the map, users can select or deselect certain categories, such as waste, traffic and paving, or green/recreational areas. Lens points out that the mobile applications account for 40 to 50 per cent of submissions. This is surprising because the founders of Fixmystreet initially said that mobile reports formed a negligible proportion of submissions. One of the advantages of the mobile apps is that they enable precise positioning, while also allowing people to easily upload photographs. This saves the local authority an extra journey (additional costs) because they can immediately establish the nature and location of the problem.

What forms of organisation and approach are being used?

Founders Carl Lens and Stijn van Balen are also co-owners of the CreativeCrowds bureau (www.creativecrowds.com), which has been developing crowdsourcing strategies since 2007. As Lens explains, 'We quickly realised that crowdsourcing is most effective in the public domain. The public domain affects everyone, so this is where it has the greatest potential'. With this in mind, and inspired by Fixmystreet, they embarked on setting up the non-profit Improve the Neighbourhood Foundation (*Stichting Verbeterdebuurt*). Initially, they mostly focused on technical concepts and functionality. They also contacted all the Dutch municipal authorities by e-mail to invite them to make use of the platform. Lens believes that to get the project going it was important to invite people to participate, to publicise it, and to actively moderate the process. The problem with community management is that, unlike the technology, it is not scalable. Each and every interaction with participants requires a specific approach and a solution. Improve the Neighbourhood plans to collaborate with local stakeholders so that the community aspect can be outsourced. One important component of this project is the linking of online and offline interaction. One local authority has commissioned Improve the Neighbourhood to go local communities and organise neighbourhood surveys involving local people and representatives of the local authorities. Furthermore, activities such as these provide an opportunity for members of the community to talk about →



Urbanomnibus.net is an initiative set up by the Architectural League of New York to involve various parties in the spatial planning and design of New York. Contributors include local activists, artists, scientists and architects.



↑ → Opening in Hoorn of the skate park proposed on the Verbeterdebuurt website. Photo by Stijn van Balen.



it together. Lens believes that the 'hipness factor' of the mobile application contributes to this. A major producer of car tyres has offered to sponsor Improve the Neighbourhood, based on the mutual desire for safety in the neighbourhood.

Which underlying concept of ownership does this convey?

A small-scale study carried out in the initial phase indicated that Improve the Neighbourhood users are primarily made up of voters for the D66 (liberal centre) and GroenLinks (left-liberal green) parties with an average age of 44, who came into contact with the organisation through Twitter and by word of mouth. These statistics suggest that most of the respondents are well educated. Lens nonetheless believes that Improve the Neighbourhood is reaching new people who are not prone to joining public forums, or do not know where to find the municipal department to apply to join – or simply cannot be bothered. He also points out that Improve the Neighbourhood proves that it is worth participating, with users seeing the evidence of reports drawn up by themselves and others being dealt with. This increases confidence in the belief that their contribution is truly effective. Furthermore, Improve the Neighbourhood and all its published reports provides members of the community with material they can compare with information from other areas, enabling them to get a clearer picture of what could be improved in their own neighbourhood. Lens explains that this demonstrates how citizens can form an opinion about issues of which they were previously unaware. Improve the Neighbourhood also provides a platform for dialogue with the local authority about issues of general interest. For Improve the Neighbourhood, ownership is therefore about reaching out to – and activating – networked publics in their living environment, as well as visualising individual contributions and collective issues and raising them for discussion.

What can we learn from this?

At the time of writing, 300 of the Netherlands' 418 local authorities are participating, meaning that they process reports made through Improve the Neighbourhood. Some of the remaining authorities do process reports, but are unwilling to commit publicly. Initially, they wanted to approach a single authority to carry



Fallenfruit.org is a project set up in Los Angeles that allows people to map and share ripe fruit in their local area (LA bylaws allow fruit hanging outside fences to be picked). It is often the residents themselves who 'collectivise' their crop.

out a pilot and test the platform. Unfortunately, none wanted to participate. Improve the Neighbourhood therefore decided to go ahead anyway throughout the Netherlands, whereupon a large number of authorities showed interest. An important lesson to be drawn from this, explains Lens, is that this kind of project has to be initiated from the bottom up in order to gain critical mass. He is most proud of an idea put forward by a boy in Hoorn who wanted a skate park in his area. He started a campaign on Improve the Neighbourhood and collected 200 signatures, with the result that the authority did indeed build one. Once again, here we can observe a readjustment of the relationship between local authorities and citizens, with digital media allowing collectives to gather around issues of shared interest. ←



Intheair.es features various visualisations of air quality in Madrid. They include a water fountain that changes colour when the air quality changes. In the future, the website will have a route planner showing to what extent travellers themselves contribute to air pollution with their journey, depending on the selected mode of transport. The central aim is to use visualisation to focus attention on the problem of air pollution and to encourage citizens to take co-ownership of the issue.

3. OBSERVATIONS AND RECOMMEN- DATIONS

In our contemporary information society, we are witnessing digital media exerting influence on cultural production as it transforms from a centralised to a peer-to-peer production process. This brings with it a shift of emphasis from ownership rights (whose is it?) to the process of ownership (who is participating?).³³ The merging of digital media technologies and urban life is leading to the creation of new resources in the form of the data commons, emergent organisational processes based on collective action, and networked publics and institutions. This offers new opportunities for media makers. Media arts have a long tradition of interactivity and participation that often revolves around the degree to which the user can influence the media (user <> medium).³⁴ This research into ownership examines how the application of media can facilitate forms of engagement with the urban environment (user <> medium <> surroundings). In this concluding section we will draw attention to a number of issues and make recommendations for the e-culture sector. This should not be viewed as a set of rigid prescriptive guidelines, but rather as reflections on ownership as a design approach and on the added value media makers can provide in the context of urban issues.



Wirelessleiden.nl is a not-for-profit organisation that set up and now manages a city-wide WiFi network with the help of local volunteers. Citizens can share their network with visitors and also make use of the network elsewhere in the city.

3.1 DATA COMMONS: FROM DATA TO SITUATED ACTION

Sensors and networked technologies generate huge volumes of data on all manner of urban processes. How can we best utilise these resources and open them up, organise them and deploy them for the creation of liveable cities? In information and organi-

33] See Benkler, Y. 36 Freedom in the Commons: Towards a Political Economy of Information, 2003. Link: <https://admissions.law.duke.edu/shell/cite.pl?52+Duke+L.+J.+1245+pdf>; Benkler, Y., & Nissenbaum, H., Commons-based Peer Production and Virtue, in *The Journal of Political Philosophy*, vol. 14, no. 4 (2006), pp. 394-419.

34] For a list of examples, see this blog post on Masters of Media: <http://bit.ly/gq78pA>.

sation sciences, a distinction is made between raw data, organised information and applicable knowledge (to this list is sometimes added the fourth phase of capacity for critical evaluation, or wisdom).³⁵ This suggests that simply making huge amounts of data available only makes a credible contribution when the information is organised and when people have the skills to apply the information and engage with it critically. Researchers also point out that information and knowledge have no purpose without context they are dependent on times and location.³⁶ Participation collective action based on shared information and knowledge comes into being in specific situations. These may be formal situations such as elections, or informal ones such as when citizens are confronted with issues that they perceive as directly impacting on their lives. More often than not, these are temporary protests *against* intended policy. Is it possible that new media will also play a role in the formation and coordination of sustainable forms of ownership with respect to specific issues? Those who wish to design for ownership face the challenge of connecting information and knowledge with specific situations and moments in time (Van Heeswijk's 'moments of seizure'), enabling people to participate, remould these situations into bigger stories, and create a long-term sense of ownership. Simply allowing people to gain access to data does not set people into action. Design intervention must be added to data visualisation to spur people into action and authorise them to do so.³⁷ All of the projects de-

35] See Ackoff, R. L., 37 From Data to Wisdom: Presidential address to ISGSR, June 1988, in *Journal of Applied Systems Analysis*, no. 16 (1989), pp. 39; Raad voor Cultuur, *Mediawijsheid. De ontwikkeling van nieuw burgerschap* (The Hague: Raad voor Cultuur, 2005); Raad voor Cultuur, *Mediawijsheid in perspectief* (The Hague: Raad voor Cultuur, 2008).

36] See De Cindio, F., Di Loreto, I., & Peraboni, C., 37 Moments and Modes for Triggering Civic Participation at the Urban Level, in M. Foth (ed.), *Handbook of Research on Urban Informatics: The Practice and Promise of the Real-time City*, pp. 97-113 (Hershey, PA: Information Science Reference, 2009); Ma, L., 37 Information as Discursive Construct, in *Proceedings of the American Society for Information Science and Technology*, vol. 47, no. 1 (2010), pp. 1-4; Dourish, P., & Bell, G., *Divining a Digital Future: Mess and Mythology in Ubiquitous Computing* (Cambridge, Mass.: MIT Press, 2011).

37] See Bratton, B. H., & Jeremijenko, N., *Situated Technologies*

scribed above involve gatherings in physical spaces and the long-term involvement of designers/makers who often fulfil a role of facilitator rather than leader.

3.2 CO-CREATION AND DIY URBANISM: FROM FREE RIDING TO RECIPROCITY

How can citizens best use new media technologies to engage as co-designers of their own living environment? How can principles of online culture such as crowdsourced co-creation be applied to the organisation and management of the urban commons? Management of the commons is notoriously tricky due to the free-rider problem caused by rational individuals acting in a way that does not coincide with the common interest.³⁸ Particularly in cities, with their high degree of anonymity and diversity, it is easy to withdraw from collective interests: if someone else is going to clean the communal staircase anyway why should you bother doing it? Research demonstrates that the visibility of individual contributions to the greater whole is a precondition for successful management of the commons.³⁹ If this information is visible to others, reciprocity and mutual trust can come into being. The visualisation of invisible processes and complex relationships is one of new media's greatest strengths, good examples of this include data visualisations and social network mapping. Urban sociologist Saskia Sassen believes that citizens become more fully engaged with complex open processes when the underlying technologies and infrastructures are made visible, something that applies to both physical infrastructures and software processes. All our computerised systems should be transparent. It

Pamphlets 3: *Suspicious Images, Latent Interfaces*, 2010, p. 29. Link: <http://archleague.org/PDFs/ST3-SituatedAdvocacy.pdf>.

38] Contrasting with the notion of the citizen as a rational decision maker, there is the awareness that people often do not choose the best option or simply do not have the time or motivation to make a well-considered choice. This fact is the basis for the 38 nudging principle, a benevolently paternalistic approach that presents the optimal choice to people without denying them their right to alternatives. See Thaler, R. H., & Sunstein, C. R., *Nudge: Improving Decisions About Health, Wealth, and Happiness*, rev. and expanded ed., (New York: Penguin Books, 2009).

39] See Ostrom, E., *Governing the commons: the evolution of institutions for collective action*, p. 6 (Cambridge, UK & New York: Cambridge University Press, 1990).



Geluidsnet.nl is a project involving people living near Dutch airports measuring noise levels using cheap technologies. The measurement data is mapped to create a visual representation of noise levels around the airports, and can also play a role in the debate or in campaigns to reduce noise pollution.

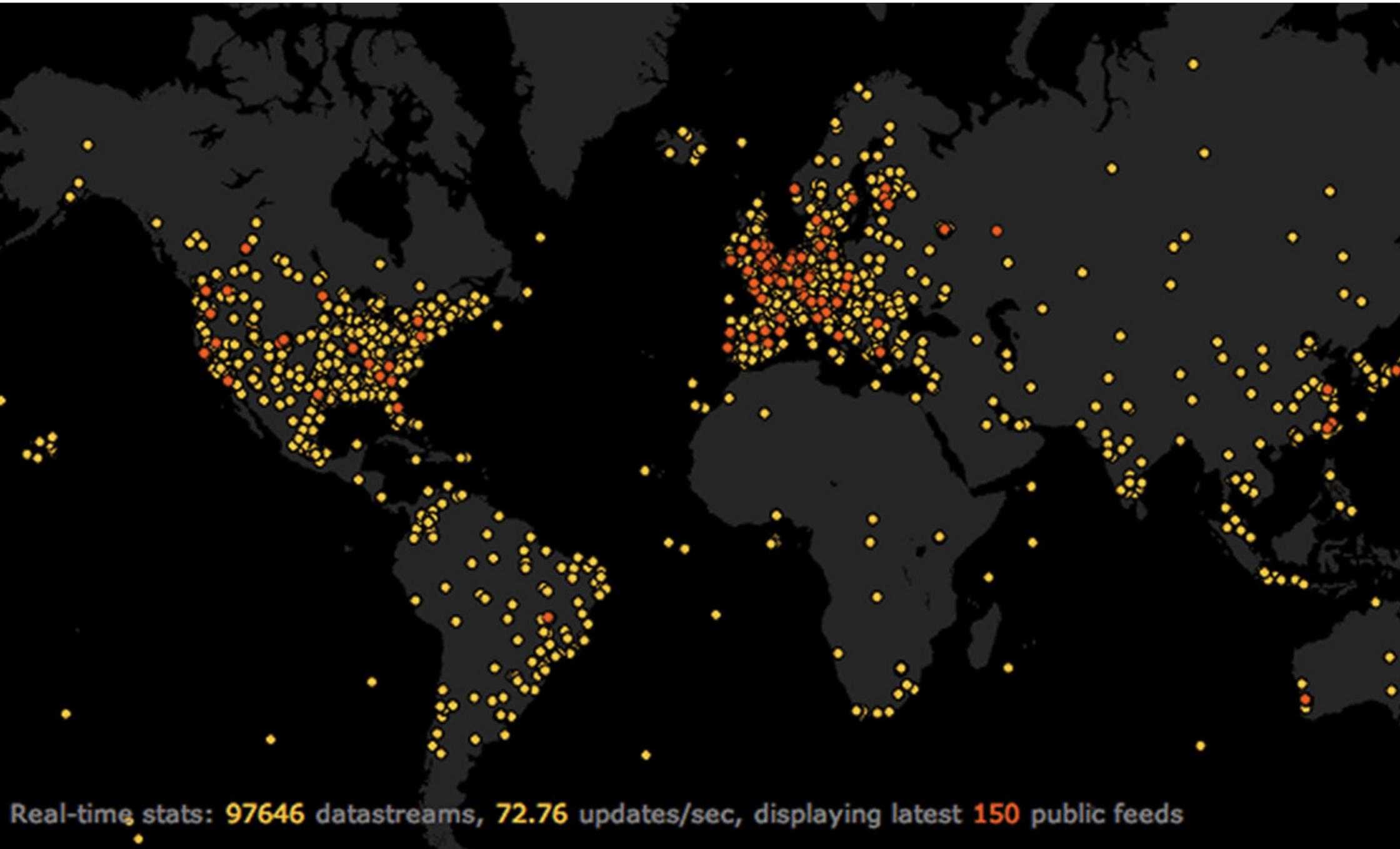
would literally transform the city into a shared public domain.⁴⁰ Another of the media's strengths is applying protocols to reciprocity in both technical and social contexts. Examples include peer-to-peer networks such as Bittorrent (which allows downloaders to simultaneously upload), wireless community networks such as Fon (which is based on principles of equal sharing), and online forums and wikis that reward active contributors. Can these principles and applications be translated into interventions for the urban living environment? Taking ownership as our design approach, we propose making individual contributions to communal interests visible and incorporating reciprocity into the process. This is a delicate issue, because the urban environment appeals to new and existing citizens precisely because it allows them to escape from parochial social control. The challenge we face when designing for ownership is not solely a technology-related one of selecting the appropriate medium, because the process itself is also a challenge. How can one best design the process so that stakeholders are motivated to make an intrinsic commitment rather than being compelled by extrinsic and over-simplistic reward mechanisms?

3.3 FROM PARTICIPATION AND COMMUNITIES TO NETWORKED PUBLICS

In what ways can new urban publics form around common concerns? If it were to happen, it would mean a shift from a representative democracy that act on behalf of defined groups and supporters to a situated system of issue-driven politics implemented by, as well as for, citizens. In such a context, citizenship would involve more than taking an active critical role as a consumer (buy to select).⁴¹ As mentioned earlier, this is not the first time efforts have been

40] See Sassen, S., *Talking Back to Your Intelligent City*, 2011. Link: <http://whatmatters.mckinseydigital.com/cities/talking-back-to-your-intelligent-city>.

41] See Camponeschi, C., *The Enabling City: Place-Based Creative Problem-Solving and the Power of the Everyday*, 2010, p. 66. Link: http://enablingcity.com/wp-content/uploads/2010/10/the_enabling_city2010_LQ.pdf; De Cindio, F., Di Loreto, I., & Peraboni, C., *Moments and Modes for Triggering Civic Participation at the Urban Level*, in M. Foth (ed.), *Handbook of Research on Urban Informatics: The Practice and Promise of the Real-Time City*, pp. 97-113 (Hershey, PA: Information Science Reference, 2009).



made to encourage city dwellers to become more engaged with their environment and each other. Existing methods can be roughly split into two types: top-down participation models, and bottom-up community models. Institutions use participation models to initiate projects that citizens can participate in, while community models are based on the notion of homogenous groups who share key aspects of their lives with one another. Similarities rather than differences are central to these models. The question is whether this parochial approach is appropriate in a contemporary urban civil society that is so heterogeneous in nature. Some issues are so complex that there is no consensus on either their definition or possible solutions. An approach to urban issues from an ownership perspective is not based on any notion of consensus. Rather, it creates an opportunity for the forming of personal opinions and the articulation of differences of opinion. But where is the borderline between deploying information technologies for serving the common good, and preserving the interests of specific parties? At what point do issue-inspired citizen initiatives descend into nimbyism? Will it create new gated communities of like-minded people who unite around shared concerns and exclude others? We will illustrate this phenomenon with an example. The sound measuring technology used by Sound Net (*Geluidsnet*, geluidsnet.nl) is used to gauge and map the level of noise pollution caused by dance parties.⁴² Armed with quantified evidence, residents can then launch legal proceedings based on municipal bylaws and regulations. However, a certain level of friction between different inhabitants and groups is inherent to city life. The ideal of public life exists by the grace of the mutual tolerance of differences.⁴³ There should be a fair and dynamic balance of interests that, by turns, benefits one group or the other. The ownership approach focuses on the underlying question of who owns the neighbourhood. Is it possible for dialogue to take place between groups of disparate opinions when it comes to such a specific issue as a dance party in a residential area? Is there space for



Pachube.com is an open platform used to publish, manage, visualise or exchange data streams (such as sound measurements), or to connect them to a range of software applications or physical installations. In this way, Pachube can be used to set up an infrastructure for shared management of a project, or to gather data (on air quality or sound pollution, for example) and make it transparent, making it possible to engage and involve publics in a specific issue.

⁴² This story was told by René Post at the EcoMap Lab session at PICNIC 2009. See <http://archive.picnicnetwork.org/page/52631>.

⁴³ See the ever-relevant *The Death and Life of Great American Cities* by Jane Jacobs (1961, reprinted 1992), in which she describes the city as a complex organism in which different people play a range of roles.

conflicting viewpoints? Christian Nold and Rob van Kranenburg have proposed a series of sociability standards that make public discussion possible on subjects such as environmental issues. They argue for systems that promote face-to-face contact, mutual responsibility and conflict.⁴⁴ These systems lead to the emergence of networks of publics focusing on specific issues, without neutralising internal differences. A practical consequence of this might be a game situation, a safe space for controlled conflict and team play.⁴⁵

3.4 IN CONCLUSION: FROM A TRANSFER OF RESPONSIBILITIES TO MUTUALISM

This study of ownership is a piece in a larger puzzle, with the rise of the liberated citizen, on the one hand, and the disengaging government that now delivers customised responses to demands from civil society rather than generic services, on the other. At first glance, one might get the impression that ownership would strengthen neo-liberal ethics when it comes to personal responsibility and standing up for one's own interests. Cities such as New York and Boston, for example, crowdsource the tracking of potholes in the road with mobile phone software used by car drivers. This app registers sudden jolts with a built-in accelerometer and passes on the location to the authority concerned using GPS and an Internet connection.⁴⁶ Improve the Neighbourhood assigns citizens a similar signalling task one that previously was the domain of the government. Some critics argue that state and local authorities use the advancements and rhetoric surrounding crowdsourcing (sometimes in combination with the Big Society policy concept devised by the UK Conservative party) to shift their own respon-

⁴⁴ See Nold, C., & Van Kranenburg, R., *Situated Technologies Pamphlets 8: The Internet of People for a Post-Oil World*, 2011, p. 53. Link: http://archleague.org/PDFs/AL_SitTech8_PDF.pdf.

⁴⁵ One example is the PlayReal project, an augmented reality game aimed at people aged 10 to 16 years old. PlayReal connects between online social networks and offline gaming assignments through which young people acquire the skills to come up with local solutions for important social issues. See <http://www.playreal.org>.

⁴⁶ See <http://thedailypothole.tumblr.com>. The New York authorities claim this led to the repair of 27 per cent more potholes in 2011 than in 2010.

sibilities onto others, dress up cost-cutting measures and legitimise decision-making.⁴⁷ In our opinion, however, this criticism is not entirely justified. One of the central issues dealt with in this study is how the emergence of new media technologies are realigning relationships between stakeholders and creating a more active role for citizens. The distinction we have made between *res communis* and *res publica* makes it possible to negotiate about the boundary between issues that are the responsibility of government and issues that are the responsibility of citizens. These boundaries of ownership are not set in stone; they are dynamic. Collectives can emerge around this kind of controversy. It is precisely through negotiations such as these about assigning responsibility that ownership comes into being. The ownership approach demonstrates that we should not discard the distinction (equality for citizens and government!). In accordance with the principle of mutualism described above, a different but equivalent role allows a variety of stakeholders to make the most of their strengths. In complex urban societies, our mutual differences make our common concerns stronger. ←

Rotterdam  Open Data

Rotterdamopendata.org
This initiative was set up by the City of Rotterdam, Rotterdam University and Rotterdam businesses to make data available. 'because we believe that this will contribute to the freedom of Rotterdam residents to access information for making choices: because this will strengthen Rotterdammers' sense of connection with their city and with each other; and because it will enable them to be more effective in helping to create the cities in which we live.'

47] This phenomenon was described as offloading in a recent report; see: IFTF, 44 A Planet of Civic Laboratories: The Future of Cities, Information, and Inclusion, 2010. Link: http://iftf.me/public/SR-1352_Rockefeller_Map_reader.pdf. Architecture critic Markus Miessen takes a similar line on pseudo-participation in *The Nightmare of Participation* (Berlin: Sternberg Press, 2010), p. 14. Politicians and government authorities give participating a nostalgic sugar-coating of inclusivity, democratic decision-making and solidarity to evade their own responsibilities. Miessen presents an alternative to the consensus model, proposing that individuals position themselves as uninvited outsiders and seek conflict. For more on the Big Society and associated policies such as opening up government data and strengthening local participation, see http://en.wikipedia.org/wiki/Big_Society.

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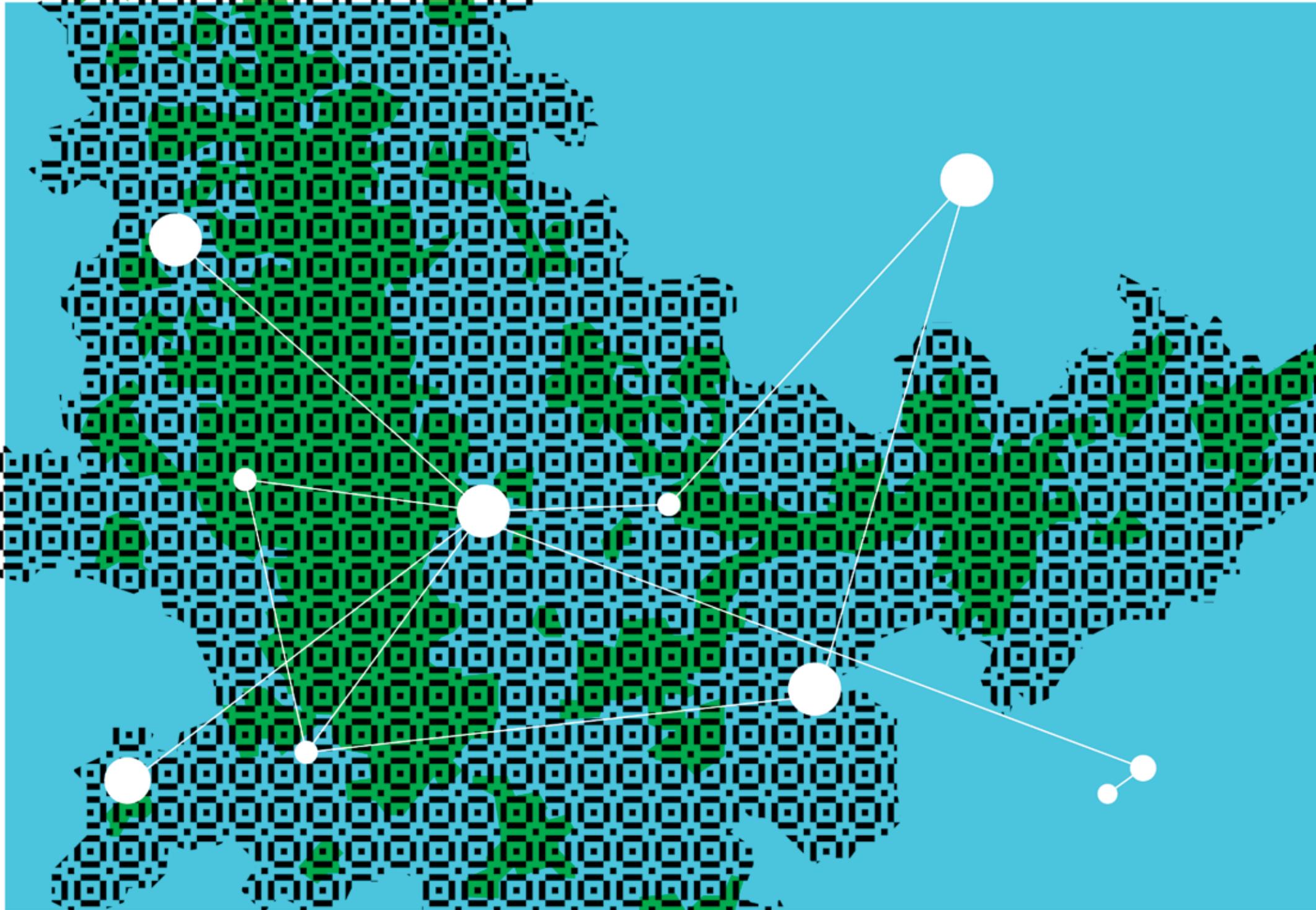
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FURTHER READING

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- <http://engagingcities.com>
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Digital media technologies are having a growing influence on our everyday urban lives. How can we use these technologies to make our cities more liveable and lively? And in what ways can the e-culture sector contribute to the development of ownership in urban society?

Sector organisation for e-culture Virtueel Platform commissioned the mobile media and open design experts Michiel de Lange and Martijn de Waal from The Mobile City to examine the concept of ownership as a design approach for the contemporary city. Their research is published here together with information on selected illustrative domestic and international projects.

Virtueel Platform is the sector organisation for e-culture in the Netherlands. Virtueel Platform promotes and supports cultural innovation by revealing, sharing and increasing knowledge about e-culture.

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