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Public Engagement with the Smart City

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Edited by Sally Hussey

Bang the Table Pty Ltd
C.E.Lab 96 Pelham Street, Carlton, Vic 3053 Australia

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Bang the Table is a digital community engagement company with a strong social mission. Our purpose is to involve citizens around the world in the conversations that affect their lives and advocate public participation as vital for any well-functioning democracy.

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Contributors

Mark Dean completed a PhD in political economy at The University of Adelaide. He is a researcher with the Australian Industrial Transformation Institute, Flinders University, and Vice-President of the Australian Institute of Urban Studies, South Australia Branch.

Jiska Engelbert is Assistant Professor and a critical discourse researcher, Erasmus School of History, Culture and Communications, Erasmus University, Rotterdam. Her work explores the relationship between media-oriented practices and neoliberalism.

Fadi Hirzalla is a researcher at Erasmus University, Rotterdam and coordinator of the Rotterdam Knowledge Lab Urban Big Data. His research focuses on citizenship and new media in relation to youth and intercultural relationships.

Sally Hussey is Bang the Table's Managing & Commissioning Editor and Senior Writer. She has an extensive background in the publishing, academic and cultural sectors and is completing her PhD at the University of Melbourne, Australia.

Luuk Schokker is Executive Manager, the Centre for Big Open Linked Data (BOLD) Cities. Holding an MA in English Literature & Culture from the University of Amsterdam, he specialises in the usages of narrative techniques in cultural context.

Alec Walker-Love is a Communications Specialist who works with associations, local authorities, businesses and institutions across Europe. Previously working with international associations in urban mobility, his current focus is with projects in science, research and citizen engagement.

Liesbet van Zoonen is Academic Director, Centre for Big Open Linked Data (BOLD) Cities, and Professor of Sociology and Dean of the Erasmus Graduate School of Social Sciences and the Humanities, Erasmus University, Rotterdam. Her research questions the relevance of popular culture to civic understanding and social participation.

Linda Zuijderwijk is a postdoctoral researcher at the Centre for Big Open Linked Data (BOLD) Cities. Affiliated with Erasmus University, Rotterdam, as an urban sociologist, she is also a researcher of social innovation in the European TRANSIT project.

Introduction

Sally Hussey

If the Smart City is deemed the solution to increasing urbanisation, then it masks an abyss of hidden vulnerabilities for citizens. To-date, the optimism that surrounds the datafication of the urban landscape – the blind belief that technology makes things better – fails to address key questions around how it accommodates this urbanisation or, more significantly, how it will affect citizens and communities.

More recently, this is off-set by a cynicism that has emerged around the close data-monitoring of citizens. With intense forms of surveillance purporting to offer better services – improved safety, liveability and accessibility – the Smart City, it seems, comes at a high cost to its citizens.

A place where you can never disappear, it also triggers anxieties around privacy and control, where geo-social data and real-time analytics seem to displace citizen engagement. And, with technology surveilling the urban landscape, governments are increasingly working with the private sector producing knotty questions around transparency and control, particularly where priorities may differ. With the pace of change, too, social infrastructure seems out of step with digital infrastructure.

But, while it may seem easy to court antagonism, a sustained, positive discourse around public engagement with the Smart City is lacking. Shifting focus requires attentiveness to what, in fact, constitutes 'citizens' and 'public engagement'.

Public engagement with the Smart City brings together researchers and engagement specialists across the globe to probe questions for twenty-first century citizens in an increasingly sensor-laden environment.

In **Innovative technologies trigger engaged citizenry: smart cities are engaging cities,** Mark Dean provides an overview of recent academic literature and reveals the growing realisation that, from the outset, the Smart City must connect urban development policy to technology-based public engagement. Dean surveys city-as-platform, living labs, geofencing and digital infrastructure in European contexts, exploring citizen awareness – and motivation – to interact with smart city innovations.

Following this, Dean's **A Digital Right to the City: who defines democracy in smart cities?** vaults issues of privacy to the forefront and asks, how we can ensure technology enhances democracy? How do we guarantee the privacy and security of citizens, when the rush to utilise smart city solutions can lead to the neglect of citizens' rights?

Couched in the rhetoric of improvement, optimisation and convenience, the Smart City also raises critical questions: what does a citizen-led approach look like? and, what does the Smart City look like for vulnerable peoples? Researchers at the Netherlands-based Centre for Big Open and Linked Data examine empirical dimensions of big data in cities. Testing public engagement through 'action research' in **'Seeing more than you think': a 'data walk' in the Smart City**, the authors explore pressing questions around citizen inclusion, where the citizen-focused approach provides deeper insights into citizen experience. How can people, literally, see what is going on with big data? Raising awareness, however, reveals a bigger challenge – to reconstruct datafication as a social issue rather than an individual responsibility.

In conclusion, engagement consultant Alec Walker-Love addresses a recurrent flaw in smart city projects: the lack of a definition of 'citizen engagement'. In **Citizen engagement in urban transformation: smart cities, smart citizens, but smart projects?** he asks if it's possible to create a project to engage and excite citizens. Like Walker-Love's take on smart cities, the originality of the analyses presented here lies in the recurring theme – what is a 'citizen'? And, how do we define 'public engagement' in – and with – the Smart City?

Innovative technologies trigger engaged citizenry: smart cities are engaging cities

Mark Dean

Many problems face cities around the world in the twenty-first century and these require twenty-first century solutions. A significant evolution in governance policymaking is necessary to deliver better solutions, particularly as more than fifty per cent of the world's population now lives in cities, and that figure grows rapidly. Governance structures of the twentieth century struggle with the global social, cultural, economic and political interconnectivity produced by technological change. The present bureaucratic structures many nations have in place must become more flexible. As the size of cities increases demographically and geographically, the old ways of 'doing' government will fail to proportionately respond to pressing complex needs.

Recent literature exploring the concept of smart cities reveals a growing realisation that these problems must be addressed by connecting urban development policy to innovative forms of technology-based public engagement. The Smart City can be simply defined as one in which local authorities engage citizens through strategic use of digital technology to achieve goals of safety, security and liveability, and to help establish critical infrastructure and deliver services effectively and efficiently. For this reason, literature discussing the notion of the Smart City has focused on the way twenty-first century challenges to cities can be addressed by harnessing the power of technology in ways that achieve appropriate governance responses.[1] However, what this literature makes very clear is that utilising technology alone will not be effective. Governments that adopt smart city strategies must make the process as much about public engagement as it is about technological innovation. In combination, technology and public engagement form the most critical nexus for innovative urban development.

Roadmap for development: e-governance and engaged cities

Sam Musa has argued that smart cities represent a potential break from the old, rigid bureaucratic structures and methods of managing cities that entrench inefficiencies and disconnection between infrastructure and citizens.[2] Smart cities can overcome the impediments to access that face digitally disconnected places. However, a roadmap for developing a smart city approach is essential and must from the outset revolve around public engagement. Musa's roadmap lists key steps in communicating the rationale for smart cities, developing policy to drive the initiative and involving citizens in an ongoing process of public empowerment, whereby effective forms of electronic governance (e-governance) permit citizens to not just benefit from things like new infrastructure, efficient service delivery and participatory budgeting processes, but allow them to provide constant feedback through digital connectivity with government in more flexible digital forms such as free public Wi-Fi and even things like app-based maintenance and service issue reporting mechanisms.

Participatory innovation and living labs

Today, such forms of digital public engagement feature in a range of e-governance types.[3] Among some of the world's most advanced smart cities are those that have adopted a 'city-as-platform' approach as their e-governance approach to public engagement in revitalising urban areas and strategising urban economic development. Ari-Veikko Anttiroiko has discussed the platformisation concept, covering recent theory and case studies from city-as-platform approaches to embedding smart city programs in public engagement.[4]

The city-as-platform is finding success in Finland's three most culturally and economically important cities: Helsinki, Tampere and Oulu. These cities have all embraced the smart city model for urban innovation. By making public engagement the centrepiece of policy, when technology brings these cities together it resembles progress based on networks of participation between all sectors of society. The smart city policies of governments in these cities have underscored partnerships with the business and civil communities to facilitate public participation in experimental pilot programs. The aim of these are to redevelop run-down districts into smart city hubs; improve public transport services; and connect students, researchers, entrepreneurs and the local community in collaboration and co-creation on urban rejuvenation projects.

[1] International Electrotechnical Commission (IEC), 2014, *Orchestrating infrastructure for sustainable Smart Cities – White Paper*, International Electrotechnical Commission, Geneva, Switzerland.
[2] Musa, Sam, 2016, 'Smart Cities – A Roadmap for Development,' *Journal of Telecommunications System Management*, v.5, no.3, doi: 10.4172/2167-0919.1000144.
[3] Ashehri, Mohammed and Steve Drew, 2010, 'E-Government Fundamentals', paper presented at the IADIS International Conference, ICT, Society and Human Beings 2010, Freiburg, Germany.
[4] Anttiroiko, Ari-Veikko, 2016, 'City-as-a-Platform: The Rise of Participatory Innovation Platforms in Finnish Cities,' *Sustainability*, v.8, no.9: 922.

At the most advanced end of smart city development, Helsinki has embraced a combination of innovation incubation to inform the future trajectory of the Smart City; and a 'magnet' to attract new ideas to it with a network of living labs that promote public participation in the discovery of user-driven methods and tools to solve real-world problems. Perhaps most simply, yet fundamentally at the centre of smart city development, provision of free public access Wi-Fi infrastructure features in the city-as-platform policies of Finland's major cities. But rather than represent just an access point, free Wi-Fi is designed to facilitate open data sharing so that digital connectivity brings diverse users into contact in spaces where information is readily available for collaborative innovation possibilities.

Anttiroiko draws attention to the way that the smart city policies of local governments in Finland have been so successful not because public authorities have stepped away from innovation processes. By government creating the space and providing the tools for innovation, the smart city platform at local level draws strength from its recognition in broader frameworks at inter-regional, national and international levels.

Geofences: digital infrastructure and Pokémon GO

It is evident from recent smart city research that governments can make forms of e-governance available to the public for the purposes of engagement. Yet, making them aware of such opportunities – and motivating them to interact – remains a problem when thinking about the implementation stage of the smart city approach. Perhaps a key feature omitted from the roadmap, and oversimplified in analysis of the Finnish case, is how governments can actually achieve public engagement within an implemented strategy. This requires an element of data measurement and analysis.

> By using geofences to alert individuals in proximity to public digital infrastructure and service points, the public are effectively participating in a simplified version of Pokémon GO.

Fechner, Schlarmann and Kray focused on measuring smart city engagement, finding that smart city applications to local places and people must be specific to local situations to promote changes in established cultural practices. Their idea to address this issue proposed a smartphone application that notifies a user about nearby smart city engagement opportunities.[5] By using geofences to alert individuals in proximity to public digital infrastructure and service points, the public are effectively participating in a simplified version of Pokémon GO. Where citizens are encouraged to interact with urban environments through triangulation, governments can facilitate public engagement with smart city strategies. The results of these authors' study show that citizens, at the very least, appreciate information about opportunities for interaction, even if they do not necessarily participate immediately. This indicates that digital information can inform ongoing physical relationships between citizens and their urban environments.

[5] Fechner, Thore, Schlarmann, Dominik and Christian Kray, 2016, 'Facilitating citizen engagement in situ: assessing the impact of pro-active geofenced notifications,' *18th International Conference on Human-Computer Interaction with Mobile Devices and Services*, Toronto, Canada: 353-364.

Smart cities, accessible cities

The recent literature on smart cities detailed above demonstrates that researchers and now even some policymakers are embracing smart city policy platforms for public engagement. It shows that the smart city is viable in policy and practice as a twenty-first century solution to twenty-first century problems in cities. The real-world examples contained within some of the above work demonstrate that the most advanced cities are well on their way to embracing the innovative approaches of the Smart City as a dynamic and flexible system of governance and public engagement.

When fully incorporated into policy, there is potential for the Smart City as a platform for various e-governance tools that engage citizens with public planning, services and urban development. Expanding participation beyond the typical administrative systems of government strikes a balance between the forms of policymaking – both free market and centralised government – that are failing to account for the complexity of reality. Recent research tells us that the Smart City holds potential for promoting bottom-up solutions to the kinds of challenges that will test the limits of current institutional forms and styles of public participation.[6]

But as with all research, significant gaps must be addressed before governments will have a range of tools to truly modernise their public engagement policies. An evident limitation in smart city projects detailed in the literature investigated above is the reliance of many on smartphones. This risks excluding some disabled, older and other disadvantaged groups in society from engagement and participation. Of course, the goal should be to make cities work for all citizens.

This is made a more difficult task when considering that mainstream economic ideologies still underpin much of the rationale and policymaking practices for smart city developments.[7] Yet, what the above smart cities literature reveals is that there are viable options for meaningful, bottom-up public engagement, and when these are embedded in the very platform of government's relationship with its citizens, smart cities can reach all corners of society. Thus, further smart city research might seek to determine how public authorities can become more flexible to fully meet the challenges of smart city policymaking that fully engages the public in solving complex problems, where decentralised decision-making replaces the market-based or centralised approaches that continue to dominate much urban development policy.

[6] Colander, David & Kupers, Roland, 2014, *Complexity and the Art of Public Policy: solving society's problems from the bottom up,* Princeton, USA: Princeton University Press.
[7] Peck, Jamie and Nik Theodore, 2015, *Fast Policy – Experimental Statecraft at the Thresholds of Neoliberalism,* Minneapolis, USA: University of Minnesota Press.

A digital right to the city: who defines democracy in smart cities?

Mark Dean

Improving the smart city for everyone begins with ensuring technology enhances democracy.

The smart city concept is now something that both policymakers and urban communities engage with regularly. Technologies like free public Wi-Fi, public transport GPS tracking, high-speed internet for entrepreneurs, vehicles that can speak to traffic lights, urban bike-share systems and smart garbage bins feature among a broad range of smart city innovations that policymakers have supported to better connect citizens to their urban environment in the digital age.

But when the focus of policy is on these technological aspects and their efficacy to create more connected cities, policymakers can overlook more important issues: the unavoidable collection and use of big data by governments and companies that implement these technologies. As smart cities develop, the collection of big data becomes an issue because it brings privacy, security and access to the fore. Joe Shaw and Mark Graham stress:

> [A]s ever more people live in digital, digitally mediated, and digitally augmented places, further developing the concept of an informational right to the city is imperative in order to understand exactly how power is reproduced through code, content, control and urbanization of information.[1]

Who collects big data? Who has access to it? And how is it used?

Previous research identifies the very real potential of data collection to fall far short of guaranteeing the privacy and security of citizens. These technologies are most often owned or developed – or both – by private companies, meaning proprietary rights exclude the public from access to the data that they generate. Benefits of smart city strategies, then, can be outweighed by risks and stifle positive change if not implemented effectively.[2] In these ways, the use of data in processes of smart city innovation raises serious concerns about how, and by whom, citizenship and participation in the digital age is defined.

Society's rush to utilise smart city solutions to urban problems means the risks can be neglected. With such risk in mind, recent academic literature squarely faces these issues, providing key concepts that can help to encourage data transparency, access and security, thereby producing smart city innovations that benefit everyone – governments, businesses and citizens.

A 'digital right to the city'

Shaw and Graham further an idea originally pioneered by late French urban sociologist, Henri Lefebvre, by conceptualising a 'right to the city' for the digital age. Translating this idea to the smart city – a 'right to the smart city' of sorts – suggests policymaking that recognises a citizen's right to mobilise technology to shape urban spaces and to benefit from urban data. It speaks to the public's democratic right to information and its key role in shaping fair and equitable urban spaces even as technology produces digitally connected societies.

A digital right to the city transforms the who, how and why of the struggle over rights to the creation of urban space into one focused on the politics surrounding what is to be gained from the creation of digital urban space, and who it benefits. Shaw and Graham explain that "the power afforded to traditional actors of urban power – developers, planners, landlords – is now rivalled by the rise of new informational monopolies such as Alphabet Inc's Google."[3]

Directing the late UK Labour MP Tony Benn's five questions of power towards Google, the authors argue that the tech giant's control and manipulation of data has negative implications for the right of citizens to the city. Google's mission to do good is easily outweighed by its $500 billion value – a value achieved by commodifying user data or even allowing it to be used for spying. The company's control of data permits it to profit from citizen participation with its platforms. Hence, Shaw and Graham propose that an engaged citizenry can resist the power of monopolies like Google in the digital urban age not by emancipating themselves from technology, but by embracing ownership and self-management of technologies. This can produce a digital right to the city.

1 Shaw, Joe and Mark Graham, 2017, 'An Informational Right to the City? Code, Content, Control, and the Urbanization of Information,' *Antipode*, v.33, iss.4: 16.

2 Hamilton, Emily, 2016, *The Benefits and Risks of Policymakers' Use of Smart City Technology,* Mercatus Center Working Paper, George Mason University, Arlington: USA.

3 Wahlstrom, Kirsten, Roddick, John F. Sarre, Rick, Estivill-Castro, Vladimir and Denise de Vries, 2006, 'On the Ethical and Legal Implications of Data Mining', *Technical Report SIE-06-001,* School of Informatics and Engineering, Flinders University, Adelaide: Australia.

Importantly, this article suggests that maximising wellbeing for all citizens means smart city strategies must entail producing more than just monetary value from digitising citizens' interaction with their urban environment. Achieving a right to the Smart City for citizens is about sharing data and collaborating across different groups to produce multiple kinds of value.

The city as laboratory

Creating multiple kinds of value is the topic addressed by Cohen, Almirall and Chesbrough.[4] These authors explain that as cities compete on innovation in the global economy, sharing and collaboration are essential components to smart city technology developments that make cities more competitive. Cities are becoming a platform for the innovation economy. Urbanisation, the democratisation of innovation and technology, and collaboration are converging paradigms helping to drive entrepreneurship and innovation in urban areas around the globe.

Beyond the first two waves of entrepreneurial smart technology innovation – firstly, telecommunications infrastructure development and secondly, tech companies using the internet to build information networks – the current 'third wave' finds innovation occurring in entrepreneurial relationships between companies, governments and citizens. This requires collaboration and co-creation and the sharing economy is the ideal space for this to occur.

Cohen, Almirall and Chesbrough explain that approaching innovation as if the city is a laboratory of diverse collaborations on new applications of data effectively moves smart city developments beyond finding singular solutions to isolated problems, and instead towards fostering innovation 'ecosystems' that broaden entrepreneurial opportunities. In this sense, developing smart cities should focus not on top-down service provision through policies and programs, but on designing structures that nurture a space for broad collaborations to emerge in a bottom-up fashion.

Developing smart cities should focus not on top-down service provision through policies and programs, but on designing structures that nurture a space for broad collaborations to emerge in a bottom-up fashion.

[4] Cohen, Boyd, Almirall, Esteve and Henry Chesbrough, 2017, 'The City as a Lab: open innovation meets the collaborative economy, *California Management Review*, v.59, no.1, 5-13.

Ensuring data is open

If data drives smart city development, it is a no-brainer that the more 'open' access is to data, the more opportunities will be created for innovation that reflects broad access to information. The Spanish city of Barcelona built a smart city ecosystem which made it one of the world's most successful smart cities. Berrone, Ricart and Carrasco5 suggest that Barcelona's ecosystem demonstrates how combining transparency, participation, improved public services and commercial interests can create both social and economic value from smart city innovation. And an ecosystem of good governance can secure a digital right to the city that Shaw and Graham conceptualised above.

This means government holds a key role in driving open data initiatives. It can propose a strategy to nurture collaboration between public authorities, private stakeholders and user-citizens, meaning that governments 'open their kimono' to create an information-sharing culture which involves all in smart city decision-making.

Sharing information can foster economic progress by enhancing entrepreneurial activity and new product and service development. But government must lead the way. Through an analysis of the evolution of Barcelona's open data initiative the article investigated what the design and organisation of a smart city ecosystem looks like so that it produces social and economic value.

Barcelona's smart city ecosystem established a foundation of trust and shared leadership between public and private stakeholders which aligned with the city's strategic direction. It identified collaboration priorities and locked down funding commitments. It established partnerships with entrepreneurs, other cities and other levels of government to expand opportunities for innovation. It planned how citizen engagement was to be implemented across a range of platforms to encourage inclusiveness and measure engagement success. It was executed with both public and private stakeholders focusing on maximising outcomes for users first – not just on potential voters or consumers. Berrone, Ricart and Carrasco state:

> [T]he value is not in the data alone. Instead, the goal should be to create open and user-driven innovation ecosystems that are aligned with the interests and needs of cities, companies, and other stakeholders and that are capable of bridging the gap between short-term city priorities and the longer-term development of citizens' quality of life.[6]

[5] Berrone, Pascual, Ricart, Joan E., and Carlos Carrasco, 2017, 'The Open Kimono: toward a general framework for open data initiatives in cities, *California Management Review,* v.59, no.1, 39-70.
[6] Ibid.: 68.

By using data to create value for not just business but citizens, Barcelona's smart city strategy produced trust and reciprocity between all involved, leading to unique forms of innovation.[7] The transparent use of open data by city authorities and private companies has potential to nurture a cultural transformation towards collaborative experimentation and innovation. But quite possibly the most important takeaway from this study is the fact that an open data initiative also implies sharing data between different groups takes place in collaborations from the beginning. This means all urban actors – governments, businesses and citizens – should be engaged in the production, use and development of data.

Smart cities require smart citizenship

The articles outlined above provide theoretical and practical interpretations of initiatives that can maximise democratic participation in smart city development. But Shrock and Shaffer note that smart city strategies built on open data face limitations ranging from access to readability.[8] Not accounting for these factors can limit disadvantaged groups from participating in the smart city.

Improving access to and transparency in data requires open data intermediaries. These are actors that operate as translators between government policies and the users of the technologies that form smart city strategies. As non-state actors, they can be strategically positioned to communicate the data emerging from data ecosystems.

The coordination of smart city strategies through data intermediaries makes clear that education is essential to building the open, inclusive smart city. Martelli presents the case that it is only when citizens can imagine their position and role in digital spaces that they can become full participants in the Smart City.[9] Martelli develops a methodology to help young people recognise, discuss and evaluate the impact that the data that they contribute to the development of smart cities holds potential negative side effects for their freedom and privacy. As young people face a future in which digital connectivity will increasingly define what citizenship means, embedding within their behaviour a sense of their digital right to the city – and the implications of this for how they relate to power – will improve their interaction with the smart city. Martelli writes:

> [M]odern citizenship calls for an original tradeoff between the capacity to exert full authority and power ... and the acknowledgement that only a network system of competencies, vigilance, and trust can assure transparency and democracy.[10]

Although struggle may define the urban experience of the future as it has before and in some ways continues to do, there are ways to approach smart city development that ensure a right to the city in the digital age.

7 Hansen, Niles, 1992, 'Competition, Trust, and Reciprocity in the Development of Innovative Regional Milieux,' Papers in Regional Science, v.71, no.2, 95-105.
8 Shrock, Andrew and Gwen Shaffer, 2017, 'Data ideologies of an interested public: a study of grassroots open government data intermediaries,' Big Data & Society, v.4, no.1, doi: 10.1177/2053951717690750.
9 Martelli, Cristina, 2017, 'A Point of View on New Education for Smart Citizenship,' Future Internet, v.9, no.1, doi: 10.3390/fi9010004.
10 Ibid.: 3.

‘Seeing more than you think’: a ‘data walk’ in the Smart City

Liesbet van Zoonen, Fadi Hirzalla, Jiska Engelbert, Linda Zuijderwijk, Luuk Schokker

It has become commonplace in smart cities discussions to say that it is imperative to include citizen perspectives and interests in policy and planning. Issues of privacy and data-ownership come to mind immediately when talking about such citizen perspectives, and they are indeed a key matter in smart city discourse.[1]

Beyond such concerns, however, when smart city scholars or planners plea to include citizen perspectives, it is unclear who exactly is meant by ‘citizen’. Similarly, this raises the question what is a ‘perspective’ or ‘interest’, and what might be the different or opposing interests of people in cities. This incoherence is reflected in the plethora of terms that are used to describe smart city projects aimed at including citizens. Think of quadruple helix; inclusive design; value-sensitive design, or participatory design; co-creation; urban living labs; hackathons; or, data boot camps.

Nevertheless a 2016 survey by the British Institution of Engineering and Technology (IET)[2] suggests that ‘smart city’ remains a concept that ordinary people neither know about nor recognise as possibly beneficial. Less than one in five members of the British public has heard of the term ‘smart city’.

The IET concludes, therefore, that it is time to involve the people in smart city design. But which people exactly? And why precisely? What are good methods for engagement? And when is such involvement considered satisfactory or even successful?

Being BOLD: embodying the smart city

The research of the Centre for Big Open and Linked Data (BOLD) is aimed at examining these questions in their theoretical – and empirical – dimensions. We have developed our research agenda from a desire to enhance the civic and social uses of big, open and linked data in cities and leave the smart commercial or entrepreneurial futures to others.

Our work ties into recent debates about 'digital rights to the city'.[3] We take 'the people' as including city users and city civil servants. Admittedly, these are a highly diverse collection of groups and individuals with different social and cultural affiliations, different levels of data and digital awareness and different ties to the city. It is highly likely that they will have conflicting interests between and among them. Our research is aimed at exploring, developing and testing forms of participation and engagement that entail the recognition and resolution of these contrasting interests. This contributes to smart cities being SHARED (Sustainable, Harmonious, Affective, Relevant, Empowering and Diverse), a concept that we developed and that guides our work.

The 'data walk'

At BOLD Cities, we conduct various forms of action research, using multidisciplinary and multimethod approaches and methods. One such method, following the work of Alison Powell of the London School of Economics,[4] is the 'data walk' (others, include data dialogues and gamification). In the past year, we have taken 14 groups of city users and civil servants (some 80 people altogether) on short walks through different parts of Rotterdam and The Hague in The Netherlands.

With smart city developments being mostly invisible – as infrastructures tend to be in the ground and data float through the ether – a first imperative for engagement is to make people literally see what is going on. When walking we therefore ask people to consider four questions: Where do you see data? What happens with it? Who owns it? Would you like to have some say about it?

We participate as moderators rather than as experts, asking questions and making notes, but seldom providing answers as to where data is and how it is used. As a method, this seems to work well, provided that the group is not too big (maximum of five) and that participants have some minimum of interest in their city and the purpose of the walk. When we walked with students for a teaching assignment, we noticed boredom setting in quickly, but when we walked with civil servants of municipalities, enthusiasm and appreciation were significant. There is always pressure from the groups to put us, as tour guides, in the position of experts able to provide information and judgment. We try to resist this because it would turn the group dynamic into a teacher-pupil or expert-audience relation. This would run counter to our ideas about raising awareness and empowerment[5] – a social process that supports people gaining control of their environment.

[1] Van Zoonen, Liesbet, 2016, 'Privacy concerns in smart cities,' *Government Information Quarterly,* v.33, no.3: 472-480.

[2] Institute of Engineering and Technology (IET), 2016, 'Smart Cities: Time to involve the people', Smart Cities' Conference, 4-5 May, Glasgow.

[3] See Dean, Mark, Chapter 3 in ed. Hussey, Sally, 2017, *Public Engagement with the Smart City,* Bang the Table, Carlton: 7-10.

[4] Dr Alison Powell, Programme director of Media and Communications (Data & Society), London School of Economics (LSE), researches how people's values influence the way technology is built, and how technlogical systems in turn change the way we work and live together.

[5] Page, Nanette and Cheryl E. Czuba, 1999, 'Empowerment: What is it?' *Journal of Extension,* October, v.37, no.5.

While we are in the middle of walking and analysing, we think we have found some important preliminary tendencies in the discussions among our groups that we want to share, as matters for discussion, rather than as solid outcomes.

'Seeing' data

As for seeing the Smart City and its data flows, public transport and its data usage was widely recognised as were paid parking, free-WiFi signs and CCTV cameras. Note, however, that some of our participants did not recognise the modern form of CCTV cameras looking like a black ceiling lamp. Walking past shops and bars, in each group somebody would come up with a remark about data usage, both to control stock and to monitor customer interactions. Inevitably, the smart phone was mentioned as a data hub, either spontaneously or because somebody using a phone would come by.

People also point at all kinds of antenna's, masts and dishes on roofs. But it was mostly unclear to them (and to us) what exactly they were for. Wind sensors tend to be recognised but an ongoing puzzle is a four-meter high mast located in the middle of a busy pedestrian harbour park area in Rotterdam to which six small sensors are attached. None of our participants knew what it was and neither did (or do) we – although speculation was rampant and funny, ranging from a thing of the harbour authorities to the NSA and the Russians.

Based on their professional knowledge many of our civil servants also pointed at invisible data of and in the city, such as the cadastre, building permits, licenses and so on. One of our participants summed it up nicely when she said: "You see more than you think, but you see less than there is."

The two follow-up questions, what happens with this data and who owns them, turned out to be highly problematic. The best illustration comes from a conversation with group of high-ranking city civil servants walking by the entrance of their own office building. Our moderator asked them to stop and reflect on the usage of their employee ID-card and the control gates which could be seen through the windows of the building: "You scan your card every day. What happens with this data?" The group of five fell silent and looked vaguely at each other: nobody knew whether scanning meant registration, and, if it does mean registration, by whom, and with what purpose and duration. The same happened in other groups when talking, for instance, about the data registered when paying parking fees, or when entering monitored apartment buildings. Among ourselves, as a research group, we had to admit we were not very aware of the usage of our digital coffee and copy tokens either. The everyday nature of such data delivery is apparently also a factor that makes data invisible and, as a result, beyond reflection.

Data awareness: civic challenge or individual responsibility?

As part of our fourth question about control of data, when asked whether people minded that they knew so little about what happened with data in the city, the answers varied. This is a topic that we need to analyse in much more detail in future research, but one tendency is worth sharing presently. At the office entrance, one participant was embarrassed and felt he should know more and be more aware; while another said he didn't feel a need to be aware, because in his long career at the city he hadn't noticed any abuse of data control. Both answers frame data awareness and empowerment as an individual (lack of) responsibility, rather than as a public and collective challenge.

Such individualistic frame was even more explicit in the discussion among students about parking data: "I don't have a car, why should I care?" Their conversation about the smart, ID-card enabled bins of their student apartment demonstrated a similar instrumental and individualistic perspective on smart city technologies: as they pay for it, it makes sense that other people, without the right authentication, cannot use it. The question from our moderator whether there is a public and shared responsibility to have enough places in a city to dispose of your garbage did not resonate with them.

A digitised future

Our data walks, until now, thus give us some clear directions for further work and some tough matters to think about. It seems obvious that there is an enormous lack of knowledge among city users and city makers about the digital and datafied technologies in smart cities. In addition, as a result of the everyday nature of much personal data delivery (employee card, parking card, smart phone payment and so on) there is little reflection on what is known.

While there are evidently no easy solutions to raising the data-awareness of city users and city makers, the bigger challenge seems to be to reconstruct digitisation and datafication as a social issue rather than as an individual responsibility. It may be that this tendency in our conversation is a result of us walking, to-date, mainly with members of the city elites (civil servants and students, mainly white, well-educated and middle class). As such, in our other research projects, we work with members of vulnerable groups as well and this may produce a different idea of collective responsibility.

Citizen engagement in urban transformation: smart cities, smart citizens, but smart projects?

Alec Walker-Love

A recent 'hot topic' for the European Union[1] has been the Smart City. It makes sense; 72% of Europeans live in cities and this is expected to rise to 80% by 2050. As elsewhere in the world, our cities are powerhouses of economic growth, innovation and employment opportunities, but face great challenges in respect of the environment, transport and social cohesion. The commitment to addressing these challenges has been gaining ground, with a new Urban Agenda launched in May 2016[2] and a number of bottom-up practitioners, local authorities and various project consortium members gravitating towards the European Innovation Platform on Smart Cities and Communities.[3] There is even a 'Citizen Focus Action Cluster'.

But could the EU, home of twisted terminologies, project acronyms and international administration, reach all the way down and create a project to engage and excite citizens? Well, the short answer is no. At least not yet.

I was recently lucky enough to work on the REMOURBAN project (REgeneration MOdel for accelerating the smart URBAN transformation). Like many EU smart cities projects, it came from a background of energy efficiency retrofitting and ICT, but also now included elements of mobility and 'non-technical barriers'. I had previously worked in industry and B2B communications, so the fact that people came under this last heading was the first culture shock. To most engineers and DNA of these projects, objectives were quantified by thermal properties, kilowatts/hour or the cost of a biomass boiler. This was the context for a report on innovative citizen engagement conducted for the project.

‘Buildings don’t use energy, people do’

REMOURBAN was to be commended. It was one of the most ambitious smart cities projects yet awarded. Citizen engagement jumped out of the successful submission texts. Hundreds of pages long, meticulously planned. Everything, including the contractors, eligible costs, depreciation of machinery was calculated and the contracts signed. To make even a small change would mean a quasi-legal amendment process with the European Commission. One small issue. We had to tell residents about our plans and their future agreement to all steps was an essential part of it. It is the fatal, recurrent flaw in this and other funded projects. The learning curve would be steep and mind sets challenged.

Pockets of promise, little engagement

There is a little dramatic license to my description above. Of course, there were pockets of promise and even excellence in some cities and neighbourhoods, especially with the housing officers who had a long-term, regular and personable rapport with the community. However, apart from tailoring some messaging on a brochure, the residents essentially still had a binary choice: accept or refuse the project as it was proposed. Occasionally, there was a third way: we take you to court and force you to accept the energy efficiency measure or part of the project.

Highly concerned residents require special steps

An important point was, whether they know it or not, REMOURBAN residents were highly implicated in the process. We were – literally – coming to take the roof off and make a lot of noise for at least 18 months. And many had to contribute financially for the privilege. Participating cities had a reasonable number of channels across the city for mass communication – newspapers, video screens, information centers – but this was about a select group of people and their homes. Some of the residents were also very apathetic about any engagement and certainly might not want any authority figures knocking on their doors in some cases.

1 The European Union is an incredible source of international project funding, from strategic trans-continental infrastructure to environmental protection for the most remote species. Almost every project has an international consortium from at least three countries and combines disciplines of academia, local or national authorities and agencies as well as industries and associations.

2 See ‘Urban Agenda for the EU’, European Commission Futurium, https://ec.europa.eu/futurium/en/urban-agenda.

3 See Market Place of the European Innovation Partnership on Smart Cities and Communities, https://eu-smartcities.eu/.

A report on innovative citizen engagement in urban transformation

To address and overcome some of these critical issues, we dedicated the first months of the project to better understanding and agreeing on what citizen engagement is in large, long urban works and categorise and map tools and techniques. Like a magpie, stealing bits and pieces, we organised everything into a 3-step framework: Inform & Consult, Include & Collaborate and finally, Empower & Co-Create. With local authorities, project partners and agencies we tried to adopt a new mantra: 'Citizen engagement requires good communication – but good communication alone is not citizen engagement.'

Taking best practices from Europe and beyond we collected dozens of great examples and proposed some central tenants to be considered for each category. We also looked at frameworks and models for citizen engagement, from IAP2 to Living Labs and The World Bank. Examples in urban planning and public transport were also examined. Finally, we looked at the growing gap between civic and consumer experiences and prospects for the future, incorporating a number of international practitioners' valuable insights.

Writing the report within REMOURBAN made us realise we were essentially closer to 'manipulation' than engagement according to an academic scale; but it also pushed us to find a Swiss army knife of tools and techniques to get better at it.

Recent Research

The technology and data used in smart cities can make some citizens uneasy. Privacy considerations, citizen engagement, and careful planning are key. Here are nine top learnings from our research.

Shrinking privacy: social media regulation calls for community input

Is government monitoring of social media eroding privacy? In 'Social Media and Government Surveillance: The Case for Better Privacy Protections for Our Newest Public Space,' Jeramie D. Scott calls for community input in regulating use of digital surveillance technology.[1]

Scott makes a case for the public review of surveillance policy, identifying its chilling effect on free speech as a threat to democracy. He reveals the dangers of unrestricted state access to digital information. While a 'legal vacuum' around privacy in digital public space leaves citizens unprotected and gives authorities a free hand, companies who provide the surveillance technologies are shrouded in layers of secrecy. Scott recommends community input on the use of surveillance technology and new federal regulations to improve transparency and accountability. To illustrate, he refers to the Surveillance and Community Safety Ordinance under consideration in Oakland, California.

Privacy in public, writes Scott, is important for democracy. He describes how social media makes personal – and political – information available for analysis. In the absence of legal protection on digital privacy, however, social justice movements have become the subjects of 'virtual stakeouts' by security agencies, with conversations in the Black Lives Matter movement, for instance, being monitored by local and federal law enforcement authorities. A Pew study cited 34% of people surveyed admitted that they took steps to protect their digital information from the government, altering social media usage, language, and privacy settings.[2] An expanded definition of privacy, he argues, is necessary to defend social media users from the indiscriminate analysis of their communications being used to make assumptions about them.

Oakland's Surveillance and Community Safety Ordinance recognises social media monitoring as 'technology which aggregates publicly available information' – and sees the need for community-oriented review. Suggesting that public input be 'given significant weight', the Ordinance advises that legal arrangements for accountability should be in place before new monitoring technology is put to use. Scott proposes that new federal regulation should acknowledge social media monitoring as a search under US law, thereby requiring a warrant. He argues that public consultation will let communities affected by surveillance address their privacy concerns. In addition, legal frameworks for transparency may stop technology from growing past the purpose for which it was deployed.

Jeramie D. Scott is National Security Counsel, Privacy Coalition Coordinator and Director of the Domestic Surveillance Project at the Electronic Privacy Information Center (EPIC), Washington, DC.

[1] Jeramie D. Scott, 2017, 'Social Media and Government Surveillance: The Case for Better Privacy Protections for Our Newest Public Space,' *Journal of Business & Technology Law,* vol. 12, no.2: 151.

[2] Rainie, Lee and Mary Madden, 2015, 'Americans' Privacy Strategies Post-Snowden,' Report, Pew Research Centre, March 16, http://www.pewinternet.org/2015/03/16/americans-privacy-strategies-post-snowden./.

Sustainability and digitisation – a complex 'planetary nervous system'

Peter Seele and Irina Lock draw a line between two megatrends – sustainability and digitisation – in their feature editorial for *Sustainability Science,* 'The game-changing potential of digitalization for sustainability: possibilities, perils and pathways.'[1]

In 2015, 193 members of the United Nations agreed to secure the world for the future. The 2030 Agenda for Sustainable Development calls for countries to mobilise for change in the next fifteen years, while the UN's Sustainable Development Goals (SDGs)[2] span a range of issues from poverty to climate change to overconsumption and requires stakeholders to come together on interconnected issues. Equally, Seele and Lock identify that digital technology has increasingly, and in parallel, come to dominate many aspects of human life.

Given this, Seele and Lock describe a global network connected by both technology and critical issues – a complex 'planetary nervous system' prone to 'cascading' effects from common threats. They suggest that big data and digitalisation can help nations improve services and reduce threats to sustainability. Algorithms play a central role in these technologies, in particular, digital algorithms and data can help map and predict patterns and these capabilities can be harnessed to help achieve the SDGs.

Outlining the themes in the journal's special issue, Seele and Lock identify the governance of sustainability remains a key interest for policymakers. While researchers have suggested a global digitally-enabled participatory platform, the SDGs include 'base-of-pyramid' development problems. But Seele and Lock question, how can digitalisation address these goals? While the use of data and algorithms raise fears of surveillance, digitalisation for sustainability will have to address questions of privacy and security. The relationship between technology and sustainability is just beginning, write the authors.

Peter Seele is Associate Professor in the Faculty of Communication Sciences, Università della Svizzera italiana, Lugano, Switzerland. Irina Lock is Assistant Professor of Corporate Communication in the Amsterdam School of Communication Research (ASCoR), University of Amsterdam.

[1] Seele, Peter and Irina Lock, 2017, 'The game-changing potential of digitalization for sustainability: possibilities, perils, and pathways,' *Sustainability Science,* vol. 12: 183, doi: https://doi.org/10.1007/s11625-017-0426-4.

[2] The United Nations lists 17 Sustainability Development Goals see http://www.un.org/sustainabledevelopment/sustainable-development-goals/.

Not so 'innocent' technology: smart cities, urban big data and privacy fears

What makes people uneasy about the technologies and data used in smart cities? How do privacy risks vary in different types of smart infrastructure? Liesbet van Zoonen's 'Privacy concerns in smart cities,'[1] hypothesises how digitally enabled cities and urban big data spike privacy concerns among city dwellers and citizens.

Without question, technologies that serve smart cities, and their populations, generate big data. But while the collection and analysis of this urban big data is meant to help cities respond better to citizen's needs, it also causes concern around ownership, rights to privacy, and security.

Van Zoonen constructs a framework to hypothesise privacy concerns. These are informed by two recurring 'dimensions' in research around citizen's concerns: the perception of data as personal, and the *purpose* of data collection (sliding between service and surveillance, in the extreme). These dimensions produce a framework that suggest concerns around privacy in data-applications in smart cities range from provoking little to no concern, to raising controversy, in the extreme.

Technologies, applications, and types of data usage and collection can be mapped along a framework informed by these two dimensions.

The article demonstrates three examples: smart waste technologies, predictive policing, and social media monitoring. In discussing smart waste, for instance, van Zoonen finds certain types of smart bins use sensors to measure waste levels and prompt further action. Other types can require user authentication by smartcard to regulate activity and prevent misuse. She locates these two types of smart waste management technologies along the privacy framework. And, while an authentication feature can add valuable capabilities to the system, the smart bin, she argues, no longer remains an 'innocent' technology.

The hypothetical framework shows how specific technologies, or smart infrastructure, in combination with how they require, generate, or collect data, can generate varying degrees of concerns about privacy. But Van Zoonen argues for the practical usefulness of this framework. It provides clear directions to develop empirical and theoretical research into privacy concerns in the smart urban landscape, to help decision-makers understand risks around specific types of technologies and data usage and to provide local governments with a tool to identify privacy concerns among their citizens.

Liesbet van Zoonen, author of Entertaining the Citizen: when politics and popular culture converge (Rowman & Littlefield 2004), is Professor of Sociology and Dean of the Erasmus Graduate School of Social Sciences and the Humanities at Erasmus University, Rotterdam.

[1] Van Zoonen, Liesbet, 2016, 'Privacy concerns in smart cities,' Government Information Quarterly, vol. 33: 472-480, https://doi.org/10.1016/j.giq.2016.06.004.

Citizens excluded from data-driven participation – Toronto, Canada

Data-driven civic participation promises to improve transparency, empower citizens and unlock insights for better decisions. But can technological solutions managed by private companies be democratic? Researchers at McGill University, Montreal, Matthew Tenney and Renee Sieber, investigate impacts of civic participation and privacy.

As citizens increasingly adopt social technologies in their everyday lives, they also become producers of data that can be harnessed to inform public policy. In 'Data-Driven Participation: Algorithms, Cities, Citizens, and Corporate Control,'[1] Tenney and Sieber provide an account of Waterfront Toronto's Intelligent Community initiative, the New Blue Edge project, a data-driven citizen engagement project. Created to serve the city's waterfront communities, the publicly-funded project involved corporate service providers.

Its chosen software solution offered to connect citizens to government in 'seamless' ways. But, the project's execution saw planners and citizens left out. After 1.2 billion dollars of public investment, the community portal was still in its infancy, while citizens and officials could not fully access its state of progress or functions. The authors argue that by locking citizens and officials out of control to protect proprietary interests, such projects can contradict the purpose they are meant to serve.

Tenney and Sieber explore the rise of volunteered geographic information (VGI) as a form of public participation. VGI collects social information from different sources, and subjects them to analysis for patterns or insights. As a type of passive engagement, VGI does not depend on deliberation, draws from many contexts to offer a view of public opinion, and provides transparency by documenting processes. However, transparency and control over the algorithms that are used to collect and analyse data can be affected by who owns them, and who is allowed – or capable – of looking into their inner workings. The research illustrates why administrators are looking to algorithms to improve governance, and how the proprietary solutions in use impact active civic participation and privacy.

Matthew Tenney is a doctoral student in the Department of Geography at McGill University, Montreal, Canada. Renee Sieber is Associate Professor at the McGill School of Environment and Department of Geography.

[1] Tenney, Matthew and Renee Sieber, 2016, 'Data-Driven Participation: Algorithms, Cities, Citizens and Corporate Control,' *Urban Planning,* vol.1, no.2, doi: http://dx.doi.org/10.17645/up.v1i2.645.

Digital elitism stresses need for transparent and responsive public institutions

A biennial report developed by the UN Department of Economic and Social Affairs (UNDESA), the recent United Nations E-Government Survey 2016[1] points out that shared decision-making fosters greater ownership of Sustainable Development Goals (SDGs) and increases public faith in administration. Improved participation assists vulnerable, underrepresented groups inform strategies to aid their own empowerment; it also highlights the role of participation in effective service delivery, and the mobilisation of new capacities and resources.

The survey points to a global spike in e-government and digitally-enabled civic participation. It ranks countries based on their E-Government Development Index (EGDI), which addresses three criteria: scope and quality of digital services; quality of telecommunication infrastructure; and, civic capacity. Illustrating the connection between public participation and digital media, it recommends a national and local focus on e-participation for development sectors. It addresses the potential of existing e-participation tools available via social media, and the need for contextual, user-friendly civic engagement tools designed to solve key development questions.

The survey suggests that public management should aim to achieve universal e-participation access. To do so, would require substantial training and capacity development across leadership, administration, civil society and marginalised groups. This echoes the World Bank's concerns on digital elitism and control, and stresses the need for transparent, responsive, and accountable public institutions. It calls for digital enablement to focus on poverty eradication and inclusive development as core objectives outlined by the 2030 Agenda for Sustainable Development.

1 United Nations Department of Economic and Social Affairs, 2016, 'United Nations E-Government Survey 2016: E-Government in Support of Sustainable Development,' Department of Economic and Social Affairs, United Nations, New York.

Public participation central to resilient smart city planning

Technology can connect the urban environment. But, that's not all it takes to build a resilient smart city. Citizen engagement has a critical role to play, writes Sam Musa in 'Smart Cities – A Roadmap for Development.'[1]

Musa points out that, each week, nearly a million people migrate to cities worldwide. With 52% of the global population currently inhabiting cities, they are responsible for about 70% of the world's energy consumption. Governments will need to manage such pressures on resources, while also improving livability, writes Musa as he explores the promise of smart technology for urban governance.

Smart cities, argues Musa, should make space for citizen involvement in planning and responsive policies from decision-makers. He describes the Smart City – where citizens are served by electronic infrastructure that connects community and government – provides solutions, manages the city's assets, and improves quality of life. He calls for governments to build public participation into a roadmap to put technology to use effectively across sectors.

Musa presents three major areas of focus for creating a smart city roadmap. First, to establish the need for technological transformation, where residents, as stakeholders, can be consulted to understand their requirements and their relationship with the government. Second, to develop policy that shapes the project by outlining goals, strategies, and responsibilities. Here, charters assist to assign resources and capabilities to decision-makers in charge of the technological interventions.

Third is the active involvement of citizens in finding solutions and improving services, including civic engagement through mobile applications, and the use of location-based sensors for services to support community-driven governance. Musa advocates for city-wide access to high-speed connectivity to drive citizen participation, support commerce and government services.

Dr Sam Musa, Adjunct Assistant Professor in the University of Maryland University College, serves as a cyber security expert to the United States Federal Government.

[1] Musa, Sam, 2016, 'Smart Cities – A Roadmap for Development,' Journal of Telecommunications System Management, v.5, no.3, doi: 10.4172/2167-0919.1000144.

Data-driven governance crucial to social change

Decision-makers are investing in data-driven practices and programs to achieve real social change where community members are not just recipients but producers of project outcomes. Melody Barnes and Paul Schmitz reflect on public participation's vital role in the success of evidence-based policy in their article 'Community Engagement Matters (Now More Than Ever)' in *Stanford Social Innovation Review.*[1]

Sponsored by Results for America, the authors undertake a research project comprising interviews with city administrators, nonprofit leaders, philanthropists, researchers and community builders on their unprecedented capacity to use data for effective programming.

Barnes and Schmitz argue that the adoption of data-driven approaches is both an economic and moral imperative, but caution against top-down methods that fail to engage the community as active partners. They see community engagement as a continuous process crucial to creating and sustaining the support for long-term social change. Its goal is not only to encourage communities to participate in social change projects; but to champion social change.

Barnes and Schmitz identify six complementary factors necessary for building community support for evidence-based solutions: organising for ownership; allowing for complexity; working with local institutions; applying an equity lens; building momentum; and, managing constituencies through change. The article lists resources for community engagement, and offers recommendations on effective communication for the management of expectations.

Melody Barnes, former director of the White House Domestic Policy Council under President Barack Obama, is a chair of the Aspen Forum for Community Solutions and senior fellow at Results for America. Paul Schmitz, CEO Leading Inside Out, also serves as advisor to Results for America, and senior advisor to the Collective Impact Forum.

[1] Barnes, Melody and Paul Schmitz, 2016: 'Community Engagement Matters (Now More than Ever)' *Stanford Social Innovation Review*, Spring, https://ssir.org/articles/entry/community_engagement_matters_now_more_than_ever.

Smart City: from innovative concept to government vision

The idea of the Smart City comprises multiple facets and collaborations. Associate Professor of Economics at the University of Genova, Renata Paola Dameri, investigates the relationship between principal actors she identifies at its conceptual core: university, government and industry.

Dameri's Chapter, 'The Conceptual Idea of Smart City: University, Industry and Government Vision,' published in *Smart City Implementation: Progress in IS,*[1] offers an analysis of the most referenced professional and scientific research to substantiate diverse perspectives of these three smart city actors. It also analyses how they define and realise the smart city in relation to their own capacities.

Dameri highlights the role of local government, research institutions, and technology suppliers in creating and sustaining innovative technologies that enable the Smart City. While local governments drive planning and administration, research institutions utilise their capabilities to identify innovations and solutions and technology suppliers offer platforms and infrastructures necessary for Smart City implementation. Dameri examines the relationships between consulting companies and these key players and reflects on how they shape the outcome of the collaborative smart city ideal.

Dr Renata Paolo Dameri is Associate Professor in Business Administration and Information Systems at the University of Genoa, Italy. She is an expert member of the Future Cohesion Policy team of the Committee of the Regions in the European Commission, and advisor to the mayor of Genoa for territorial development, innovation, and smart city.

[1] Dameri, Renata Paola, 2017: 'The Conceptual Idea of Smart City: University, Industry and Government Vision,' in *Smart City Implementation: Progress in IS*, Springer, Cham, doi: https://doi.org/10.1007/978-3-319-45766-6_2.

Social inclusion in smart cities: participatory innovation in Finland

The notion of social inclusion in smart cities has given rise to the need for smart environments to support participatory innovation, where the 'city as a platform' enables citizens to co-create solutions.

Published in *Sustainability*, Ari-Veikko Anttiroiko's article 'City-as-Platform: The Rise of Participatory Innovation Platforms in Finnish Cities,'[1] discusses citizen participation in initiatives that facilitate urban economic development in the context of a democratic welfare society.

The study examines forms of citizen involvement and offers an empirical analysis of three leading Finnish post-industrial cities: Helsinki, Tampere, and Oulu. The case studies show a range of citizen roles, from user involvement in product development and the creation of rights-based initiatives, to the discussion of citizen concerns in open platforms.

Although participation varies, 'user involvement' is instrumental, while 'resident involvement' is linked to representative modes of participation. Even as platforms are embedded in city governments, they can differ significantly in their organisational scopes and forms. Anttiroiko observes that welfarism, democratic culture and redistributive policy offer contextual support for platformisation by enhancing social inclusion and addressing the tensions between pro-growth and anti-growth factions.

Ari-Veikko Anttiroiko, Senior Lecturer and Adjunct Professor in the Department of Local Government Studies, University of Tampere, Finland, is a member of the Board of Directors of the Information Society Institute. Previously, he lead the Local Governance in the Information Society project, funded by the Academy of Finland, in addition to numerous collaborations with regional and international institutions in Europe and local government specialists around the world.

[1] Anttiroiko, Ari-Veikko, 2016: 'City-as-Platform: The Rise of Participatory Innovation Platforms in Finnish Cities,' *Sustainability*, vol. 8, no.9, doi:10.3390/su8090922.

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