Technology Innovation Management Review

May 2020
Volume 10 Issue 5
http://doi.org/10.22215/timreview/1357

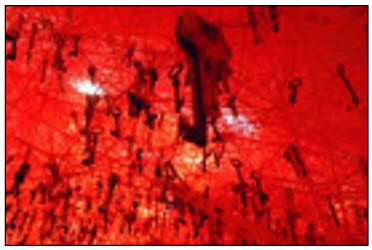

Image credit: Karen Eliot - DSC08473 (CC-BY)

Sharing Economy Pathways to Government Innovation

Welcome to the May issue of the Technology Innovation Management Review. We invite your comments on the articles in this issue as well as suggestions for future article topics and issue themes.

Editorial: Sharing Economy Pathways to Government Innovation 3
Shenja van der Graaf and Carina Veeckman

Trust, Transparency and Security in the Sharing Economy: What is the Government's Role? 6
Ruben D'Hauwers, Jacobus van der Bank and Mehdi Montakhabi

More for Less? Sharing Economy as a Driver of Public Welfare Innovation 19
Eva Pallesen and Marie Aakjær

Citizen Perceptions of Government's Resistance to Shared Parking 28
Mika Westerlund

Values and Practices behind Collaborative Childcare in Knowledge-based Organizations 41
Gianluca Schiavo, Chiara Leonardi and Massimo Zancanaro

Understanding Civic Crowdfunding as a Mechanism for Leveraging Civic Engagement and Urban Innovation. 51
Bastiaan Baccarne, Tom Evens and Lieven De Marez

Author Guidelines 67

Technology Innovation Management Review

May 2020
Volume 10 Issue 5

Publisher
The Technology Innovation Management Review is a monthly publication of the Talent First Network.

ISSN 1927-0321

Editor-in-Chief Stoyan Tanev
Managing Editor Gregory Sandstrom

International Advisory Board
Dana Brown, Chair, Carleton University, Canada
Alexander Brem, University of Stuttgart, Germany
K.R.E. (Eelko) Huizingh, University of Groningen, the Netherlands
Joseph Lipuma, Boston University, USA
Danielle Logue, University of Technology Sydney, Australia

Associate Editors
Martin Bliemel, University of Technology, Australia
Kenneth Husted, University of Auckland, New Zealand
Mette Priest Knudsen, University of Southern Denmark, Denmark
Rajala Risto, Aalto University, Finland
Jian Wang, University of International Business and Economics, China

Review Board
Tony Bailetti, Carleton University, Canada
Peter Carbone, Ottawa, Canada
Mohammad Saud Khan, Victoria University of Wellington, New Zealand
Seppo Leminen, Pellervo Economic Research and Aalto University, Finland
Colin Mason, University of Glasgow, United Kingdom
Steven Muegge, Carleton University, Canada
Punit Saurabh, Nirma University, India
Sandra Schillo, University of Ottawa, Canada
Marina Solesvik, Nord University, Norway
Michael Weiss, Carleton University, Canada
Mika Westerlund, Carleton University, Canada
Blair Winsor, Memorial University, Canada
Mohammad Falahat, Universiti Tunku Abdul Rahman, Malaysia
Yat Ming Ooi, University of Auckland, New Zealand

Except where otherwise noted, all content is licensed under a Creative Commons Attribution 3.0 License.

The PDF version is created with Scribus, an open source desktop publishing program.

Overview
The Technology Innovation Management Review (TIM Review) provides insights about the issues and emerging trends relevant to launching and growing technology businesses. The TIM Review focuses on the theories, strategies, and tools that help small and large technology companies succeed.

Our readers are looking for practical ideas they can apply within their own organizations. The TIM Review brings together diverse viewpoints —from academics, entrepreneurs, companies of all sizes, the public sector, the community sector, and others —to bridge the gap between theory and practice. In particular, we focus on the topics of technology and global entrepreneurship in small and large companies.

We welcome input from readers into upcoming themes. Please visit timreview.ca to suggest themes and nominate authors and guest editors.

Contribute
Contribute to the TIM Review in the following ways:
- Read and comment on articles.
- Review the upcoming themes and tell us what topics you would like to see covered.
- Write an article for a future issue; see the author guidelines and editorial process for details.
- Recommend colleagues as authors or guest editors.
- Give feedback on the website or any other aspect of this publication.
- Sponsor or advertise in the TIM Review.
- Tell a friend or colleague about the TIM Review.

Please contact the Editor if you have any questions or comments: timreview.ca/contact

About TIM

The TIM Review has international contributors and readers, and it is published in association with the Technology Innovation Management program (TIM; timprogram.ca), an international graduate program at Carleton University in Ottawa, Canada.

© 2007 —2019
Talent First Network
www.timreview.ca

Editorial: Sharing Economy Pathways to Government Innovation

Shenja van der Graaf and Carina Veeckman

Welcome to the May edition of the Technology Innovation Management Review.

This special issue explores research questions at the intersection of *sharing economy* and *governability*, particularly, public governance and broader social benefits.

The concept of "sharing economy" has become an umbrella term increasingly relevant to both the daily lives of private individuals, and to the direction and operation of social and political systems. It thereby covers a large number of peer-sharing behaviours across several sectors, such as accommodation (Airbnb, couchsurfing), delivery and home services (Instacart), and transportation (Lyft, Uber) (Hassan, 2020). One of the key elements among the multiple definitions of the sharing economy concept is the sense of community implied in the sharing behaviours of involved actors (cf. Vith, Oberg, Ho llerer & Meyer, 2019; Mallison et al., 2020). The operation of sharing transactions via collaborative platforms, such as online connecting platforms, which are owned and controlled by the consumers or "users" themselves, is the main driver behind the sense of community surrounding the concept of the sharing economy (Hamari et al., 2016). Consequently, sharing with no true sense of community, collaboration or cooperation among the actors, even when sharing is not at all accompanied by economic transactions, or sharing via for- profit intermediaries, as in the case of Uber, do not count as examples of a genuine sharing economy (Belk, 2014).

The opportunities within a sharing economy are enormous and are not just for big businesses. For many, and in particular young people and women, the sharing economy allows them to save money by accessing goods and services, rather than buying them, or only paying when they need to. The democratization of access to resources, accompanied by the development and implementation of more sustainable economic and environmental models is the main outcome expected by the engagement of people in peer sharing behaviours (see, for example, Wosskow, 2014). A sharing economy, however, not only creates opportunities, it also presents various governance challenges. One of them is the creation of inequality in a 'renting' economy. Although athe sharing economy claims to de-emphasize ownership, it is mostly those who have assets that will accumulate money from them. If government agencies would partner here with sharing economy platforms, it could only further deepen economic complexities along with possible class divisions (Ganapati & Reddick, 2018). Another factor involves governance of new working forces, which operate as independent contractors, and typically do not get the work security of full-time workers. This might lead to unfair competition in the market, such as was seen in the recent protests of taxi drivers against ride-sharing platforms such as Uber.

Against this backdrop, we witness that to date governments have not fully embraced the opportunities offered by the sharing economy, although it could make their operations more efficient and lead towards better usage of their public resources. Therefore, it was our intent to invite articles that examine both outcomes and challenges of government innovations in the sharing economy.

First, the article of **Ruben D'Hauwers, Jacobus van der Bank** and **Mehdi Montakhabi** from imec-SMIT, Vrije Universiteit Brussel, Belgium, highlights an upcoming domain in the sharing economy: peer-to-peer electricity trading. They present two use cases, one based on blockchain technology and the other a platform for industrial symbioses. Their study focuses on the role of the government in facilitating and enabling data sharing between various actors, and more specifically on the notion of trust. The article reveals interesting results to support policymaking, by identifying trust building options for governments in sharing economies. From both case studies, we learn that the government can play a significant role in trust creation between parties as a market-neutral and non-competitive player. Further, blockchain technology and digital platforms were shown as helping to contribute to trust creation by ensuring proper access rights for each player.

In the second article, **Eva Pallesen** and **Marie Aakjær** from University College Absalon, Denmark, present an interesting study about the influence of the sharing economy on the public sector, and specifically on the welfare sector, which until now has received little combined research attention. Ethnographic data collection methods were used to examine how a digital platform operates for sharing of care and welfare

Editorial: Sharing Economy Pathways to Government Innovation

Shenja van der Graaf and Carina Veeckman

services among citizens with chronic lung disease. The platform is supported by the local municipality and works hand-in-hand with the goals of the public healthcare unit. By actively facilitating sharing among citizens, the public sector opens up a space in-between formal organisations and private relations, in which other forms of welfare are enabled.

Next, **Mika Westerlund** from Carleton University in Canada, explores citizen perceptions of governmental resistance to shared parking in Ottawa. Even without adequate parking spaces provided by federal government employers, the City of Ottawa does not allow the rental of residential driveways, and also prevents sharing parking platforms from entering the market. Through a quantitative analysis that applies "topic modelling", a dataset of 414 online news reader's comments from a local article about parking in the city were analysed. By identifying and discussing key topics in the readers' comments, a conceptual framework was created that shows how some citizens perceive their government's resistance to sharing resources. The article is a timely illustration of particular governance challenges in introducing and managing what he calls "sharing economy services" in a (smart) city context, vis-à-vis the inventiveness and co-creation of accessible public services by citizens.

Following that, **Gianluca Schiavo, Chiara Leonardi** and **Massimo Zancanaro** from Fondazione Bruno Kessler (FBK), Italy, investigate new forms of socializing care through a case study of the Families_Share platform, which provides collaborative childcare services in a workplace setting. Families are increasingly searching for alternative forms of childcare provisions, and experience challenges in balancing the work-life balance. The article presents a case study whereby employees of a medium-sized knowledge-based organisation, arranged educational and entertaining activities for the employees' children, while others were at work. The on-site participation of employees was supported by the HR Department, as part of their Corporate Social Responsibility Plan. The results discuss the challenges and benefits from the company's approach, such as the time, effort, and emotional involvement of employees, versus the creation of greater organisational well-being and a sense of community.

The final article, by **Bastiaan Baccarne, Tom Evens** and **Lieven De Marez** from imec-mict-Ghent University, Belgium, describes participation inequalities on a civic crowdfunding platform from the perspective of campaign instigators and citizen-funders. Participation inequalities, such as access and skills, are not evenly distributed among society and could reinforce existing power imbalances. A case study of the crowfunding.gent platform is presented, with the help of interviews, and a large-scale survey. The article reveals that community altruism is an important factor in predicting civic crowdfunding behaviour. Participation is driven by societal goals, such as helping others and feeling part of a community, and therefore seems to be able to reach out to diverse audiences. Income and education do not seem to be predicting variables for participation behaviours, although age does. The article contains several lessons learned.

Taken together, the contributions to this special issue of the TIM Review provide some important pointers and insights into the governance challenges, as well as opportunities for governmental actors in the sharing economy. The articles represent important cases in several sectors (welfare, energy, mobility, etc.), with various types of analyses, and a rich combination of research methods. They illustrate that nowadays we witness that governments are not fully embracing the opportunities offered by the sharing economy, although it can make their operations more efficient and lead towards a better usage of their public resources. The current set of articles indicate the tensions that can be involved, along with a large set of benefits that can be yielded when sharing economy opportunities are embraced.

We are curious to see how the sharing economy will further develop towards the management of public services, and hope that you enjoy reading this set of articles as a productive start into a new and promising research area.

Shenja van der Graaf
and Carina Veeckman
Guest Editors

Editorial: Sharing Economy Pathways to Government Innovation

Shenja van der Graaf and Carina Veeckman

References

Belk, R. 2014. Sharing Versus Pseudo-Sharing in Web 2.0. *The Anthropologist*, 18(1): 7-23. https://doi.org/10.1080/09720073.2014.11891518

Ganapati, S., & Reddick, C. G. 2018. Prospects and Challenges of Sharing Economy for the Public Sector. *Government Information Quarterly*, 35(1): 77-87. https://doi.org/10.1016/j.giq.2018.01.001

Hassan, Yousif. 2020. The Politics of Sharing: Sociotechnical Imaginaries of Digital Platforms. *Information Polity*, IOS Press: 1-18.

Hamari, J., Sjöklint, M., & Ukkonen, A. 2016. The Sharing Economy: Why people participate in collaborative consumption. *Journal of the Association for Information Science and Technology*, 67(9): 2047-2059. https://doi.org/10.1002/asi.23552

Mallinson, Daniel J. et al. 2020. Sharing Economy: A Systematic Thematic Analysis of the Literature. *Information Polity*, IOS Press: 1-16.

Mulcahy, D. 2016. *The Gig Economy: The complete guide to getting better work, taking more time off, and financing the life you want.* New York: AMACOM.

Vith, S., Oberg, A., Höllerer, M.A. et al. Envisioning the 'Sharing City': Governance Strategies for the Sharing Economy. *Journal of Business Ethics,* 159: 1023-1046 (2019). https://doi.org/10.1007/s10551-019-04242-4

Wosskow, D. 2014. *Unlocking the Sharing Economy: an independent review.* UK Government, Department for Business, Innovation and Skills, 43.

The TIM Review currently has a Call for Papers on "Aligning multiple stakeholder value propositions: the challenge of new companies committed to scale early and rapidly" on the website. See here: https://timreview.ca/article/1349 with further information for prospective authors. For future issues, we invite general submissions of articles on technology entrepreneurship, innovation management, and other topics relevant to launching and scaling technology companies, and solving practical problems in emerging domains. Please contact us with potential article ideas and submissions, or proposals for future special issues.

Stoyan Tanev, Editor-in-Chief
Gregory Sandstrom, Managing Editor

About the Guest Editors

Shenja van der Graaf (PhD LSE, 2009) is a Professor and Senior Researcher in the strategic & innovative cluster 'Governance and Communities' (previously, known as 'Smart Cities') at imec-SMIT, VUB (Belgium). Her current work is concerned with social, economic, and policy issues arising from innovations associated with the ICTs. Specific lines of inquiry include the integration of new technologies into society; management of technological innovation in firms, cities and communities; (new) media users and 'cultures of expertise'; government affairs/EU (EMEIA) relations; more recently, the focus is specifically on examining the dynamic of systemic change between public values and public organisations.

Carina Veeckman is a senior researcher and project coordinator at SMIT since 2011. Carina has been working on several European-funded projects within the Competitiveness and Innovation Framework Programme, such as Citadel...On the move, Open Transport and ECIM. During these projects, she stipulated the Living Lab research framework, and co-created the city solutions (in mobility) together with the city stakeholders. Her current research interests are related to measuring impact and outcomes of social innovation, citizen science, engagement and behavioral change research in several collective awareness raising projects around environmental issues, such as hackAIR, SavingFood and FloodCitiSense.

Citation: van der Graaf, S., and Veeckman, C. 2020. Editorial: Sharing Economy: Pathways to Government Innovation. Technology Innovation Management Review, 10(5): 3–5. http://doi.org/10.22215/timreview/1351

CC BY

Keywords: Sharing economy, trust, government, blockchain, network, peer-to-peer, P2P, technology, innovation, welfare state, public sector, sharing economy services, government, innovation, resistance, topic modelling, parking, collaborative workplace practices, sharing networks, employee participation, work-life balance, grounded design, civic crowdfunding, urban innovation, civic entrepreneurship, participation inequalities, civic engagement, digital citizenship, social cohesion, civic identity.

Trust, Transparency and Security in the Sharing Economy: What is the Government's Role?

Ruben D'Hauwers, Jacobus van der Bank, Mehdi Montakhabi

> *"Power, today, comes from sharing information. Not withholding it."*
>
> Keith Ferrazzi
> Author & Entrepreneur

To obtain access to goods or services between people or stakeholders, some collaboration between actors is a necessary component. Sharing and a sharing economy is closely related to trust. Within the context of "the" sharing economy, especially digital trust is assumed to play a crucial role. Access to information is a crucial digital cue which can lead to trust yet, sharing economies are subject to asymmetry of information, wherein certain actors have limited access to market information on the consumption behaviour of users, the pricing of a product and, the reliability of peers. The lack of confidential market information between actors is thus limiting the potential for collaboration, as it reduces trust between them. Governments are amongst the (usually more trustworthy) candidates to undertake critical roles in enhancing the sharing of sensitive data. This paper aims to identify the role of government in facilitating and enabling data sharing between various actors in sharing economies. In this paper, we analyse the adequacy of a government's potential role in enabling transparency, trust and security, while operating within a sharing economy scenario, based on two case studies. Additionally, the role of technology is briefly defined for digital platforms and for blockchain-based opportunities for sharing economies. The use cases for the paper concern a digital platform for industrial symbioses, and peer-to-peer electricity trading based on blockchain technology.

Introduction

If a person wants to share their car, trust is required that the person using the car will 1) take care of the car, 2) will not steal or damage the car, and 3) that this person will pay for their usage of the car. The actor borrowing their car needs to trust that the car is in good shape and that the car will be available at the required time.

Peer-to-peer (P2P) markets, goods and services sharing, and the "sharing economy" are closely related to trust (Belk, 2010). Within the context of sharing economies, trust is assumed to play a crucial role (Botsman & Rogers 2010; Mazella, 2016). Thus, trust within a sharing economy is of crucial importance in order to enable sharing economy transactions to occur.

Governments play an important role in ensuring the functioning of our societies (Zucker, 1986; Möhlman, 2018). This paper therefore seeks to better understand the implications, potential advantages, and disadvantages when governments take on certain roles towards or within the sharing economy. The paper will answer the following question: *What is the role of governments in sharing economies to help ensure trust between users?* In order to deepen this research question, the paper will elaborate on what the role of technology can be to ensure that government plays a role in ensuring trust in sharing economies.

This paper contributes to policymaking by identifying the options governments have to build trust in sharing economies. In order to elaborate on the role of governments in ensuring trust for sharing economies,

Trust, Transparency and Security in the Sharing Economy: What is the Government's Role?

Ruben D'Hauwers, Jacobus van der Bank, Mehdi Montakhabi

we applied the above research question on two distinct use cases. A major challenge that governments have, we found, is ensuring that the government itself can be trusted. If a conflict arises where the government can take up the role of serving as a facilitator of trust, while also being a regulator of it, the trust might be lost. Governments can overcome this trust issue with their citizens by defining their role clearly. Additionally, they can make use of technological advancements, such as blockchain and digital platforms, to help mitigate the lingering distrust of citizens and their governments, as a way of exploring the logic and use of sharing economies.

The paper is organised as follows. The upcoming section reviews the background and works related to trust issues and their importance in shaping sharing economies. The following section introduces the methodology used in this study, and following that is a description of two case studies. The next section discusses takeaways from two case studies in answer to the main research question, and introduces the limitations of this study. Finally, a short conclusion is offered, as well as identifying opportunities for future research.

Background and Related Work

Sharing Economies

A sharing economy is often referred to as a collaborative economy, one that functions with collaborative consumption, on-demand economy, on-demand services. It is also known as a gig economy, freelance economy, peer economy, access economy, crowd economy, digital economy, and platform economy (Botsman, 2015; Rinne, 2017). In what is now widely referred to as "the sharing economy", temporary access is granted to under-utilised physical assets, possibly money (Belk, 2014; Frenken et al., 2015; Rinne, 2017). The sharing economy can enable both individuals and businesses to exchange goods, services, resources, skills, or money (Nationale Bank België, 2020), by instilling a collaboration-oriented ethos.

P2P economy is a decentralized model whereby two or more individuals interact to buy and sell goods and services directly with each other, or to produce goods and services together (Investopedia, 2020). A P2P market is a market where individuals can share already-used or under-utilized possessions with other individuals. It is an economic model with P2P-based activities of acquiring, providing, and sharing access to goods and services, often facilitated through a digital platform (Hamari et al., 2015). The goal of P2P markets is to create trade between large numbers of separate distinct buyers and sellers.

Trust in Sharing Economies

Trust can be defined from numerous standpoints. The economic standpoint considers trust as a method of 'implicit contracting' for certain transactions. An implicit contract is an understanding between parties about acceptable forms of behaviour that is not part of any formal agreement. (Möhlman et al., 2018; Oxford Reference, 2020). Trust plays a key role in transaction cost economics (Williamson, 1993) and game theory (Dasgupta, 1988).

Verbeke and Greidanus (2012) introduce the bounded reliability concept and focus on safeguards rather than trust. In this view, trust is blind and there is no place for it in the marketplace. Safeguards are required because of the existence of bounded reliability (Kano & Verbeke, 2015). Acute problems of bounded reliability enforce many business decisions rather than blind trust. For this reason, firms introduce safeguards or enforcement mechanisms to heighten detection of and provide punishment for reneging (Verbeke, 2013).

The sociological standpoint interprets trust as a more comprehensive concept, also capturing underlying framework conditions, such as personal character and the institutional settings in which individuals act (Zucker, 1986). The sociological standpoint looks at trust as a defining variable for human and business relationships. New forms of P2P trustless contracts can help to alleviate distrust and uncertainty in unsure environments (Luhman, 1979). Thus, developing trust is seen to be of crucial importance for sharing economies to overcome some of the complex uncertainties (Möhlmann, 2015, 2016, 2018).

Another standpoint is based on technology-mediated interactions (Riegelsberger et al., 2004). Currently, several value or asset transactions between users are performed over a distance with various technologies as supporting mechanisms. Thus, exchanges that previously would have been performed face-to-face are now happening through technological means. Trust in such cases can be related to attributes of the various trustees, or emerge on the design of the technology.

Trust, Transparency and Security in the Sharing Economy: What is the Government's Role?

Ruben D'Hauwers, Jacobus van der Bank, Mehdi Montakhabi

McKnight and Chervany's (2000) interdisciplinary model of trust is built on four trust constructs that are based on the attributes of a trustee. Having a disposition to trust reveals the tendency of a person or entity to be willing to depend on others. Second, the institution of trust shows whether an actor believes the needed conditions are in place for a successful outcome of an endeavor. Trusting beliefs are beliefs if another person has the confidence of desirable traits in a situation where negative outcomes are possible. And last, trusting intention is the willingness to depend on other actors in a given task or situation with a feeling of security. Than and Thoen (2000), describe trust for e-commerce as being based on party trust (trusting the other party), and control trust (trust in a controlled system with mediating technology). Corritore et al. (2003) examine online trust between people and transactional websites. Their model identifies three factors that impact online trust: perception of credibility, ease of use, and risk.

Riegelsberger et al. (2004) focus on technology design that can influence trustworthy behaviour in specific situations or contexts. Contextual properties (likeliness of future encounters, reputation, having friends in common, and institutional embeddedness) will create trust in a first interaction and encounter, while intrinsic properties of the trustee (ability, internalized norms, and benevolence) are more important in continued exchanges as trustor and trustee get to know each other.

Information Needs in Sharing Economies

Access to information is crucial for enabling sharing economies and P2P dynamics. Information can enable people to share different goods with each other. Yet, a sharing economy is subject to the asymmetry of information, where certain actors have limited access to market information on the consumption behaviour of users, the pricing of a product and, peer reliability (Cohen, 2014). Akerhof (1970) describes the issue of information asymmetry that prevents mutually beneficial exchanges from taking place. Pavlou and Gefen (2004) argue that individuals are less likely to trust an individual who retains an information advantage. Thus, while trust is important, if trust-building mechanisms are lacking, the market will suffer (Akerhof, 1970).

To facilitate trust, digital platforms can mediate trust by enabling trust enhancing digital cues (Möhlmann, 2016). An important digital que is the provision of information. Knowing the basis of information provided is of fundamental importance for developing trust in each other as mutual platform users (Hawlitschek et al., 2016; Mazzella et al., 2016). Thus, sharing information on the goods or services offered in a sharing economy helps in developing trust (Möhlmann et al., 2018). Another way of ensuring a person's digital reputation through repetition of services is peer rating, as it offers opportunities to both assess and access digital social capital (Mazella et al., 2016).

Incentivising Data Sharing

Mechanisms that can incentivise information sharing, and at the same time increase transparency are crucial for the optimal functioning of a sharing economy and P2P ecosystem. In P2P markets, information is dispersed to those who should be matched and at what prices. So, an effective market must aggregate and enable access to information successfully (Einav et al., 2016)

Since the quality of information that can be drawn from data increases with the available amount and quality of data, businesses involved in the data economy have great interest in accessing data from other market players. Thus, data sharing is enabled by information technologies and through behavioural and business incentives to share data between different actors, both with and by governments. Considering the potential of sharing data, policy makers have already encouraged business-to-business (B2B) data sharing (Kerber, 2016; Wiebe, 2016; Drexl, 2017). Data sharing can thus be used to enable access to large, high-quality data sets. However, companies still appear to be reluctant to share their data with each other, due to issues involving distrust.

Entering the market recently, is a new system called "blockchain" in which a record of transactions made using "cryptocurrency" are maintained across several computers that are linked in a P2P network (Oxford, 2020) Blockchain appears as a promising "distributed ledger" technology to emancipate digital P2P networks, as it facilitates exchanges between actors without the need of (or as) an intermediary, thus eliminating control by any single player (DiFilipi, 2017). Blockchain is also often referred to as a trust-free technology (Beck et al., 2016). It offers a new potential to facilitate P2P interactions in the sharing economy that could lead to higher levels of trust and information accessibility (Sundararajan, 2016). Distributed ledger technology is to some degree suitable to replace trust by users in platform owners. Trust will instead depend on the

Trust, Transparency and Security in the Sharing Economy: What is the Government's Role?

Ruben D'Hauwers, Jacobus van der Bank, Mehdi Montakhabi

distributed development of trusted interfaces in blockchain-based sharing economy ecosystems (Hawlitschek et al., 2018) Blockchain automatically creates a consensually agreed, publicly available, and immutable record that is governed to mitigate trust issues system (Greiner & Wang, 2015).

Data Sharing and the Role of Governments

Governments are amongst the (most trustworthy) candidates to undertake critical roles in enhancing trust in the sharing economy (Möhlmann, 2018). The literature describes different roles a government could play in facilitating a sharing economy.

A first role could be for governments to ensure society's functioning by providing institutional cues, which take the form of rules and regulations (Zucker, 1986). Shapiro (1987) refers to institutional trust as belief in the security of a situation, for instance, based on guarantees or security nets, or legally binding contracts between parties. Another role could be that of a 'Government as a Platform' (GaaP), where a government develops better services for the public digitally. To accomplish this, the government can be organized around shared components, APIs, standards and datasets (O'Reilly, 2011). It can also ensure open public data. Open data refers to public data that can be freely used, re-used, and redistributed by anyone (Open Data Handbook, 2020).

A government can also be the beneficiary of data, to ensure proper policy is made. Currently, the European Commission is introducing the concept of business-to-government (B2G) data sharing. This is a collaboration in which a company or other private organisation makes its data (or insights) available to the public sector (local, regional, national, or EU). Last, governments can play the role of facilitator for innovations. An example is the "Amsterdam Sharing City" project. Different stakeholders work on the common goal of establishing Amsterdam as a "city that has sharing on its mind" (Amsterdam Sharing City, 2017).

Thus, the literature has discussed the role of regulation, the role of developing governmental services as a Government as a Platform (GaaP), and the role of opening governmental data. Additionally, a government can facilitate innovations in data storage and usage. One topic that lacks in the current literature is the role governments can play in ensuring that data between peers can be shared. Likewise lacking is how the role of government must be built to ensure trust between different stakeholders.

Aim and Methodology

This paper aims to identify the role of government in facilitating and enabling the sharing of data between different actors in a sharing economy. This leads to a general framework of trust, transparency and traceability between B2B, B2C and P2P within a sharing ecosystem.

Two descriptive case studies are presented to provide the context for the study. The first descriptive case study **'Digital platform in industrial symbiosis'** deals with B2B information sharing and the role of government in creating an electronic platform to enable this. The second descriptive case study **'Blockchain in Peer-to-Peer Energy Trading'** deals with P2P electricity trading and the role of government in enabling the sharing of electricity. It deals with security and privacy constraints in a blockchain network. Both use cases involve the region of Flanders, Belgium.

Case Studies

Case study 1: Digital platform in industrial symbiosis

Introduction

Industrial symbiosis is the process by which waste or by-products of an industry or industrial process become the raw materials or inputs for another (Christensen, 1992; Engbert, 1993; European Commission, 2018). It consists of exchanges of waste streams and byproducts among various entities. By collaborating, the collective benefit becomes greater than the sum of the individual benefits in acting alone. It operates as a commercial activity, as the different actors buy and sell the waste streams and byproducts from each other (Chertow, 2000).

An often-cited example of Industrial Symbiosis is the site of Kalundborg. This is where an industrial site connects various companies with pipes, enabling different companies to share groundwater, surface water and wastewater, steam, and electricity, and also to exchange a variety of residues that become feedstocks in other processes (Engbert, 1993).

Challenges of Trust

In order to enable industrial symbiosis, data about the byproduct is required, to assess the potential for symbiosis with other actors. An actor needs to be able to

Trust, Transparency and Security in the Sharing Economy: What is the Government's Role?

Ruben D'Hauwers, Jacobus van der Bank, Mehdi Montakhabi

assess the validity of a waste stream or by-product, in order to define:

- What is the waste stream or byproduct? Does it match their need?
- What is the chemical composition of the waste stream or byproduct? Does it match within the current production process? What would the cost be to adapt the current production process?
- What is the quantity of the waste stream or byproduct? Is it sufficient to cover current waste needs within the production process? Is it a continuous offer or is it a one-off offer?
- What transportation needs and costs are associated with the match?

To close these gaps, corporate operational data must be disclosed within supply chain networks. As well, data-driven and optimization solutions for an industrial symbiosis network should be further addressed (Tseng, 2017). The information which provides answers to the above questions are often confidential and might consist of company trade secrets. Thus, access to data over the entire value chain is limited, which is the main barrier for matching companies in B2B scenarios.

The reasons why information about waste streams and byproducts is limited include because it concerns sensitive information: 1) information about production processes can be competitive, 2) information about amounts can give indications of the volumes a company is currently selling, 3) information about pricing is sensitive in negotiation processes.

Role of Governments

In order to create transparency in the industrial symbiosis market, a Flemish governmental agency acted as an intermediary to enable market transparency, as it had a neutral and non-competitive role in the ecosystem. The agency developed a digital matchmaking platform where users could identify other users, offering or receiving waste streams or byproducts. See figure 1 for the platform's ecosystem.

Companies could identify information on the product, on the chemical composition, the amounts to offer, and on the continuity of the waste stream (one-off or continuous). Thus, the platform offered a staged privacy setting, where companies could decide which information is visible or not at different levels. During private conversations, access to information could be disclosed with a trusted other party. Initially, non-sensitive data could be shared, followed by more sensitive information at later stages of the negotiation between the users.

When operationalising the platform, various issues of trust were identified. Between themselves, companies often do not wish to share information with each other if they are in competitive interactions. In these cases, the privacy settings were utilised in order to ensure no

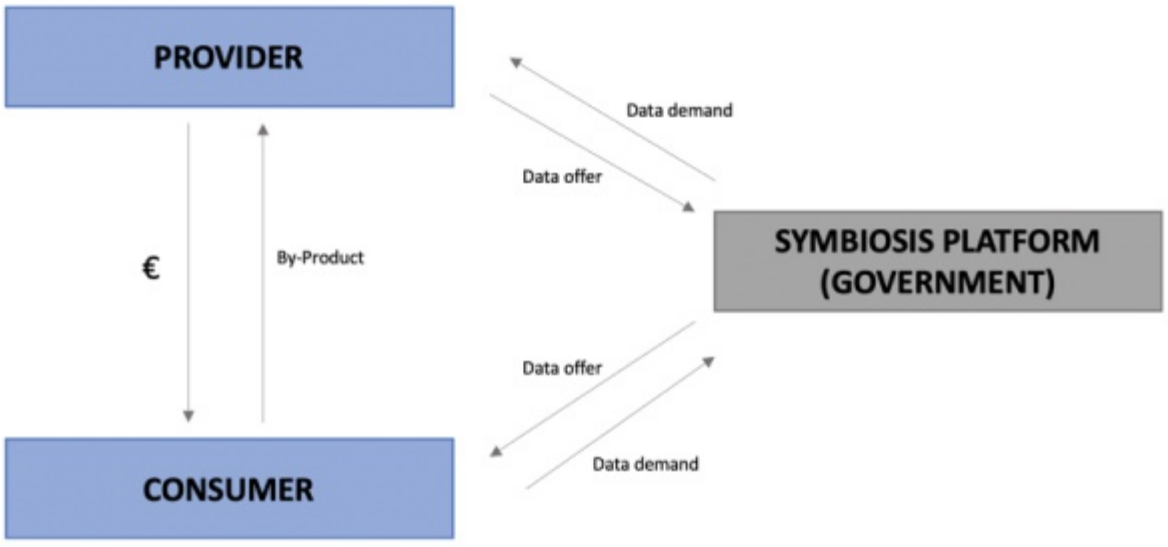

Figure 1. The ecosystem of a digital symbiosis platform

Trust, Transparency and Security in the Sharing Economy: What is the Government's Role?

Ruben D'Hauwers, Jacobus van der Bank, Mehdi Montakhabi

competitive information could be shared between competitors.

Trust in Government
There were some important considerations (pros and cons) we found in observing the government's role as a facilitator of trust in the sharing economy:

PRO

- The government has a neutral role in the ecosystem, as a facilitator. The key performance indicators (KPIs) of the government involve increasing the number of transactions, without wanting to have the main share or control access to independent data
- The government does not have a particular economic motivation

CON

- There is a mismatch between the role of a regulator and the role of a facilitator. As the government acts as a regulator, companies do not always trust sharing information with its agencies
- Companies dislike that their national government has access to sensitive information, which could be used for regulatory purposes

Can Technology Mitigate the Lack of Trust?
We found that if the government would get access to sensitive information which might lead to new policies or legal actions, then companies were not inclined to share the information. Therefore, an independent person not employed by the government was appointed to handle the data. The governmental agency did not have access to the data, in order to ensure the privacy concerns of the companies were covered. The technology supporting the service was a digital matchmaking platform that enabled privacy settings where certain information could be hidden while browsing. Upon request, specific information could be opened up in order to facilitate and enable transactions. The Flemish government allocated resources for building the platform and for human resources to maintain it, while paying an independent person to handle the data.

Case study 2: Peer-to-peer electricity trading

Introduction
Traditionally, electricity grids have been fed by the concentrated generation of electricity from power plants (coal, gas, nuclear, etc.). However, the availability of low-price solar panels and batteries has made it possible to produce electricity dispersedly at prosumers' (consumers who can also act as producers) sites. This has created a lag between the production and consumption of electricity.

Smart meters (SMs) are nowadays widely installed at connection nodes and come with the option of fine-grained metering and bidirectional communication. This has made it possible for prosumers (consumers with renewable energy sources [RES] and batteries) to have a surplus of electricity which could be injected into the grid and traced via the use of SMs. This surplus generated by the prosumer has been fed into the distribution grid (for free or for a fee) until recently.

Electricity markets are now slowly entering a new generation of electricity trading with P2P electricity trading (Montakhabi et al., 2020). P2P electricity trading is an opportunity for prosumers to trade/share the surplus of electricity produced from renewable energy sources (RES) at their premises with each other (either directly or through an intermediary).

Challenges of Trust
Although P2P electricity trading could bring financial benefits to prosumers and environmental benefits in general, it may also create an opportunity for some entities to misbehave as a way to reduce costs or maximise profit. Impersonation, data manipulation, eavesdropping, privacy breaches, disputes, and denial-of-service (DoS) are amongst potential security/privacy threats. Security and privacy considerations are amongst the most serious constraints for P2P electricity trading (Mustafa et al., 2017).

P2P electricity trading imposes some inevitable changes in the value network of the electricity market. New activities are required, and two new roles emerge, namely, representatives and brokers (Montakhabi et al., 2020). The activities taken up by representatives and brokers require them to have access to sensitive user data. An important question that then arises is *"Who is*

Trust, Transparency and Security in the Sharing Economy: What is the Government's Role?

Ruben D'Hauwers, Jacobus van der Bank, Mehdi Montakhabi

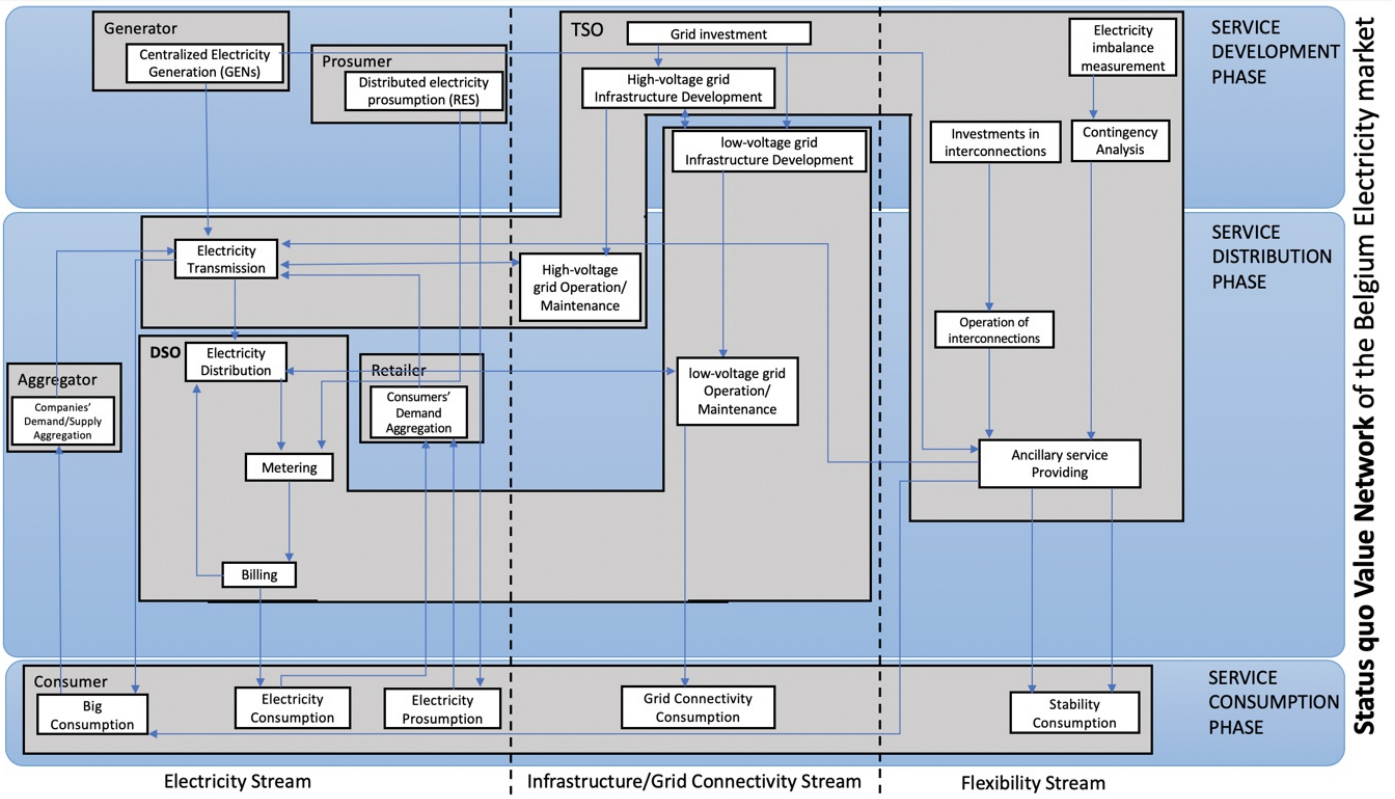

Figure 2. Roles in the current electricity market. Reprinted from New Roles in Peer-to-Peer Electricity Markets: Value Network Analysis, by Montakhabi et al., 2020, retrieved from https://www.esat.kuleuven.be/cosic/publications/article-3151.pdf.

trustworthy to undertake roles with sensitive data?" Whoever they are, trustworthiness is a necessity.

A broker is a new role in the P2P electricity market in Flanders. A broker is an intermediate actor that facilitates electricity trading in the P2P market. Brokers have access to information and transactions of all the parties involved in P2P trading. Their main objective is to facilitate the P2P market while respecting the electricity grid's constraints, as well as prosumers' preferences and privacy. A broker can be a single point of failure because it has information on all participants in a P2P trading market. Hackers may thus target a broker to steal information about participants in that P2P market (Montakhabi et al., 2020).

Role of Governments and Trust in Governments

Governments have been the sole player in the electricity market for a long time (and are still in some countries). The electricity market has experienced several steps towards liberalization and some tasks have been delegated by governments to competitive enterprises. Yet still, there are critical roles in the hands of governments (Erdogdu, 2014). The main actors in the current electricity market's value network are prosumers/consumers, retailers, aggregators, Distribution System Operators (DSOs), Transmission System Operators (TSOs), and generators (Montakhabi et al., 2020). (See Figure 2)

Value creation in the electricity market can be briefly described as: Generators produce electricity power plants centrally. Centrally generated electricity is transmitted through the transmission grid and then distributed through the distribution grid to consumers at their sites. TSOs and DSOs take care of transmission and distribution grids. They also keep the grids balanced. Consumers freely select their retailer to purchase their required electricity. Aggregators are new players which represent big consumers in various markets (electricity, balancing, etc.) (see Figure 2 for detailed critical activities of actors.

Besides the regulatory role of governments, TSOs and DSOs are governments' footprints in the electricity market's value network. They undertake critical

Trust, Transparency and Security in the Sharing Economy: What is the Government's Role?

Ruben D'Hauwers, Jacobus van der Bank, Mehdi Montakhabi

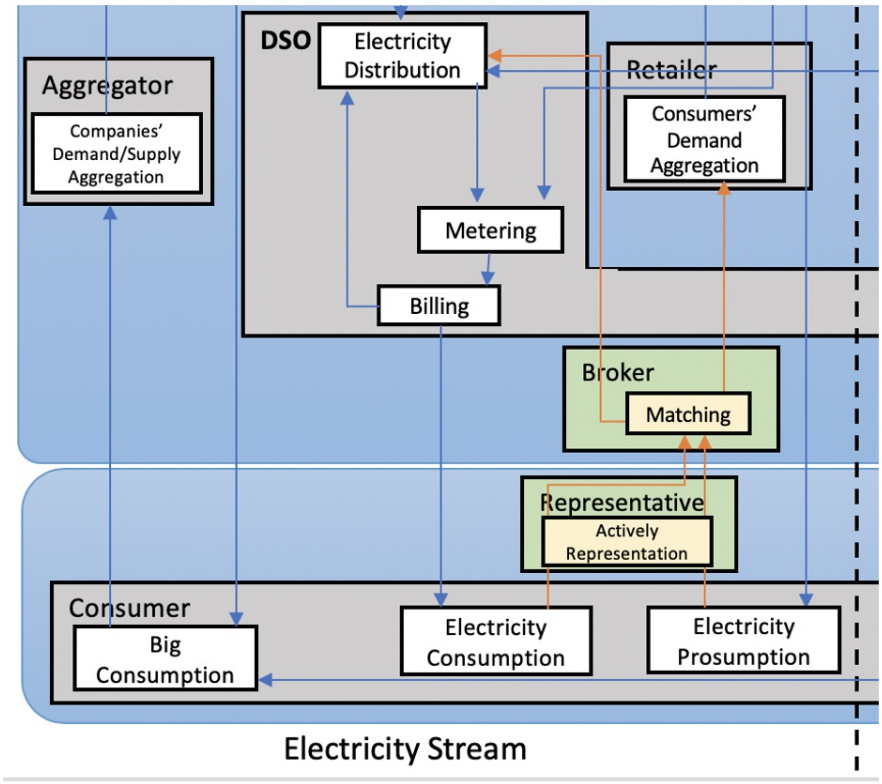

Figure 3. New roles in the near future electricity market. Reprinted from New Roles in Peer-to-Peer Electricity Markets: Value Network Analysis, by Montakhabi et al., 2020, retrieved from https://www.esat.kuleuven.be/cosic/publications/article-3151.pdf.

responsibilities that guarantee the availability and stability of electricity for consumers at any time. Furthermore, they have a monopoly in their tasks, indicating that trust from government in this context is not an option. Despite all the benefits regarding the assurance of service provision and consistency through this relationship, it is a valid concern that the monopoly itself could be a source of threat to misuse of information.

DSOs are already the main single actor with direct access to consumer information within the current electricity grid structure. Considering the required expertise for broker and representative roles in the P2P trading market, a simple scenario could be that a government (through DSO) extends its responsibilities and undertakes new roles (which would be roll-back liberalisation in the electricity market). In this scenario, DSOs would undertake the role of a broker in the P2P electricity trading market (they could even further extend and take the representative role as well). Figure 3 displays the positions of new roles in the future peer-to-peer electricity trading market.

There are some important considerations (pros and cons) which can define the outcome of a government's candidacy with the brokers' (and representatives') role:

PRO

- DSO has the required technical expertise and experience in dealing with consumers' sensitive information (near real-time pattern, amount of consumption and production).

- DSO is not a profit-seeking organisation, which eliminates the motivation for misuse of trust for financial benefit.

CON

- Citizens might dislike their information being matched with other information that the government has access to (taxes, income, etc.)

- Extension of the DSO role is in line with monopolisation of a market; this would increase

Trust, Transparency and Security in the Sharing Economy: What is the Government's Role?

Ruben D'Hauwers, Jacobus van der Bank, Mehdi Montakhabi

the government's footprint in the electricity market and eliminate competition.

•It is more probable to think of the emergence of breakthrough technologies and disruptive innovations if people in the private sector can compete to take this role.

Can Technology Mitigate the Lack of Trust?

The aforementioned threats, considerations, and lack of trust could be mitigated to some extent by the use of blockchain technology combined with sharing platforms that have P2P electricity trading (Vangulick et al., 2018). From a business perspective, "blockchain is an exchange network for moving transactions, value, assets between peers, without the assistance of [trusted] intermediaries" (Mougayar, 2016). It ensures secure authenticated and accurate transactions by cryptography, and provides a distributed ledger, which keeps all transactions immutable (Murkin et al, 2016). Blockchain technology appears set to help mitigate the lack (or to remove the requirement) of trust amongst involved parties in P2P markets. Running a platform built on blockchain technology requires a government's willingness to release some of its monopoly in the electricity market in the first place, along with needed investment for setting up the required platform.

Discussion

An important outcome of the two case-studies is the role of governments. A government could play a key role in creating trustworthiness for the growth of a sharing economy between businesses and peers, as described in table 1.

In the case studies, it was clear that the role of a "neutral" government, without any particular economic motivation, is an important factor in putting the government forward as a trustworthy candidate to ensure trust in sharing economies. An important question arises: "Is the government itself trustworthy?". In both case studies, distrust of the government was observed. This was due to the fact of the government's dual role: on the one hand, government plays the role of a facilitator of data sharing, while on the other hand, it also plays the role of a regulator. Thus, a crucial question arises for determining the role of the government in ensuring trust in the sharing economy: can one guarantee that the government uses data solely for facilitator purposes, or will it also be able to use the same data in its role as a regulator?

Important factors that can overcome this issue are the following:

1. Governments need to clearly **divide the role of facilitator and regulator**. This can be done by ensuring a public digital platform can exist through its support, but the handling of data can be done by neutral parties. This way, regulating entities at the government would not be able to use the same data.

2. Governments can **ensure trust through technologies**. On one hand, blockchain technology can enable opportunities for distributed trust, where access to data can be limited to certain "permissioned" parties. In digital platforms, technologies can also ensure, with access rights, that the data remains confidential.

Thus, governments can play a significant role in ensuring trust in sharing economies. At the same time, certain limitations need to be put on the government's role, involving access rights to citizen data.

Conclusions and opportunities for further research

Trust is crucial to enable any sharing economy, of which P2P transactions of value form a key part. In order to enable trust, information as a digital cue is a crucial aspect. The asymmetries of information in the market create bottlenecks to building this trust. Thus, governments can serve to play a role in ensuring trust between actors (B2B, B2C, and P2P). In this paper, we have analysed the adequacy of governments' potential role in enabling trust, transparency, and security in sharing economies based on two case studies. The cases concerned industrial symbioses and P2P electricity trading.

The researchers observed that to define a government's role in ensuring trust, no one-size-fits all answer exists. In the B2B use case, a government could play its role by being an objective facilitator that can **mediate between** competitive powers in the market. Yet, a government needs to be aware to clearly divide the role of being a facilitator and a regulator. Due to this challenge, digital platforms with clear data access rights are crucial, where a government or government agents may not get access

Table 1. Case study comparison of the role of the government in ensuring trust in the sharing economy

	Case 1 **Industrial Symbiosis**	**Case 2** **Peer-to-peer Electricity Trading**
Role of government	-Facilitator of data exchanges -Regulator	-Current: DSO and TSO (monopoly) -Future: Role of a broker -Dealing with sensitive information
Trust in the government	**-PRO** Neutral role in the ecosystem No economic motivation **-CON** Mismatch of the role of regulator and facilitator Companies dislike allowing government access to sensitive private/personal information	**-PRO** Technical expertise dealing with sensitive information No economic motivation **-CON** The risk of a monopoly Citizens dislike allowing government access to sensitive private/personal information
Technology	-Digital platform with privacy enabled settings -Limiting data access rights of the government with the introduction of neutral partners	-Digital platforms based on blockchain technology
Security/Privacy threats	-Competitive information (production process, volumes of the company) -Negotiation process (price information)	-Impersonation -Data manipulation -Eavesdropping -Privacy breaches -Disputes -Denial-of-service (DoS)

to crucial or sensitive private information. In the P2P use case, governments could play an important role. Nevertheless, this comes with the risk that a monopoly position might arise, which could threaten the functioning of the overall ecosystem. The governance of creating a trusted entity could be enabled by introducing a blockchain distributed ledger system with P2P functionality.

In the sharing economy field as a whole, the outcome of the research in this paper suggests that governments can play a significant role. However, that role must always overlap with other roles that need to be identified as well. The major benefit of including the government is its neutral, and often non-competitive position, which can serve to increase market exchanges. Yet, the major hurdles to overcome involve access to data for the government, and the power it gives governments to create new digital monopolies. Technologies such as digital platforms and blockchain can contribute to

Trust, Transparency and Security in the Sharing Economy: What is the Government's Role?

Ruben D'Hauwers, Jacobus van der Bank, Mehdi Montakhabi

ensuring trust in sharing economies, as they can limit the need for governments to access and handle private data. Blockchain technology and digital platforms are supposed to help mitigate the lack (or in some cases, remove the requirement) of trust amongst active parties. Yet, governments at the same time need to be willing to release their monopolies and control over data access rights in order to overcome this hurdle.

Acknowledgement

This work was supported in part by the Flemish Government through an FWO SBO project (Mehdi Montakhabi is funded by SNIPPET S007619).

References

Akerlof, G.A 1970. The Market for "Lemons": Quality Uncertainty and the Market Mechanism, 84, *Q.J. Econ.*, 488.

Amsterdam Sharing City. 2017. Amsterdam Sharing City [website]. Available at: http://www.sharenl.nl/amsterdam-sharing-city (accessed 30 March 2020).

Belk, R. W. 2010. Sharing. *Journal of Consumer Research*, 36 (5): 715-734.

Belk, R.W. 2014. Sharing versus Pseudo-Sharing in web 2.0. *Anthropologist*, 18: 7-23.

Botsman, R., Rogers, R. 2010. *What's Mine is Yours. The Rise of Collaborative Consumption*. New York: PH.

Chertow, M.R. 2000. Industrial symbiosis: Literature and taxonomy. *Annu. Rev. Energy Environ.*, 25: 313-337.

Christensen J. 1992. The Industrial Symbiosis in Kalundborg, Denmark. Presented at *Int. Ind. Conf. Sustainable Dev.*, Rio de Janeiro

Cook, K., Levi, M., & Hardin, R. 2009. *Whom Can We Trust? How Groups, Networks and Institutions Make Trust Possible*. New York, NY: Russell Sage Foundation.

Corritore, C.L., Kracher, B., Wiedenbeck, S. 2003. On-line trust: concepts, evolving themes, a model. *International Journal of Human Computer Studies*, 58 (6): 737-758.

Dasgupta, G. 1988. The Theatricks of Politics. *Performing Arts Journal*, 11(2): 77.

De Filippi, P. 2017. What blockchain means for the sharing economy. *Harvard business review digital articles*: 2-5.

Drexl J. 2017. Designing competitive markets for industrial data– between propitiation and access. *JIPITEC* 8: 257-292.

Einav, L., Farronato, C., Levin, J. 2016. Peer-to-peer market, *The annual review of economics*, 2016, 8: 615-635

Engberg H. 1993. *Industrial Symbiosis in Denmark*. New York: New York Univ., Stern Sch. Bus.

Erdogdu, E. 2014. The political economy of electricity market liberalization: a cross-country approach. *The Energy Journal*, 35(3).

European Commission 2020, Website, Available at: https://ec.europa.eu/digital-single-market/en/faq/faqs-business-government-data-sharing, (Accessed 30 March 2020)

European Commission, 2020, Website, Available at : https://ec.europa.eu/environment/europeangreencapital/wp-content/uploads/2018/05/Industrial_Symbiosis.pdf, Accessed on 30 March 2020

Frenken, K., T. Meelen, M. Arets, and P. van de Glind 2015. 'Smarter Regulation for the Sharing Economy.' *The Guardian*, 20 May 20. https://www.theguardian.com/science/political-science/2015/may/ 20/smarter-regulation-for-the-sharing-economy

Frosch RA, Gallopoulos NE. 1989. Strategies for manufacturing. *Sci. Am.* 266:144-152.

Gefen, D. and Pavlou, P. 2004. The Moderating Role of Conflict on Feedback Mechanisms, Trust, and Risk in Electronic Marketplaces. *MIS Quarterly,* 1.

Greiner, M., and Wang, H. 2015. "Trust-free systems - a new research and design direction to handle trust issues in p2p systems: the case of bitcoin. In *Proceedings of the Americas Conference on Information Systems*.

Hamari, J., M. Sjöklint, and A. Ukkonen. 2015. The Sharing Economy: Why People Participate in Collaborative Consumption. *Journal of the Association for Information Science and Technology* 67 (9): 2047—59

Hawlitschek, F., Teubner, T., Adam, M., Borchers, N., Möhlmann, M., & Weinhardt, C. 2016. Trust in the sharing economy: An experimental framework. In: *Proceedings of the 37th International Conference on Information Systems*: 1-14. https://www.lexico.com/en/definition/blockchain, Accessed on 21 April 2020

Investopedia. 2020. Website, Available at: https://www.investopedia.com/terms/s/sharing-economy.asp , Accessed on 30 march 2020

Javenpaa, S., & Teigland, R. 2017. Trust in digital environments: From the sharing economy to decentralized autonomous organizations. In: *Proceedings of the 50th Hawaii International Conference on Systems Science*: 5812-5816.

Kano, L., & Verbeke, A. 2015. The three faces of bounded reliability: Alfred Chandler and the micro-foundations of management theory. *California Management Review*, 58(1): 97-122.

Trust, Transparency and Security in the Sharing Economy: What is the Government's Role?

Ruben D'Hauwers, Jacobus van der Bank, Mehdi Montakhabi

Kerber, W. 2016. A new (intellectual) property right for non-personal data? *Econ Anal GRUR Int* 65:989-998.

Koopman, C., Mitchell, M., Thierer, A. 2015. The Sharing Economy and Consumer Protection Regulation: The Case for Policy Change, *8 J. BUS. ENTREPRENEURSHIP & L.* 529, 533

Luhmann, N. (1979). *Trust and Power.* Chichester: John Wiley and Sons

Mazzella, F., Sundararajan, A., D'Espous, V., & Möhlmann, M. (2016). How digital trust powers the sharing economy. *IESE Insight*, 30: 24-31.

McKnight, D. Harrison and Chervany, Norman L. 2000., What is Trust? A Conceptual Analysis and an Interdisciplinary Model. *AMCIS 2000 Proceedings*, Paper 382. https://aisel.aisnet.org/amcis2000/382

Möhlmann, M. 2015. Collaborative consumption: determinants of satisfaction and the likelihood of using a sharing economy option again, *Journal of Consumer Behaviour,* 14 (3): 193-207

Möhlmann, M. 2016. Digital trust and peer-to-peer collaborative consumption platforms: A mediation analysis. Research paper, Leonard N. Stern School of Business, New York University. DOI: 10.2139/ssrn.2813367.

Möhlmann, M., Geissinger, A. 2018. Trust in the sharing economy: Platform-mediated peer trust. In: *Handbook on the Law of the Sharing Economy.* Cambridge University Press.

Montakhabi, M., Madhusudan, A., van der Graaf, S., Abidin, A., Ballon, P., & Mustafa, M. A. 2020. Sharing Economy in *Future Peer-to-peer Electricity Trading Markets: Security* and Privacy Analysis. In *Proc. of Workshop on Decentralized IoT Systems* and Security (DISS), in *conjunction with NDSS*: 1-6.

Montakhabi, M., Van Der Graaf, S., Zobiri, F., A. Mustafa, M., Orlando, D., Vanhove, S., Deconinck, G., Schroers, J., Nikova, S. 2020. Secure and Privacy Friendly Peer-to-peer Electricity Trading. *SNIPPET*: Belgium, 2020 (Report No. D2.1).

Montakhabi, M., Zobiri, F., Graaf, S.V.D., Deconinck, G., Orlando, D., Vanhove, S., et al. 2020. New Roles in Peer-to-Peer Electricity Markets: Value Network Analysis. In *IEEE International Energy Conference ENERGYCON*.

Mougayar, W. (2016). *The business blockchain: promise, practice, and application of the next Internet technology.* John Wiley & Sons.

Murkin, J., Chitchyan, R., & Byrne, A. 2016. Enabling peer-to-peer electricity trading. In *ICT for Sustainability 2016*. Atlantis Press.

Mustafa, M. A., Cleemput, S., & Abidin, A. 2016. A local electricity trading market: Security analysis. In *2016 IEEE PES innovative smart grid technologies conference Europe* (*ISGT-Europe, IEEE*: 1-6.

Nationale Bank België. 2020. Website, Available at: https://www.nbb.be/doc/ts/publications/economicreview/2018/ecoreviii2018_h3.pdf (Accessed on 30 March 2020)

O'Reilly, T. 2010. Government as a platform. In *Open government: Collaboration, Transparency, and Participation in Practice*. Lathrop, D., Ruma, L., eds., O'Reilly Media: Sebastopol, CA, USA:11–39.

Opendata Handbook. 2020. Website, Available at: https://opendatahandbook.org/guide/en/what-is-open-data/, Accessed on 30 March 2020

Oxford Reference. 2020. Website, Available at: https://www.oxfordreference.com/view/10.1093/oi/authority.20110803095959411, Accessed on 30 March 2020

Riegelsberger, J., Sasse, M. A., & McCarthy, J. D. 2005. The mechanics of trust: A framework for research and design. *International Journal of Human-Computer Studies*, 62(3): 381-422.

Sundararajan, A. 2016. *The Sharing Economy: The End of Employment and the Rise of Crowd-Based Capitalism*. Cambridge, MA: MIT Press.

Sztompka, P. 2000. *Trust: A Sociological Theory.* Cambridge: Cambridge University Press.

Tan, Y., Thoen, W. 2000. Toward a generic model of trust for electronic commerce. *International Journal of Electronics Commerce*, 5: 61–74

Tseng, M, Tan, A, Chiu, Ch, Tsai, D. 2017. Circular economy meets industry 4.0: Can big data drive industrial symbiosis? *Resources, Conservation and Recycling*, Vol. 131: 146-147.

Vangulick, D., Cornélusse, B., & Ernst, D. 2018. Blockchain for peer-to-peer energy exchanges: design and recommendations. In *2018 Power Systems Computation Conference (PSCC), IEEE*: 1-7.

Verbeke, A. 2013. *International Business Strategy.* Cambridge University Press.

Verbeke, A., & Greidanus, N. 2012. The end of the opportunism versus trust debate: Bounded reliability as a new envelope concept in research on MNE governance. In *Handbook of Research on International Strategic Management*. Edward Elgar Publishing.

Wiebe, A. 2016. Protection of industrial data - a new property right for the digital economy? *GRUR Int.*, 65: 877–884.

Williamson, J. 1993. Exchange Rate Management. *The Economic Journal*, 103(416): 188.

Zucker, L.G. 1986. Production of trust: Institutional sources of economic structure, 1840-1920. *Research in Organizational Behavior,* 8: 53-111.

Trust, Transparency and Security in the Sharing Economy: What is the Government's Role?

Ruben D'Hauwers, Jacobus van der Bank, Mehdi Montakhabi

About the Authors

Ruben D'Hauwers is a researcher at imec-SMIT-VUB. He graduated as a Master in Business Engineering at the University of Ghent (2010), and did a second master in Innovation and Entrepreneurship at the Antwerp Management School (2012). He worked as a business developer for AIESEC and SBE in Belgium and Myanmar. Ruben joined imec-SMIT-VUB in 2014 in the field of business model research. His research concerns business models in public-private collaboration in smart cities, in data exchange between stakeholders and business models for sustainable innovations.

Jacobus van der Bank is a researcher at-imec-SMIT-VUB. He obtained an undergraduate degree in Psychology and a Master's degree in Entrepreneurship at the University of Pretoria (South Africa). After obtaining his Master's degree, and working as a consultant for two years on a variety of projects, he decided to join the academic world where he lectured on entrepreneurship, innovation and business finance at various universities in South Africa. In 2018 he joined SMIT where he is currently working as a business modeller and is responsible for the development of novel business models and commercialisation strategies for projects pertaining to media and the telecommunication domain.

Mehdi Montakhabi is a researcher and Ph.D. student at imec-SMIT-Vrije Universiteit Brussel. He studied Bachelor's in Mechanical Engineering, a Master in Entrepreneurship, and a second Master in International Business. His MBA and DBA were in marketing. His current research concerns business model innovation in the energy sector. He worked several years in high-tech firms' marketing management followed by an entrepreneurial experience in the retail sector. He continued his career as the executive manager of a consultancy firm in shopping centre management. He was honoured to be the deputy secretary of the Council of Shopping Centers while directing an educational and analytical monthly magazine in the retail sector.

Citation: D'Hauwers, R., van der Bank, J., Montakhabi, M. 2020. Trust, Transparency and Security in the Sharing Economy: What is the Government's Role? Technology Innovation Management Review, 10(5): 6-18.

http://doi.org/10.22215/timreview/1352

CC BY

Keywords: Sharing economy, trust, government, blockchain, network, peer-to-peer, P2P

More for Less? Sharing Economy as a Driver of Public Welfare Innovation

Eva Pallesen and Marie Aakjær

> *"It is… what can you say, like keeping together, right? You help each other with small things."*
>
> User of digital platform for citizens with lung disease

This article investigates sharing economy as a path to welfare innovation. It is based on a case where a digital platform is activated in order to support sharing among citizens with lung disease, and thereby increase health and wellbeing. The case exemplifies how sharing economy currently is taken up by public actors in the attempt to prolong the goals of the public sector beyond itself. This implies drawing everyday sharing practices into a new middle between formal organization and private relations. In a critical response to literature on sharing economy that tends to reduce 'sharing' to 'transaction', the article draws attention to how sharing entangles with hopes, fears, and affectual engagements of everyday life, and to how it interacts with technology in unforeseen ways and beyond anticipated outcomes. Based on the analysis, the article concludes that there may be good reasons for public welfare authorities to engage in facilitating sharing among citizens. This is not because it is likely to provide 'more for less' in relation to predetermined goals, but rather because it can open up other kinds of welfare outcomes that cannot be produced by public organizations themselves.

Introduction

The emergence of the term 'sharing economy' has evoked hopes for a more sustainable future, as well as fears of a rawer capitalism (Martin, 2016). In this context, the state is called upon in its capacity as regulator, which must counteract problems created by the sharing economy. Increasingly, however, the public sector is also called upon to renew and reinvent itself from the very model of sharing economy. In this context, 'sharing economy' not only refers to an emergent new economic order, but also to an organizational form that unsettles the state itself (Lovink & Rossiter, 2019). The idea of 'sharing' as the digitally mediated distribution of access to underused resources, here comes into sight as a possible way to address the pressure of complex problems, ageing populations, and tight budgets that many western welfare states currently face (give&take.eu; Vive, 2017).

In this article, we turn our interest to sharing economy as a form of organizing that simultaneously unsettles and creates new hopes for the welfare state. We investigate the idea of digitally mediated sharing as a path to welfare innovation based on a case where this idea is translated into (local) practice. While sharing economy has attracted substantial research attention as a new market form, 'sharing' as an activity that goes beyond the economic sphere, has not had the same scholarly attention (Belk, 2013, 2014; John & Sützl, 2015). Studies of the public sector in relation to sharing economy have primarily focused on its role in a market context as regulator or user (Ganapati & Reddick, 2018; Hofman et al., 2019), while the influence of sharing economy on the public sector itself as organizational form has had less research attention.

Consequently, we know more about regulatory challenges for public authorities and less about how sharing economy is translated into public sector practice, and how that matters in citizens' everyday lives. In the ambition of contributing to this question, we analyze a case where a Danish municipal healthcare unit engages in promoting a digital platform in order to enable sharing of care and welfare services among citizens with chronic lung disease. The case was generated as part of the *Mature*-project, based in a Danish municipality, which aims to co-design digitally mediated sharing within senior communities.

More for Less? Sharing Economy as a Driver of Public Welfare Innovation

Eva Pallesen and Marie Aakjær

With an explicit reference to sharing economy and senior citizens as possessing 'untapped knowledge and experience, time, and energy', the project sets out to provide 'scenarios for older adults as recipients, citizens, providers, and developers of future care and welfare services', that are considered to be a matter of 'survival of the welfare system' (Vive, 2017). Before turning to the empirical case however, we first contextualise the focus of the article in existing research literature, and address the methodological questions it implies.

Research literature: sharing economy, technology, and the public sector

'Sharing economy' as a term is often used interchangeably with 'collaborative economy' or 'platform economy', referring to a new economic order characterized by the rapid emergence of virtual platforms, that match individual suppliers of goods and services, with individual customers who demand these goods and services (Rochet & Tirole, 2003). Hence, all three concepts refer to a break with traditional economy in the sense that 'firms transacting with individuals' is replaced with 'individuals transacting with individuals'. Although digital platforms are also part of traditional economy, in the sharing economy they gain a new centrality since they operate as a substitute for previous ways of relating suppliers, producers, and customers (Mair & Reischauer, 2017).

However, to a larger extent than 'collaborative' or 'platform', the word *sharing* signals the promise of a kind of new social order. Thus, the emergence of sharing economies has given rise to hopes as well as criticisms: while advocates see it as a movement of reform and activism, opening up to new forms of emancipation and innovation (Acquier & Carbone, 2018); critics on the other hand, question the idealized vision and see 'sharing economy' as a nice word concealing a rawer capitalism, where employment relations are destabilized and individualized (Scholz, 2016).

Stressing the heterogeneity of sharing economy, several typologies and definitions have been offered in the research literature (Acquier & Carbone, 2018; Mair and Reischauer, 2017; Hamari et al., 2016). Hamari et al. (2016) link sharing economy to collaborative consumption, defined as "the peer-to-peer-based activity of obtaining, giving, or sharing the access to goods and services, coordinated through community-based online services". The centrality of online mediation is also stressed by Mair and Reischauer (2017), who define sharing economy as "a web of markets in which individuals use various forms of compensation to transact the redistribution of and access to resources, mediated by a digital platform operated by an organization". The locus of sharing economy is here unambiguously identified as the market, the only difference being that payment is only one compensation form out of many, which in sharing economy may also include gift giving or bartering. They here subsume gift giving under the market context, while others have placed the sharing economy on a span *between* market economy and gift economy (Sundararajan, 2016). Mair and Reischauer's definition further stresses new access to, and distribution of goods already there, rather than the production of new ones. This highlights an aspect that links sharing economy to a sustainability agenda (Heinrich, 2013).

In this conceptualisation, it is regarded as a key feature of sharing economy that it creates new access to resources that are currently underused. The case analyzed in this article exemplifies how this aspect is currently picked up as an organizing principle, which can be applied as a strategy in public sector governance (give&take.eu; Vive, 2017). In this context, the relation of technology and the welfare state is reconfigured.

Historically, the emergence of the western welfare state is intimately entangled with the history of technology. In the Scandinavian welfare states, where our empirical study is located, technological innovation was from the beginning deliberately supported as an instrument for enhanced prosperity, and as an approach in public social and healthcare policies (Klüver, 2005). The recent arrival of digital platforms, however, creates new roles and positions for welfare professionals (Nickelsen & Elkjær, 2017). In activating digital platforms to facilitate sharing, the public sector's role is further altered with municipalities here positioned in parallel to the role of platform venture (Reischauer & Mair, 2018). Rather than directly providing a service, they deliver a frame in which citizens can access and share services. 'Sharing' here represents the possibility to extend the goals of the public (for example, healthcare) organization beyond itself, by enabling citizens to share knowledge and services that contribute to the outcomes pursued by the public sector (for example, increased health and mobility for citizens), yet without the municipality necessarily being the service provider. Thus, in the notion of sharing economy as a path to welfare innovation, the everyday practice of sharing between people who trust one another is drawn into a new

More for Less? Sharing Economy as a Driver of Public Welfare Innovation

Eva Pallesen and Marie Aakjær

middle between formal organization and purely informal relations.

However, as emphasized by Belk (2013, 2014) and others inspired by Belk (John & Sützl, 2015), the scholarly concept of 'sharing' as a specific kind of action distinct from gift giving or market exchange is underdeveloped, despite a recent rapid increase in research focus on digital sharing and sharing economy. 'Sharing' seems here to be implicitly couched in new forms of transaction (moving from 'individuals transacting with corporations' to 'individuals transacting with individuals'), which are accompanied by new forms of compensation (extending compensation into the non-monetary). Relatedly, most of the work done on the sharing economy does not problematize the role of technology (Sutherland & Jaharri, 2018) or "engage with its interactions with existing norms, cultures, or other important contextual elements" (Ibid, 2018).

Since the sharing economy is currently lifted up as a solution on challenges at a societal level, we find it urgent to study how this idea translates into practice. Furthermore, we find it important to do so without automatically inheriting the assumptions about sharing (collapsed with transaction) and the concept of technology (loosened from the political) that dominate the literature on 'sharing economy'. This implies the study of sharing as an everyday practice including its material, affective, and bodily aspects. In the next section, we address how we take up this ambition methodologically.

Method

Methodology and analytical approach

Moving from the general idea of sharing economy as a form of organizing to its micro-level poses some challenges to data collection and analysis. While the *Mature* project description talks about digital sharing of 'welfare services' and 'untapped resources', such things are more ambiguous in practice. We may thus ask: how can one locate the 'resources' being tapped and the 'welfare' being digitally exchanged?

In terms of methodology, however, this problem implies phenomenological interest (Holt & Sandberg, 2011), that is, an urge to move from the abstract notion of 'digitally mediated sharing of welfare' to a focus on how sharing plays out in everyday life. This points to data collecting methods (such as observation and informal interviews) related to the ethnographic field (Ybema et al., 2009; Czarniawska, 2014) with its emphasis on 'being there' in the middle of things. In this case, 'being there' was twofold: it meant being there in digital space, having access to what was shared on the platform, as well as having access to situations where people using the platform meet off-line.

The emphasis on ethnographic data collection methods was also related to our aim of going beyond an entitative and instrumental approach to technology, which tends to position the digital platform as an isolated driver of predefined change. Instead, we have aimed to study the use of the digital platform in a way that does not exclude context, and not only focuses on what it is used for and when, but includes *how it matters* in the lives of participants, and how it evokes and is evoked by other components in people's everyday life.

Pursuing this aim, we have found situational analysis (Clarke 2003, 2005) helpful. Drawing on the tradition of Grounded Theory (Glaser & Strauss, 1967), it places more emphasis on the relationality and co-constitution of assemblages of diverse components (Clarke, 2018). Inspired by situational analysis, we thus started out by creating situational maps, which, in accordance with Clarke's notion of this, laid out human, non-human, and other situational elements, focusing on analysis of the relations among them (Clarke, 2003).

Based on our interest in 'sharing' as a vital part of everyday life (rather than a limited activity of transacting), this mapping process implied listening carefully to the citizens' descriptions of daily life and to how (relations of) components emerge as significant to people. Inspired by Sarah Pink's (2009 conceptualization of analysis as "points in the research process, where there is a particularly intense treatment of research material", we sought to open up opportunities for citizens to take active parts as co-analysers in this creative intensity. By using statements and photos collected in the research process to evoke their reflections and listen to the connections they would make from the collected material to their everyday lives, we aimed to use empirical material such as interviews and photos not simply as representative, but as *evocative* (Pink 2009). Thus, our aim was to explore how statements and photos from one person or one situation may open up a path into the multiple and multisensory everyday experiences of other citizens. This, for example, meant attending to points in the workshop where many participants suddenly react (nod, sigh, or speak at once).

More for Less? Sharing Economy as a Driver of Public Welfare Innovation

Eva Pallesen and Marie Aakjær

Empirical material and data collection

The analysis draws on material from the research and development project Mature, more specifically a part of the project: Work Package 3 (WP3). This Work Package was designed with inspiration from another project, the Give&Take-project (Give&take.eu), in which the aim was to co-design digitally mediated sharing among seniors in Denmark and Austria, with citizens exchanging services and resources. In WP3, this was translated into a local setting, a Danish municipality that had already made efforts to connect people (off line) with chronic lung conditions, in particular Chronic Obstructive Pulmonary Disease (COPD). The senior citizens attending the municipality's exercise activities for people with lung disease were contacted and asked whether they would find any interest in trying out what a digital platform might do to support their interactions. The platform allowed both group postings as well as individual messages. The municipality was active in implementing the digital platform, which was in practice conducted by the coordinator organizing the municipal services for people with lung disease.

The empirical material was gathered throughout a period of one year (September 2017- September 2018), based on a qualitative in-depth study of 11 citizens with access to the digital platform. It encompasses semi-structured interviews, informal conversations, and observations from citizens' physical gatherings (in total 21 interviews or observations) as well as data from interactions on the platform, including the number of sent and read messages. The number of 11 citizens obviously poses a quantitative limitation to the study; consequently, the empirical material is not suitable for identifying generalizable causal relationships and explanations. Instead, the study aims at contributing to the qualitative understanding of practices that are always situated and local. The workshop, arranged after seven months of access to the platform, was a way to extend the qualitative 'thickness' of the material by putting excerpts from interviews with and observations by the 11 citizens into play among a larger group of citizens.

Analysis: Sharing in the everyday context of chronic disease

The following presentation of data is organized around what was shared, or intended to be shared. However, as shown in the analysis, the question of 'what' was actually shared can be discussed. *Information, tools*, and *maps* are not simply isolated entities being transacted among citizens, but rather components that interact in different ways with other components, including the hopes, fears, and affectual engagements of everyday life. The analysis draws attention to how sharing emerges in this kind of interaction, rather than in the transaction alone. It also points to the municipality as just one component among other components, that interact in unforeseen ways and beyond anticipated outcomes.

Sharing maps

An idea that immediately attracted peoples' attention was discussed also offline. It involved the possibility of sharing maps of local walking routes digitally, then inviting people online for a walk via the platform:

> User 1: I know some people are troubled with the long routes and where you start and all that. You could make different [walking] routes. And make some routes where you could sign up to join. For example, on the platform, then we could make some routes from the local area, which would fit everyone, depending on the capacity you have (…)
>
> User 2: There is no place like [the local area] where there are some fantastic routes in nature, where there are many possibilities to walk. We could make suggestions of routes with different lengths — for example, I walk a lot out on the reef…
>
> User 3: (breaks in): …but there! —I don't dare to walk at all at such places where there's no access for an ambulance or where I cannot receive help if I get in trouble. I don't dare walk there —it is out of question! In my case —I simply cannot go there! [a lot speak at once; somebody suggests a route and several add 'there is also the fort…', '...or just a walk on the beach' or 'I think…']

The idea discussed here explicitly resonates with the *Mature*-project's aims and hopes of enabling the sharing of health-promoting initiatives, related to the specific condition of lung disease, like on platforms such as 'Give & Take'. However, in this conversation about the possibility of sharing walking routes on the platform, it is also clear that this cannot be reduced to a question of exchanging detached knowledge of landscape as a site for exercise (levels of difficulty, hills, and inclines). It is also entangled with everyday life and may catalyze previous experiences, for example, on how a specific geographic location has appeared inaccessible and isolated in the context of lung disease.

Noticeably, this idea about walking routes returns repeatedly in conversations addressing the possibilities

More for Less? Sharing Economy as a Driver of Public Welfare Innovation

Eva Pallesen and Marie Aakjær

of the digital platform.; However, as long as data collection lasts, this remains an exercise of collective dreaming, driven forward by suggestions starting with 'you could easily…' 'and then we could…', turning into then 'it doesn't have to be that hard', and other expressions on the way to eventually making the technical attempt. People repeatedly return to the possibility of the digital platform; however, to our knowledge they actually do not go out walking on these specific routes as a result of maps shared on such a platform.

Thus, the project assumption (or hope) was that citizens would be attracted to the platform community by the knowledge or service they can get or share (exchange) there. However, rather than being a tool for an actual exchange of knowledge or service, in this case the platform functions as a driver of a collective sense of possibility. It allows users to hold on to the feeling that the world is still worthy of new plans in the context of serious chronic disease. Thus, rather than just enabling an exchange, the digital platform evokes an 'expectant forward looking' (collective dreaming) as well as a reactivation of past experience and anxiety, both of which reach beyond an instrumental exchange of information.

The 'sense of possibility' seems to be a vital aspect whenever the point in being connected on the digital platform is addressed by Users:

> User: I can still see the point in being on Facebook or on the computer [digital platform], right? (…) I can easily think of, if I sit home a day, maybe a Sunday afternoon and the weather is nice, I would like to go out for a walk. Might there be somebody I could invite? Might there be somebody who could invite me ? I could do that. ... Or if somebody hasn't been here, I haven't seen for a long time, I can just write them: 'Hey, how are you?' 'Is it really bad or are you just on holiday'?

Thus, the digital platform produces a feeling that there are always others 'out there' to reach out to. Notably, this feeling also seems to matter on days when reaching out is not actually carried out. This indicates that sharing practices are constituted more diffusely in interaction with expectations and anticipation, rather than only in the actual transaction of 'something' .

Sharing information

From the perspective of information and services exchange, one could have expected that information sharing among citizens would be centred around lung disease, which is the condition the Users have in common and need help to handle. What we see in the material, however, is that Users do not, to any significant degree, share factual information about their illness, neither online nor offline. Some Users explicitly state that they are repulsed by, rather than attracted to, digital platforms where information on illness is shared:

> User 1: But I will also say that I rarely enter it [COPD patient association's digital platform] because sometimes, all that illness just makes me sick, because you don't…
>
> User 2: No, you don't have the energy, do you?

Thus, the presupposition that Users will be attracted to the digital platform by the information they can get or share there related to a specific health condition, is often more ambiguous in practice. The examples of such sharing that we saw on the platform, almost exclusively came from the municipality (more precisely the employee coordinating activities for citizens with chronic lung disease). While the municipal coordinator tried to push forward information links on COPD and instructions for exercises on the digital platform, this did not attract unambiguous attention from the users, as exemplified in the following observation note from a setting where the coordinator meets with platform users after the exercise session:

The coordinator asks if anybody saw the television program about COPD. It was about health and COPD. He has shared the link on the digital platform. Nobody has seen it. One of the citizens takes up his tablet, but he has trouble connecting it to the WIFI of the municipal activity centre. The coordinator walks to his place. Meanwhile, a woman says that now she is excluded; she cannot get linked to the platform, and now everything will happen there. She has a brain injury, and cannot remember from one moment to the next the instructions she is given on how to be linked to the platform. She has now thrown out the computer. 'Once you got pictures of grandchildren on paper, but now everything is on the phone or the computer', she says. The coordinator says that she will not be excluded, 'we can still meet physically', he adds.

While the municipal coordinator uses the platform to share a link to specific knowledge, it does not attract much attention, except from one woman who speaks up. However, it is not simply the information itself - the specific television programme - that seems important to

More for Less? Sharing Economy as a Driver of Public Welfare Innovation

Eva Pallesen and Marie Aakjær

her, but rather the sense that she is now about to be excluded from what is going on where 'everything will happen'. In contrast with a paper photo of one's grandchildren, which one can hold in their hands, accessing the digital depends on being successfully linked.

Like information and memories in a damaged brain, the digital is here felt as fragile and elusive, almost unreliable. Hence, just like access to a digital platform may produce a sense of possibility of something that is yet to come, it may also produce a sense of being cut off from an emergent future. The platform evokes joyful expectation, as well as a sense of being repelled or excluded. Thus, its interaction with other components in citizens' everyday lives has aesthetic as well as political aspects, rather than purely instrumental ones.

Sharing tools

The *Mature* project was inscribed in an agenda about activating digital platforms that allowed senior citizens to share, not only knowledge, but also services and care. Hence, they could be positioned as both 'providers' and 'receivers' of welfare services, similar to individuals being both suppliers and demanders in the case of platform ventures. And there are examples in the material, where users share specific aids related to their condition:

> User: Take for example Gerda: I have difficulties getting down to my shoes, they have become so far away down there. Gerda noticed and brought a shoehorn that can help her change from sneakers to boots. Damn, that is lovely isn't it?
>
> Interviewer: So, you understand those details and what is difficult for the others?
>
> User: It is … what can you say, like, keeping together, right? You help each other with small things.

The actual aid that the user in this example gets (the shoehorn) is so entangled with mundane aspects of life ('small things') that it is almost not visible from the abstract vantage point of *Mature*'s project description, which talks about 'welfare services' and 'untapped resources'. Putting on shoes normally falls unproblematically into the background of everyday life; however, in the context of reduced respiratory capacity, the shoes suddenly become visible 'far away down there'. The shoehorn - an everyday tool mediating the body and the shoes - is here passed on from Gerda to another user. Noticeably however, this sharing does not simply emanate from the two being isolated users connected on the digital platform; it is conditional on a process that emerges from recurrent physical co-presence. Gerda observes another user having a problem in the context of their bodily co-presence. Prompted by shared experience (she knows how it feels) and affectual attachment (she is emotionally tied to and cares for the other), she remembers it as she gets home to her own shoehorn and brings it the next time they meet.

Rather than replacing physical co-presence and existing everyday technologies, the digital platform interacts with these in a process where emotional attachment and valuation of singularity are key aspects. Although several users explicitly state that they are not private friends with other users, sharing does not take place among interchangeable, anonymous users mediated by the platform. Instead, it relies on a communization process in which belonging and interdependency prevails (Vaujany et al., 2019).

Sharing coffee

Thus, in the sharing practices that emerge among senior citizens with access to the digital platform, physical co-presence does not cease to be important. On the contrary, there is one kind of sharing, stressed by the users themselves, that we had almost overlooked in all its mundanity. In the workshop, a number of photos from fieldwork and statements from interviews with the users were placed on the table and they were asked to pick up a card representing something vital in their interaction with other COPD patients. Here, the keyword was *coffee* rather than 'information', 'service', or 'care':

> User: I have chosen this [photo] where we sit down and have coffee together afterwards [after the exercise session organized by the municipality]. And then that statement (reads from a piece of paper) 'First we buy a pot of coffee and then we have a cozy time and talk about how things go along and what each other will do and have done'. Instead of here [the off-line workout session organized by the municipality] we are sometimes told to shut up, right? (scattered laughter)
>
> Interviewer: So, it's about getting to talk with each other?
>
> User: It is. It means a lot.

More for Less? Sharing Economy as a Driver of Public Welfare Innovation

Eva Pallesen and Marie Aakjær

In relation to the overall agenda of rescuing the welfare state, all of this talk about coffee may seem very mundane. As indicated in the quote however, gathering around coffee is simultaneously a more open and intimate form of sociality than the workout sessions organized by the municipality as a way to enhance respiratory capacity. In the latter, talk and jokes, which are not related to the aims of the exercises, are closed down (smoking pauses were banned as well). In contrast, in the open form of sociality organized around coffee, the aim of being together is less explicit and more open to what role one participates in. Participation itself can have other forms than being physically or conversationally active, as illustrated when a user explains why she appreciates sharing coffee with the others:

> User: It is good to hear about others' everyday life. How everyday time is spent. Where you talk about … a crossword puzzle, right? I actually like to relax and just listen to that. You don't have to talk yourself, but you can absorb some of it [several nods, adds a 'yes']. In any case, I do.

Hence, one could say that it is actually not so much coffee itself, which is shared in the interactions around coffee. Rather coffee is that which organizes sharing in a certain way. When users share coffee together, they do not only offer coffee to each other; they offer themselves for others to be with in an open-ended setting. This enables a certain (relying, listening) mode of engagement that sets aside specific expectations regarding the situation's outcomes and produces a readiness for opening up oneself to let in ('absorb') some of the world. However, this also reveals vulnerability:

> User 1: It is also about following each other … if there is somebody who doesn't turn up one day. Wonder … (U1 and U2 simultaneously) what has happened to them?
>
> User 3: What is happening and why didn't they turn up? It is like thinking about each other how…
>
> User 1: (continues) … how each other… like… how far are they? It is not so much that we talk about illness. I don't like it either.

A large part of the material addresses the feeling of vulnerability related to the other's death or serious illness:

> User 1: That is the toughest part. When people don't show up, well.
>
> User 2: It is also…
>
> User 3: It is not to bear, is it? (…) Hell, it hurts [many speak at once]

Thus, sharing around coffee is not so much centred around the illness-health distinction (in contrast to the municipality's exercise program); rather it relates to the death-life tension.

The introduction of the digital platform was an attempt to prolong the goals of the public sector beyond itself by activating everyday sharing for a health-promoting purpose. However, everyday sharing does not simply revolve around the same distinctions as public welfare services. In the latter, physical exercise belongs to one side (health promoting factors), while cigarettes and schnapps (which were also shared among users) belong to the other side (health hazardous factors). In everyday sharing however, they can both be components in the same purpose: to *feel* alive and connected in the context of vulnerability.

Discussion: Sharing economy as a driver for innovating welfare services

While the digital platform is promoted by the municipality with the explicit intention of prolonging the goals of the public healthcare unit, this is pursued by enabling processes and practices that are more porous and contingent than the public organization itself. The interactions revolving around the platform are framed less by fixed goals and roles than the formal organization implies. But they are still more formally organized than purely informal relationships in the users' lives.

Thus, in taking up sharing economy as a path to welfare innovation, the everyday practice of sharing is drawn into a new middle between formal organization and purely informal relations. The public welfare system remains in the picture via the municipality's active role in promoting the platform, while the municipal coordinator is only there as one component among other components, which are not linked to each other within a hierarchical order bound for a specific service production. While the relations of the formal (public) organization of the municipality are pre-coded into certain goals and roles, the relations among the

More for Less? Sharing Economy as a Driver of Public Welfare Innovation

Eva Pallesen and Marie Aakjær

components in the emerging network among citizens with chronic disease are temporarily and contingently attached to each other. Rather than an organizational hierarchy, we could speak of a qualitative assemblage (Hjorth, 2014) in which heterogeneous elements such as digital platform, base location, coordinator, coffee, dreams, fears, and diagnosis interact in unpredictable ways and with unknown outcomes.

In this context, the relation of technology and public sector is multiplied. Rather than primarily being one of strategic instrumentality, it has become more contingently constituted in assemblages implying new positions for public sector agents. Notably, however, the analysis on the previous pages exemplifies sharing practices that have taken place on the *limits* of technology in the hands of the welfare state. In particular, when illness strikes in unforeseen and unfair ways, or when death lures and fear intensifies, that is, when vulnerability prevails. This especially draws attention to sharing as an everyday practice that precisely thrives at the point where generalizable laws and predetermined goals are no longer applicable, and where emotional attachment and valuation of singularity are key aspects.

The digital platform *does* play a role at this threshold, but not simply as a tool for redistribution of 'untapped' resources in the service of 'accelerating' known outcomes. Rather, it catalyzes dreams of future connections as well as driving fears for relations that may slip away. In this context, technology comes into play among other interrelating components in the users' lives, evoking imagination and forward thinking as well as past experience in unforeseen ways and with unknown outcomes.

Hence, it raises questions about the possibilities for shared living that are enabled by technological mediation, and who will be included or left out. Furthermore, it suggests that there are limitations in activating sharing as part of continued rationalisation of the welfare state, since sharing precisely unfolds at the limits of means-ends rationality. However, *because* of this, the public sector can, by engaging in facilitating (digitally mediated) sharing among citizens, open up a space in-between formal organization and private relations in which other kinds of welfare outcomes emerge, such as a 'sense of possibility' in the context of severe chronic disease.

Conclusion

Sharing economy does not simply represent the possibility of getting 'more for less' in a public sector context, since sharing as an everyday practice precisely thrives at the limits of predetermined goals, roles, and outcomes. In this article, we have aimed at contributing to an understanding of sharing not only as a limited transaction, but also as a vital aspect of everyday life. In this view, sharing is both *before* and *beyond* the state, and hence marks the 'other' that it lives and develops from. That is, however, also the very basis for the innovative potential in relation to government. By actively facilitating online and offline sharing within specific citizen groups, the public sector can initiate a new middle between formal organization and private networks in which 'other' forms of felt welfare are enabled that cannot be produced by formal organization itself. Nevertheless, this also raises new questions about how digital mediation is reframing our understanding of sharing as an everyday practice, and urges public sector agents to attend to - not only the instrumental - but also the political and aesthetic aspects of digitally mediated sharing, when it is put to work in a welfare context.

References

Acquier, A., Carbone V. 2018. Sharing economy and social innovation", in *The Cambridge Handbook of the Sharing Economy and Law*, ed. Davidson, Finck & Infranca.

Belk, R. 2013. You are what you can access: sharing and collaborative consumption online. *J Bus Res* 67:1595–1600.

Belk, R. 2014. Sharing Versus Pseudo-Sharing in Web 2.0. *The Anthropologist*, 18(1): 7–23.

Clarke, A. 2003. Situational Analyses: Grounded Theory Mapping After the Postmodern Turn. *Symbolic Interaction*, 26(4), s.: 553–576.

Clarke, Adele E. 2005. *Situational analysis: Grounded theory after the postmodern turn*. Thousand Oaks, CA: Sage.

Clarke, A.E., Friese, C. & Washburn, R.S. 2018. *Situational Analysis: Grounded Theory After the Interpretive Turn*. Thousand Oaks, CA: Sage.

Czarniawska, B. 2007. *Shadowing: And Other Techniques for Doing Fieldwork in Modern Societies*. CBS Press.

Ganapati, S. & Reddick, C.G. 2018. Prospects and challenges of the sharing economy for the public sector. *Government Information Quarterly*, Volume 35, Issue 1, January: 77-87.

More for Less? Sharing Economy as a Driver of Public Welfare Innovation

Eva Pallesen and Marie Aakjær

Glaser, B.G., & Strauss, A.L. 1967. *The discovery of grounded theory: Strategies for Qualitative Research*. Chicago. Aldine Publishing Company.

Hamari, J., Sjöklint, M., & Ukkonen, A. 2016. The sharing economy: Why people participate in collaborative consumption. *Journal of the Association for Information Science and Technology*, 67(9): 2047–2059. https://doi.org/10.1002/asi.23552

Heinrich, H. 2013. *Sharing economy: a potential new pathway to sustainability. GAIA* 22/4: 228-231.

Hjorth, D. 2014. Entrepreneuring as Organization-creation. In: Sternberg, R. & Kraus, G. (Eds.) *Handbook of Research on Entrepreneurship and Creativity*, Cheltenham: Edward Elgar: 97-121.

Hofmann, S, Sæbø, Ø, Braccini, M & Za, S. 2019. The public sector's roles in the sharing economy and the implications for public values. *Government Information Quarterly*, Volume 36, Issue 4, October.

Holt, R., & Sandberg, J. 2011. Phenomenology and Organization Theory, in Tsoukas, H. and Chia, R. (Ed.) *Philosophy and Organization Theory, Research in the Sociology of Organizations. Vol. 32*), Emerald Group Publishing Limited.

John, N.A. & Sützl, W. 2015. The rise of 'sharing' in communication and media studies. *Information, Communication & Society.*

Klüver, P.V. 2005. Technology transfer, Modernization, and the Welfare State. In: Bubenko J., Impagliazzo J., Sølvberg A. (eds), *History of Nordic Computing*. HiNC 2003. IFIP International Federation for Information Processing, vol 174. Springer, Boston, MA.

Lovink, G., & Rossiter, M. 2019. Afterword: Propositions on the Organizational Form. In Beyes, T., Conrad., L., & Martin, R. *Organize*. University of Minnesota Press.

Mair, J., & Reischauer, G. 2017. Capturing the dynamics of the sharing economy: Institutional research on the plural forms and practices of sharing economy organizations. *Technological Forecasting and Social Change*, May 2017.

Martin, C.J. 2016. The sharing economy: A pathway to sustainability or a nightmarish form of neoliberal capitalism? *Ecological Economics*, vol. 121, January: 149-159.

Nickelsen, N.C.M., & Elkjaer, B. 2017. Shifting boundaries in telecare–the nurse-doctor relationship. *Journal of Workplace Learning*, 29.7(8): 588–600

Pink, S. 2009. *Doing Sensory Ethnography.* Thousand Oaks, CA: SAGE.

Reischauer, G., & Mair, J. 2018. Platform organizing in the new digital economy: revisiting online communities and strategic responses. *Research in the Sociology of Organizations*, Volume 57: 113-135.

Scholz, T. 2016. *Platform cooperatism. Challenging the corporative sharing economy.* Rosa Luxemburg Stiftung. New York Office.

Sundarajan, A. 2016. *The Sharing Economy. The End of Employment and the Rise of Crowd-Based Capitalism*. MIT Press, Cambridge, Massachusetts.

Sutherland, W., & Jaharri, M.H. 2018. The Sharing Economy and Digital Platforms: A Review and Research Agenda. *International Journal of Information Management*, 43.

Vive (The Danish Centre for Social Science Research). 2016. *MATURE* — Meeting the challenges in population aging through innovation and culture adaption of welfare society.

Ybema, S.B., Yanow, D., Wels, H., & Kamsteeg, F.H. (Eds.) 2009. *Organizational ethnography: Studying the complexities of everyday life*. London: Sage.

About the Authors

Eva Pallesen is Docent (Senior Associate Professor), PhD in Center of Management and Experience Design at University College Absalon, Denmark. Her research focuses on welfare innovation, management and entrepreneurship in the public sector. She has published in international journals such as Organization Studies and Methodological Innovations. Before entering academia, she worked as Head of Methodology Department in the Danish Evaluation Institute and as Head of Section in the Danish Ministry of Education.

Marie Aakjær is Associate Professor, PhD in Center of Management and Experience Design at University College Absalon, Denmark. Marie has a background in design and her research areas cover social innovation, learning and co-creation with particular interest in the interaction among citizens, civil society and public sector organizations. She has published in international journals such as International Journal of Entrepreneurship and Innovation Management and Qualitative Research in Organizations and Management.

Citation: Pallesen, E., Aakjær, M. 2020. More for Less? Sharing Economy as a Driver of Public Welfare Innovation. Technology Innovation Management Review, 10(5): 19-27. http://doi.org/10.22215/timreview/1353

CC BY

Keywords: Sharing economy, technology, innovation, welfare state, public sector.

Citizen Perceptions of Government's Resistance to Shared Parking

Mika Westerlund

> "We're pretty disappointed this is the city's stance on it currently, when really we've just as citizens tried to help the situation by getting the cars off the street."
>
> A resident in Ottawa
> January 2020, CBC News

Sharing economy services is one of the fastest growing segments in today's economy, especially in urban centres. However, some cities have taken a negative stance and sought to prohibit sharing economy services, which has raised tensions between citizens and the local government. This paper adopts a case study approach to investigate what the main topics are in citizen perceptions of their government's resistance to shared parking in Ottawa, the capital city of Canada, where shared parking is considered illegal. In so doing, the study applies topic modelling on readers' comments following news about local residents being threatened with legal action by the city for providing shared parking services to government employees suffering from insufficient office parking resources. Based on six identified topics, the study establishes a conceptual framework that contributes to the literature on sharing economies by illustrating how citizens perceive their government's resistance toward sharing economies. The paper considers whether sharing economy services could be an innovation that would benefit societies, and how understanding citizen perceptions through online comments can help a government to solve policy issues and create win-win resolutions.

Introduction

Over the past decade, "sharing economies" have surfaced as a huge challenge for cities and governments (Vith et al., 2019). Although the term "sharing economy" lacks a clear and widely accepted definition (Gyódi, 2019; Pedroni, 2019), studies commonly emphasize the use of "slack resources" and the ways collaborative consumption can be beneficial for both individuals and societies (May et al., 2017). In a particular sharing economy, "idle resources" are allocated for "peer-to-peer" (P2P) sharing with people outside of one's typical social networks (Frenken & Schor, 2017). In such situations, the "access over ownership" principle allows individuals to use goods and services that they could not afford or would not otherwise choose to own (Constantiou et al., 2017; Netter et al., 2019). Sharing assets can nevertheless lead to more efficient use of resources when properly organised, drive down costs, supplement incomes, and enhance social interactivity (Greene & McGinty, 2016; Leung et al., 2019). It also marks the rise of new business models built around social technology platforms (Kathan et al., 2016), which are breaking down industry boundaries (Russo & Stasi, 2016), and providing cities with new opportunities for economic growth (Zon, 2015).

Nonetheless, city governments have tended to vary in their interpretation of the opportunities and challenges of sharing economies, as well as in making an authoritative response (Vith et al., 2019). Thus, some cities have prohibited sharing economy services such as short-term rentals, while others support the provision of such services, and a large number of cities have simply refrained from taking a clear position on sharing economics (Hong & Lee, 2018). Both ignorance and resistance toward sharing economy services seem logical, as government officials rarely get credit for being innovative, but rather easily get punished for their missteps (Zon, 2015). However, Pawlicz (2019) argues that introducing regulations to prohibit sharing economy services may lead to fewer innovations and reduced economic activity in the city. In general, rules and regulations are a major barrier to sharing economy adoption in many cities (May et al., 2017). On the other hand, even strict regulations can contribute positively to the supply of sharing economy services by making it

Citizen Perceptions of Government's Resistance to Shared Parking

Mika Westerlund

explicit what is legal and what is illegal (Uzunca & Borlenghi, 2019).

According to Hofmann et al. (2019), there is a need to understand the tensions between citizen users and the authorities, which have arisen from government's negative attitude toward sharing economies. Further, prior studies (for example, May et al., 2017; Ganapati & Reddick, 2018), call for more research on the barriers and opportunities related to specific sectors and integrations of sharing economies. In urban research, shared mobility, particularly ride hailing (for example, Uber and Lyft) is among the most studied and debated of sharing economy services in the context of cities (Ganapati & Reddick, 2018). However, Novikova (2017) argues that there is still need for research in a related sector, namely, at the intersection of shared mobility and physical infrastructure, such as buildings, roads, and parking. In fact, shared parking, which refers to matching seekers with available parking spaces on demand by lending or renting out unoccupied parking space such as residential driveways and private parking spots (Boysen et al., 2019; Kim et al., 2019), is an exemplary but under-researched area of sharing economies (Xu et al., 2020).

This study aims to understand what the main topics are in citizen perceptions of a local government's resistance to shared parking in Ottawa, the capital city of Canada where shared parking is considered illegal. In so doing, the study applies "topic modelling", which is a machine-learning based automated content analysis method, on a publicly available data set of 414 online news readers' comments that followed a recent CBC news article. This particular article was about local residents being threatened with legal action by the city for providing shared parking services to government employees who suffer from their employer's insufficient office parking resources. By identifying and discussing key topics in readers' comments, and creating a conceptual framework based on the empirical findings, the study contributes to the literature on sharing economies by showing how citizens perceive their government's resistance to economic sharing of resources, an innovation that would seem to benefit society. The paper explores how understanding citizen perceptions through online comments can help the government solve policy issues through crowd suggested win-win resolutions.

Literature Review

The "excess capacity" of resources such as houses, cars, and parking places is present when an owner does not consume their resources all the time, thus enabling them to lend or rent out resources to those in need (Frenken & Schor, 2017). Private car parking provides an example of a resource with potential for sharing, as a parking spot is empty once its owners drive a car out, until they drive back to park it (Xu et al., 2020). The objective of parking sharing is to match local parking demand with empty parking spaces (Russo & Stasi, 2016; Xu et al., 2020), such as household driveways or additional parking options.

Users seeking parking space often use a sharing platform to specify their target position and rental interval (Boysen et al., 2019), and then pay for the service. Despite parking spots being "immobile" rather than "mobile" resources like cars (Boysen et al., 2019), peer-to-peer parking services are commonly considered as "Uber for parking" (Zvolska et al., 2019). Boysen et al. (2019) note that when people need a parking space, they are often willing to accept whatever is available, as long as it is 1) large enough for their vehicle, 2) available during the requested rental period, 3) does not cause excessive walking to the target position, and 4) is affordable.

However, many local governments have started to regulate sharing economy services such as shared parking, in order to manage the disruptive effects they may generate (Kim et al., 2019; Hong & Lee, 2018). Extant laws and regulations to manage safety, workforce, privacy, and tax issues in such community-oriented distributed systems are either inapplicable or differently applicable for sharing economies (Leung et al., 2019), and which are therefore in need of being updated (Greene & McGinty, 2016). Also, citizens are argued to have an interest in defending the sharing economy against the unfair limitations imposed by extant laws and regulations (Pedroni, 2019).

The most socially innovative regulatory changes should address not only the interests of government and business, but also those of citizens who are ultimately the primary users and voluntary providers of shared services (Hofmann et al., 2019; Zvolska et al., 2019). That said, a government may not at any given time have a good or clear understanding of its citizens' interests. As well, public opinion is somewhat divided on how to regulate sharing economies (Leung et al., 2019). While some see strict regulation as justified because a sharing economy is a "grey zone" that may support unfair competition and lead to monopolistic power of sharing platforms, nevertheless, anti-regulatory opinions still

Citizen Perceptions of Government's Resistance to Shared Parking

Mika Westerlund

suggest that regulation would only protect incumbents and discourage entrepreneurship and citizen innovation, as well as limiting people's property rights (Ziegler, 2017: Paik et al., 2019; Pawlicz, 2019).

Regulatory responses and prohibition against resource or property sharing reflect governmental resistance to sharing economics. Part of that resistance is related to local political competition. A greater level of political competition is associated with a more favourable regulatory response towards sharing economy services (Hong & Lee, 2019).

This suggests that elected politicians with less political competition (for example, long tenure in office) are more likely to ban sharing economy services such as Uber in favour of traditional service providers such as taxi companies (Paik et al., 2019). In addition, Vith et al. (2019) argue that a particular city's response to shared community services is associated with how local governments perceive sharing economies. In short, those cities that view sharing economies as social endangerment and market disrupting tend to lean toward more regulations against it, while those cities that perceive sharing economies as socially enhancing and both market and ecologically transformative tend to support it. Importantly, Lulin (2017) points out that any city that is aiming to become a "smart city" needs to be supportive of its citizens sharing with one another more regularly, and thus adopt a model in which people become co-producers as users of a number of services.

Method

This research used an instrumental case study approach to examine citizen perceptions about governmental resistance to shared parking. In an instrumental case study, the case such as an incident can be discussed in an in-depth manner, while the research interest is in understanding something more general than merely the case (Stake, 1995). In this study, the broader interest lies in understanding how citizens perceive their government's negative attitude toward sharing innovation that could benefit society. The case is briefly described below.

Case: federal employees' parking problem in Ottawa

In January 2020, CBC news media reported about a dispute in Canada's capital region. The City of Ottawa's bylaw department had sent notices of zoning non-compliance to several local residents for renting out their driveways to federal employees (Johnstone, 2020). The city was threatening to take legal action against the residents if they do not stop renting out their unoccupied parking space to employees who work at the nearby headquarters of two of Canada's federal agencies (Johnstone, 2020). As these agencies did not have sufficient parking resources, many employees were parking on the neighbourhood streets (CBC, 2017). The city's bylaw department issues annually 1,800 tickets in the area, as those parking on the streets need to move their car every three hours to avoid being ticketed (CBC, 2017). While some frustrated residents were patrolling the streets to help bylaw officers know which cars had violated the parking limit (Johnstone & Pritchard, 2016), others were more supportive.

In an interview, a local resident said that people had been asking to rent his parking place (Johnstone, 2020). He thus thought that he had found a solution to the persistent parking problem in the neighbourhood, and a way to earn extra money by renting out his driveway to four federal agency employees (Johnstone, 2020). However, the City of Ottawa does not allow the rental of residential driveways unless the rental is part of a tenancy agreement (Carlucci, 2016).

The city's strict bylaws have also prevented shared parking platforms from entering the Ottawa market (Carlucci, 2016). According to their notice of violation, residents were breaking parking rules by renting their spots out to non-residents, and must stop immediately (Johnstone, 2020). The interviewed resident did not see any downsides to renting out his own driveway and, similar to many others doing the same, hoped that the city would consider a pilot project to allow residents to continue renting out parking spots (Johnstone, 2020).

The city's officials justified the action by stating that renting out a private driveway would technically turn it into a commercial parking lot. That would then require business insurance, and could lead to additional traffic and nuisance in the area (Johnstone, 2020). Applying for a zoning change would be expensive and a high demand for parking in the neighbourhood alone would not warrant the approval of rezoning (Carlucci, 2016). The vehicles parked on streets also provide safety concerns, as they limit access to emergency vehicles, garbage trucks, snow plows and fire hydrants (CBC, 2017). Further, the city was aware that some residents had paved their backyard green space to create parking spaces for rent, thereby breaking provincial regulations against paved backyards, which do not allow for proper drainage on properties (Johnstone, 2020). Acknowledging the limited parking availability around their offices, one of the federal agencies announced that

Citizen Perceptions of Government's Resistance to Shared Parking

Mika Westerlund

they keep reminding employees to follow municipal parking rules and encourage them to take public transit, carpool or cycle to work (Johnstone & Pritchard, 2016; Johnstone, 2020).

Data collection and analysis

Instrumental case studies can make use of various types of data. Qualitative content analysis can be performed either in an inductive or a deductive manner (Elo et al., 2014). That said, Nikolenko et al. (2015) argues that information-rich case studies can benefit greatly from automated topic mining using topic models such as Latent Dirichlet Allocation (LDA). "Topic modelling" by now refers to a group of inductive computational techniques used for discovering hidden topics and their links in textual data. LDA is an unsupervised method for identifying key topics within a collection of documents (Lindstedt, 2019). An unsupervised model learns underlying topics for a set of documents and assigns each document a rating of affinity to these topics (Nikolenko et al., 2015). One main benefit of using an unsupervised model for analyzing online comments is that it uses machine learning and has no critical presumptions on the meanings of the words, thus it works with texts in any discipline (Westerlund et al., 2018).

The research for this paper applied topic modelling on a data set of publicly available readers' comments from the commentary section of a news article related to the case. Comments were obtained as anonymous data, that is, without any kind of poster identifier. This approach follows that of previous research on sharing economies, which has made empirical use of online news articles (Leung et al., 2019). Zhang (2019) applied topic modeling over publicly available online data in order to identify key topics in consumers' opinions on sharing economy services. We therefore obtained a total of 440 readers' comments to a CBC News online article about the Ottawa's shared parking case by Johnstone (2020), and organized them into a spreadsheet for the purpose of topic modelling.

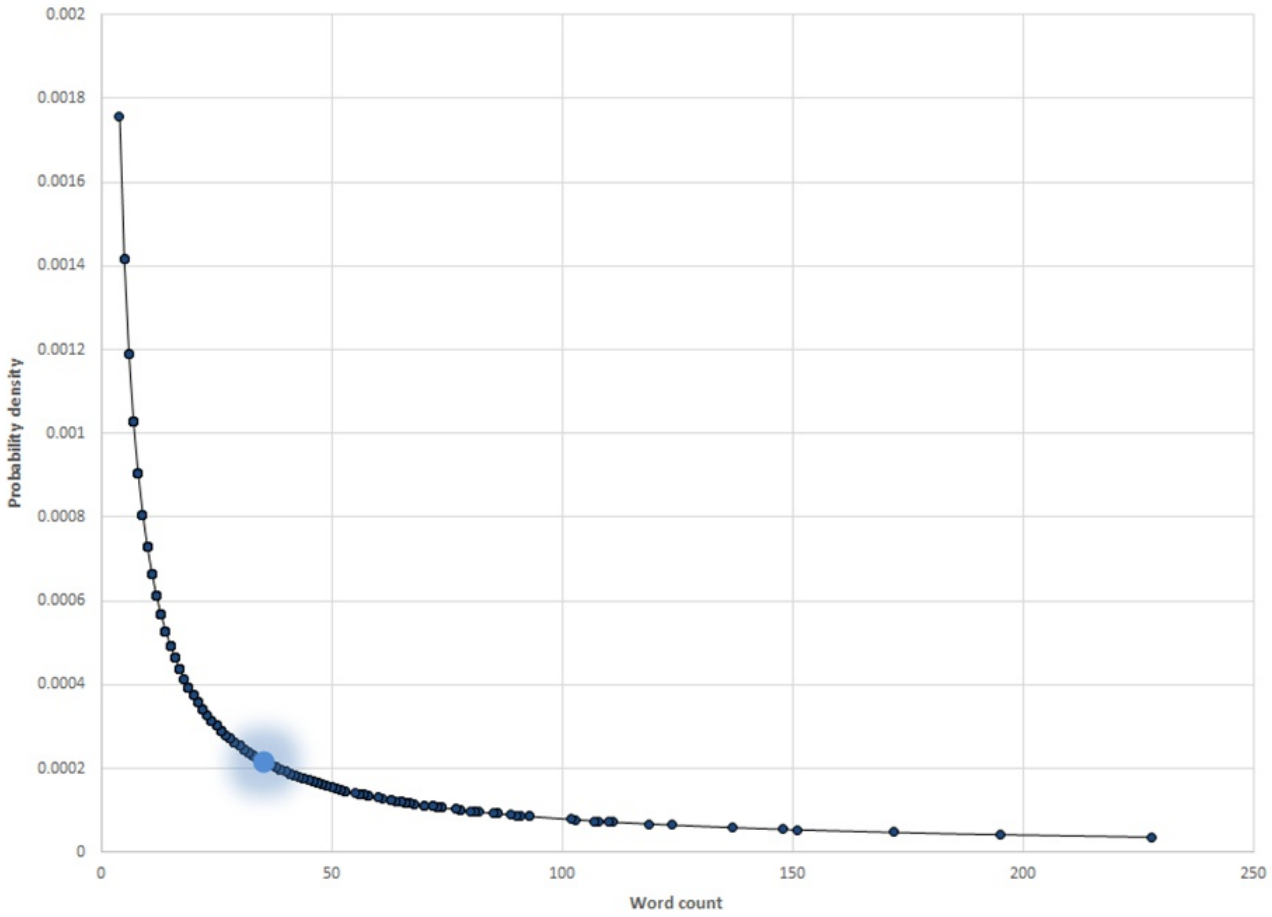

Figure 1. Lognormal distribution of word count

Citizen Perceptions of Government's Resistance to Shared Parking

Mika Westerlund

First, the data were cleaned by removing very short (one to three words) and information-poor comments that Huang et al. (2010) call "spam". As a result of the clean-up process, the final data set included 414 comments. Second, the data were investigated in order to ensure trustworthiness (Elo et al., 2014) and suitability for topic modelling this case.

In order to evaluate the trustworthiness of the data set, we examined the word count of the comments. The shortest comment had 4 words while the longest had 228. The lognormal distribution of word count in Figure 1 illustrates that the majority (61%) of the comments were short (fewer than 35 words), while 39% of comments reached or exceeded the mean value of 35 words. Further, only 3% of comments were longer than 100 words. The lognormal distribution of our data is in line with the notion by Sobkowicz et al. (2013), who found that the comment length distributions of most postings in online discussion forums, including online news media commentary sections and social media platforms, follow the same pattern. Further, Sobkowicz et al. (ibid.) argue that such pattern reflects a real attempt by commenters to communicate their feelings and thoughts on a matter at hand to others and, thus, it provides evidence that the content is created by human beings rather than, for example, automated bots.

The radar graph showing the distribution of comments by their length in Figure 2 illustrates that the majority of comments were short. Most frequently, the comments were between 7 and 65 words, with an emphasis on the lower edge of the range. These results are in line with the findings of Huang et al. (2010), who argue that short comments typically hold a high percentage in online discussion data, and, apart from some extremely short

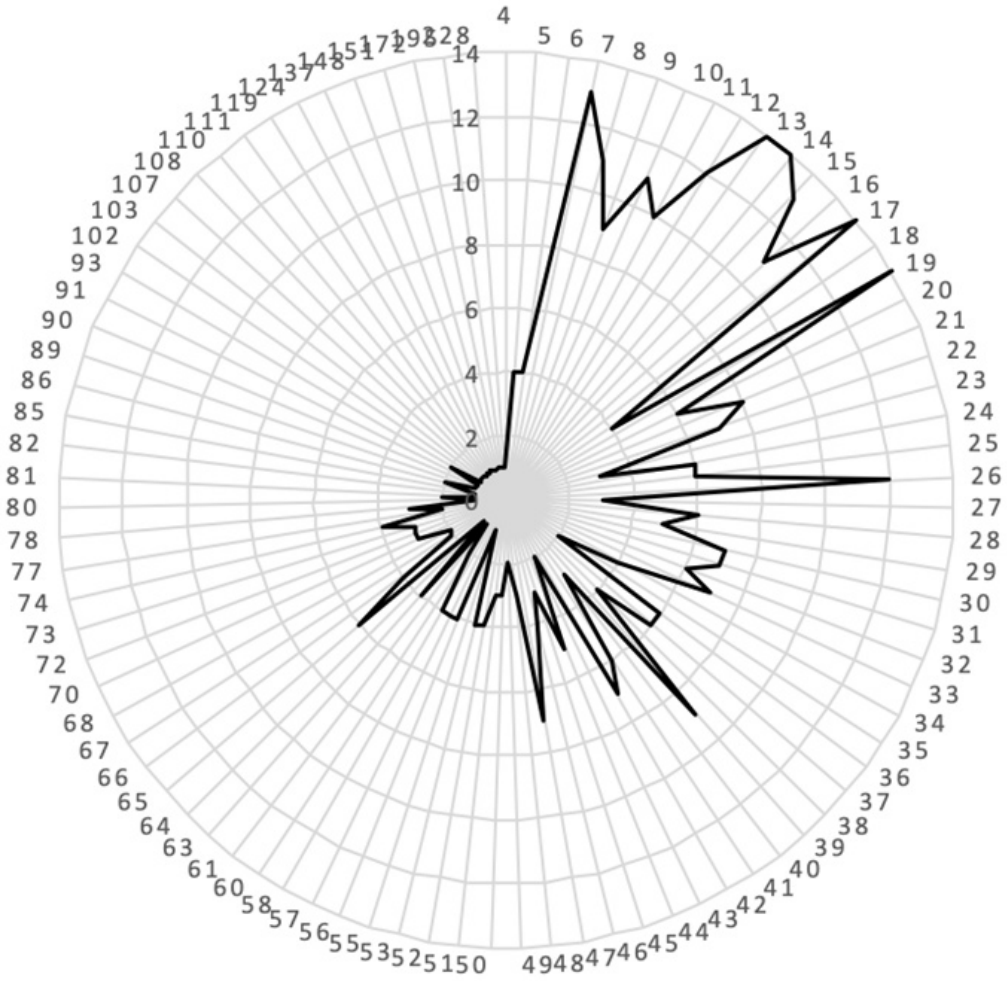

Figure 2. Distribution of comments by their length

Citizen Perceptions of Government's Resistance to Shared Parking

Mika Westerlund

(one- or two-word) comments, they tend to be to the point. Longer comments instead may either be detailed and highly relevant to the topic or nonsensical and repetitive propaganda. Given that the majority of comments in our data were short and there were only a few long comments, the structure of the investigated data set supports its suitability for the intended data analysis. However, one needs to exercise caution with short comments, given that the topic modelling analysis method suffers when there is a sparsity of word co-occurrence patterns in short texts (Cheng et al., 2014).

Results

The topic modelling analysis resulted in six topics that were meaningful and easy to interpret: 1) Federal government's role, 2) City government's resistance, 3) Sharing options, 4) Flopped systems, 5) Opinionated facts, and 6) Power play. These topics, each with 10 keywords with highest weights in the topic, were selected based on the analysis, and are shown in Table 1. They are further illustrated using word clouds as well as discussed based on drilling more deeply into associated readers' comments in the following sections.

Federal government's role – private parking sharing could be a solution to a problem created by the government

The first topic, "federal government's role", refers to the parking problem in the City of Ottawa, which is believed to have been created by the federal, provincial and municipal governments. The overall argument was that

Table 1. The six topics and their keywords

Topic	Keywords
Federal government's role	parking, rent, government, spaces, private, more, issue, work, employees, only
City government's resistance	issues, cities, accept, homeowner, plan, based, buses, cost, disease, happens
Sharing options	anyone, into, registered, charity, airbnb, free, driving, uber, look, probably
Flopped systems	system, useless, unreliable, tired, little, care, sounds, pressing, reliable, logic
Opinionated facts	vehicles, thought, threatening, wrong, everything, somebody, fact, full, snit, town
Power play	city, people, donation, park, property, driveway, space, rent, make, insurance

Citizen Perceptions of Government's Resistance to Shared Parking

Mika Westerlund

the federal government does not build enough parking spaces for their employees. This problem persists everywhere they have offices. Some comments argued that the federal government does not understand where their staff are living; for example, many are living in the suburban areas with a limited access to the public transit system and located far from the office. Asking its employees to use public transit or bicycles to commute to work is therefore implausible. It does not solve the parking problem because there are always greater parking needs than spaces available. This was seen to relate to the government's bureaucratic behaviour and lack of innovativeness. If the government is unable to build more parking places for their employees, then private shared parking appears as an innovative and ecological solution. In any case, given the government's failure to provide a solution, the government should not interfere with private deals between owners of parking space and those in need of parking.

City government's resistance – city bylaws and rules need to be changed to meet with the new reality

The second topic, "city's resistance", revolves around arguments that although Ottawa has urban parking challenges similar to elsewhere, the city council, unlike in many other cities, refuses to accept private shared parking as a partial solution to the problem. Rather, the city wants to scare its citizens about violating bylaws, and penalize those who would offer an effective and mutual solution. Also, the comments pointed out that private citizens are bombarded with the letters from the city's lawyer, although it is in fact federal employees that break the city's bylaws by frequently exceeding the parking limits. The city's resistance toward sharing economies was seen as a result of the municipal government's eagerness to stick with what they are good at, namely introducing new rules and regulations.

Sharing options – it should be legal to offer sharing economy services or people will bypass the law

The third topic, "sharing option", argues that a person owning a parking place should have the right to let anyone park on it, as the city has allowed anyone with a property to list it on Airbnb. Renting out parking space could be limited to one or two parking spots to avoid someone paving their backyards. The emergence of shared parking apps and supportive insurance policies were thus seen as inevitable features of a smarter economy. At the same time, the comments addressed that there are many nonsensical rules, restrictions, regulations, and limitations, and suggested that people should fight them through civil disobedience. If such resistance and advocacy for change does not result in new regulations, then there are options for local citizens to keep renting out their parking places within the current regulatory framework, such as letting people park for free, while accepting donations or taking "gifts" as a form exchange, or turning those in need of parking into "tenants" by renting out "incomplete apartments", with a free parking option.

Flopped systems – neither the city's public transit system nor its planning system is operational

The fourth topic, "flopped systems", puts forward that the city's recently introduced light rail transit (LRT) system is unreliable and sometimes completely shuts down the main line. At this point, people cannot be asked to use public transportation without expecting schedule delays. People have grown tired of persisting problems with the LRT and the City's obvious inability or unwillingness to handle the issue. Until the city fixes the LRT's problems and improves the city's public transportation system in general, the argument is that people should be allowed to park anywhere they want, including private residential driveways. At the same time, if the city could succeed in making the LRT system fast and reliable, there would then be need for fewer parking places. Further, the city's planning systems were not perceived as innovative, but rather as inadequate and punitive, in a way that does not help solving real problems.

Opinionated facts – the city is simply wrong about the matter and somebody has to fix it!

The fifth topic, "opinionated facts", put forward various "facts" and recommendations for action. The comments addressed what other cities had done in order to create a solution to shared parking, and recommended that the City of Ottawa amend their bylaws accordingly. Also, allowing shared parking for low emission and electric vehicles was recommended to promote the city's green policy. Many comments candidly argued that the city was wrong in this parking matter and should stop enforcing inflexible policies. Particularly offensive was what was seen as the practice of making money by ticketing defenseless people, and of employers pushing people to use public transportation or bicycle when they are not really an option. Further, some argued that resistance to shared parking is not due to the city's restrictive zoning bylaws, but rather because of the inane requirement for parking insurance, combined with the fact that government officials sometimes seem to enjoy policy bullying.

Citizen Perceptions of Government's Resistance to Shared Parking

Mika Westerlund

Power play – governments have no right to restrict people who want to do (most kinds of) business using their own property

The sixth topic, "power play", focused on the power asymmetry between governments and citizens. On one hand, politicians can exercise power by enforcing obsolete bylaws that allow the city maximize to revenue from parking tickets. Rather than support innovations that would benefit citizens mutually, they can side with the long-awaited, yet still unserviceable public transportation system. On the other hand, the comments argued that people should be able to use their private property whichever way they want, including shared parking, as long as they pay taxes. As city bylaws are ultimately borne from the willingness of local citizens, some comments suggested that people should start acting in order to change them. That is, government should be responsive to the people, and not seeking to control them. Some arguments called for citizens to put more pressure on the government to accept shared parking, reminding that Uber and Airbnb were also first resisted by the government.

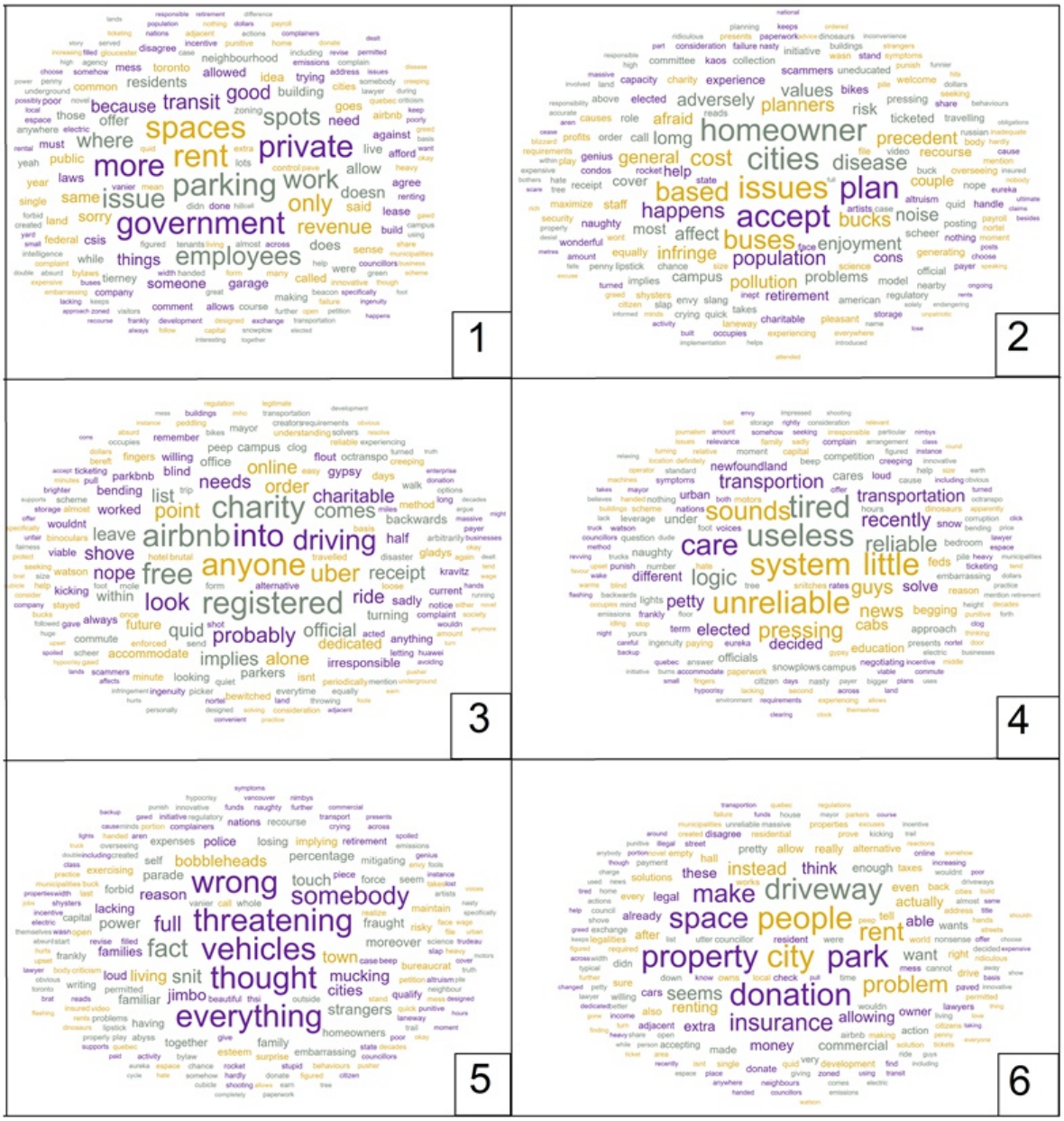

Figure 3. Word clouds of the topics

Citizen Perceptions of Government's Resistance to Shared Parking

Mika Westerlund

Figure 3 shows word clouds of the six topics, emphasizing their key words. The size of a word in the cloud reflects its weight in the topic. The topics are as follows: 1) Federal government's role, 2) City government's resistance, 3) Sharing options, 4) Flopped systems, 5) Opinionated facts, and 6) Power play. In the following section, the study will implement a conceptual framework based on theory, the case, and the empirical results from the topic modelling analysis.

A Conceptual Framework

Applying the process by Jabareen (2009), the present study utilizes theory, the case, and the identified topics drawn from the comments in order to create a conceptual framework. Previous literature is rich with examples of creating empirically based conceptual frameworks from qualitative analyses (see, for example, Rajala et al., 2012; Hamilton et al., 2018). Jabareen (2009) argues that a conceptual framework is not merely a collection of concepts, but rather a "plane" of linked concepts where each concept plays an integral role in interpreting social reality. Further, a conceptual framework does not provide a theoretical explanation or a causal or predictive model, but rather helps to understand social reality through soft interpretation of intents (Jabareen, 2009).

Here, the study establishes a framework to understand the relationships between concepts that occurred from the case analysis above regarding citizen perceptions of their government's resistance to shared parking.

The conceptual framework in figure 4 illustrates that there are two types of players involved in the power play over shared parking in Ottawa: local, municipal government (city) and federal government as "problem makers", on one hand, and citizen as "problem solvers", on the other hand. The federal government is creating the parking problem by not providing enough parking space for their employees and lacking innovativeness and urgency to solve this issue. The city is to be blamed for enforcing restrictive zoning bylaws, for keenness to rely on ticketing revenues rather than finding solutions to the parking problem, as well as their inefficient planning and public transportation systems that are further contributing to the problem. Local residents in this approach are seen as problem solvers, who could offer a solution to the problem by renting out their driveways and parking spots. A power-related conflict exists between these two types of players, as governmental bodies are still exercising power to penalize citizens for their innovative solution, while citizens are trying to change the city's negative attitude to shared parking.

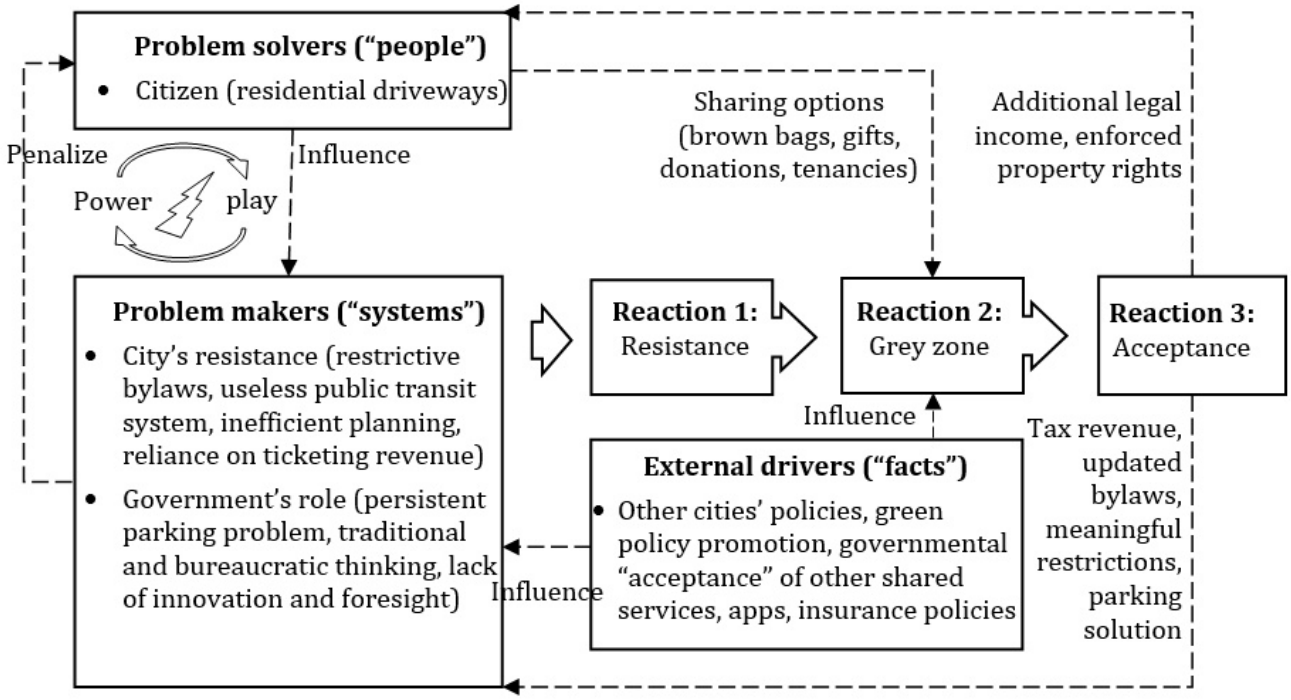

Figure 4. A framework of results

Citizen Perceptions of Government's Resistance to Shared Parking

Mika Westerlund

A set of external drivers were seen to be putting pressure on the government to become more accepting of shared parking, including successful examples of other cities' supportive policies, Ottawa's sustainability goals, the city's acceptance of other shared economy services (for example, Airbnb), the growing adoption of sharing apps, and the possibility of having quick insurance to meet the requirements. While these external drivers were perceived as being properly framed to change the government's mindset to accept shared parking, commenters also support the emergence of a "grey zone", where shared parking was seen to happen anyway regardless of the government's attitude. This was seen to be due to basic civil disobedience with unregistered cash transfers and people using loopholes in the system such as offering "free" parking based on tenancy on paper. However, the ultimate goal would be to encourage the city to legalize shared parking. This would provide additional income to residents and enforce their property rights, as well as help solve the city's persistent parking problem, generate tax revenue, and update obsolete bylaws, while at the same time keep in place meaningful restrictions, such as limiting renting to one or two parking spots per household for safety and security purposes.

Discussion and Conclusion

This study aimed to understand the main topics in citizen perceptions of one particular government's resistance to shared parking. In so doing, the study topic modelled a publicly available data set of 414 readers' comments about Ottawa residents being threatened with legal action by the city for renting out their residential driveways to government employees. The persistent parking problem faced by some federal government employees in Ottawa, and its implications such as parking on the streets of the neighbourhood have been frequently discussed in the local news media over the past few years. After describing this case study, the analysis revealed six topics in the comments: 1) Federal government's role, 2) City government's resistance, 3) Sharing options, 4) Flopped systems, 5) Opinionated facts, and 6) Power play. Using the topics combined with theory, a conceptual framework was created to provide a more in-depth understanding of citizen perceptions of government resistance to shared parking.

Contribution to theory

The results have implications for theory across several fields. By identifying key topics in readers' comments, and creating a conceptual framework based on the results, the study contributes to the literature on sharing economy by addressing how citizens perceive their government's negative attitude toward sharing economy services that would benefit society. Not surprisingly, citizens perceive the situation as "us versus them", where people are victims against an oppressive government. Further, in this case, citizens consider both the local, municipal government (city) and the federal government as overly restrictive, doing things "the traditional way", and being not only non-innovative, but also resistive of innovation that would help society. Consequently, citizens perceive the current situation as "power play" where city residents and the government are in constant conflict rather than collaborating to solve social problems.

The results support findings from previous research, which has addressed how government bodies associate their resistive attitude toward sharing economies, based on existing rules and regulations (Kim et al., 2019; Leung et al., 2019), and that they are often slow to move innovation forward (Hong & Lee, 2018). The results also support findings from previous research that suggest citizens tend to defend sharing economies against the unfair limitations imposed by obsolete laws and regulations (Pedroni, 2019). At the same time, the study emphasizes the balancing power of people in making change happen, particularly through their election behaviour, group pressure aimed at politicians, and even civil disobedience in protecting their rights. This approach aims to further legitimize shared economy services by making them integral part of the "grey zone", where the boundaries between legal and illegal are transitioning.

Implications to practice

The observed lack of collaboration between government and citizens in Ottawa is unfortunate. Lulin (2017) argues that any city aiming to become a "smart city" needs to support sharing systems, and adopt models in which citizens co-produce public services. The City of Ottawa's (2017) "smart city" report explains that their strategy is based on three pillars: a Connected City, a Smart Economy, and an Innovative Government. However, they (and other governments in a similar situation) need to make significant improvements to foster the third pillar.

This analysis suggests that the local government in Ottawa is perceived as restrictive, non-innovative, and non-accepting of innovation, which is quite opposite to

Citizen Perceptions of Government's Resistance to Shared Parking

Mika Westerlund

their own stated goal. Also, the "smart city" strategy report does not mention sharing economy services at all. One may just wonder how this is possible. Given the growth of sharing economies globally, and calls by citizens to put pressure on government for changes, a new strategic plan should be updated to incorporate shared services and sharing systems.

Legitimization of shared parking, with some restrictions, would be a win-win resolution. Further, this study has shown how to use a machine-learning based content analysis technique over publicly available data coming from news commentaries in order to understand citizen perceptions, and how to use the results to create a conceptual framework that can help policy makers to better understand the situation in aid of finding a win-win resolution.

Limitations and future research

As usual, there are limitations in the study. First, the article described a case study of government's resistance to sharing innovation in the city of Ottawa, and analyzed a set of anonymous readers' comments to a news article about the case topic. As the identities of the commenters were not known, the comments could be biased with specific demographics or opinionated citizen activists. Thus, the results cannot be generalized to a large population and other geographical areas. Second, the topics and the conceptual framework were not validated by, for example, interviewing a group of Ottawa citizens. Future research could adopt other methods, namely interviews and surveys with citizens to validate the findings and provide support or need for refinement to the framework. Finally, the investigated data were characterized by short comments, which is common in online discussion (Sobkowicz et al., 2013). However, the mean lengths of comments associated with each of the six topics exceeded the mean length of all comments (35), varying between 41 and 54 (SD=5, $p<0.01$). Thus, the identified six topics were dominated by longer comments in the analysis. This is likely due to fact that topic modelling suffers from a sparsity of word co-occurrence patterns in short texts (Cheng et al., 2014), and "locks up" to longer comments when there is high variance in comment lengths. Although eliminating long comments from the data might discard valuable insights, future research could apply cut-off of outliers in terms of excluding both the shortest and the longest comments, or breaking up long comments to short chunks in order to minimize variance in comment length.

References

Boysen, N., Briskorn, D., & Schwerdfeger, S. 2019. Matching supply and demand in a sharing economy: Classification, computational complexity, and application. *European Journal of Operational Research*, 278(2): 578-595. https://doi.org/10.1016/j.ejor.2019.04.032

Carlucci, M. 2016. Montreal parking app looking for spot in Ottawa. CBC News, December 1, 2016. [Retrieved from https://www.cbc.ca/news/canada/ottawa/city-parking-app-hopes-to-win-over-ottawa-officials-1.3875390]

CBC. 2017. 'Make good' on promise for parking for Canada's spy agencies: councilor. CBC News, January 13, 2017. [Retrieved from https://www.cbc.ca/news/canada/ottawa/parking-ottawa-spy-agencies-1.3935040]

Cheng, X., Yan, X., Lan, Y., & Guo, J. 2014. BTM: Topic Modeling over Short Texts. *IEEE Transactions on Knowledge and Data Engineering*, 26(12): 2928-2941. https://doi.org/10.1109/TKDE.2014.2313872

City of Ottawa. 2017. Smart City 2.0. Planning, Infrastructure and Economic Development, November 2017. [Retrieved from https://documents.ottawa.ca/sites/documents/files/smart_city_strategy_en.pdf]

Constantiou, I., Marton, A., & Tuunainen, V.K. 2017. Four Models of Sharing Economy Platforms. *MIS Quarterly Executive*, 16(4): 231-251. https://aisel.aisnet.org/misqe/vol16/iss4/3

Elo, S., Kääriäinen, M., Kanste, O., Pölkki, T., Utriainen, K., & Kyngäs, H. 2014. Qualitative Content Analysis: A Focus on Trustworthiness. *Sage Open*, 4(1), 1-10. https://doi.org/10.1177/2158244014522633

Frenken, K., & Schor, J. 2017. Putting the sharing economy into perspective. *Environmental Innovation and Societal Transitions*, 23: 3-10. https://doi.org/10.1016/j.eist.2017.01.003

Ganapati, S., & Reddick, C.G. 2018. Prospects and challenges of sharing economy for the public sector. *Government Information Quarterly*, 35(1): 77-87. https://doi.org/10.1016/j.giq.2018.01.001

Greene, S., & McGinty, J. 2016. What if Cities Could Create a Truly Inclusive Local Sharing Economy? Metropolitan Housing and Communities Policy Center/Urban Institute. Available at https://www.urban.org/research/publication/what-if-cities-could-create-truly-inclusive-local-sharing-economy

Gyódi, K. 2019. Airbnb in European cities: Business as usual or true sharing economy? *Journal of Cleaner Production*, 221: 536-551. https://doi.org/10.1016/j.jclepro.2019.02.221

Citizen Perceptions of Government's Resistance to Shared Parking

Mika Westerlund

Hamilton, C.B., Hoens, A.M., Backman, C.L., McKinnon, A.M., McQuitty, S., English, K., & Li, L.C. 2018. An empirically based conceptual framework for fostering meaningful patient engagement in research. *Health Expectations*, 21(1): 396-406. https://doi.org/10.1111/hex.12635

Hofmann, S., Øystein, S., Braccini, A.M., & Za, S. 2019. The public sector's roles in the sharing economy and the implications for public values. *Government Information Quarterly*, 36(4), 101399. https://doi.org/10.1016/j.giq.2019.101399

Hong, S., & Lee, S. 2018. Adaptive governance, status quo bias, and political competition: Why the sharing economy is welcome in some cities but not in others. *Government Information Quarterly*, 35(2): 283-290. https://doi.org/10.1016/j.giq.2018.02.001

Huang C., Jiang Q., & Zhang Y. 2010. Detecting Comment Spam through Content Analysis. In: Shen H.T. et al. (eds) Web-Age Information Management. WAIM 2010. *Lecture Notes in Computer Science*, vol. 6185. Springer, Berlin, Heidelberg. https://doi.org/10.1007/978-3-642-16720-1_23

Jabareen, Y. 2009. Building a Conceptual Framework: Philosophy, Definitions, and Procedure. *International Journal of Qualitative Methods*, 8(4): 49-62. https://doi.org/10.1177/160940690900800406

Johnstone, H., & Pritchard, T. 2016. Armed with chalk, Ottawa women take on Canada's spy agencies – over parking. [Retrieved from https://www.cbc.ca/news/canada/ottawa/csis-cse-parking-chalk-ottawa-1.3573745]

Johnstone, H. 2020. City threatens legal action over driveway rented to spy agency employees. CBC News, January 21, 2020. [Retrieved from https://www.cbc.ca/news/canada/ottawa/ottawa-legal-action-csis-cse-parking-employees-1.5434107]

Kathan, W., Matzler, K., & Veider, V. 2016. The sharing economy: Your business model's friend or foe? *Business Horizons*, 59(6): 663-672. https://doi.org/10.1016/j.bushor.2016.06.006

Kim, A.J., Brown, A., Nelson, M., Ehrenfeucht, R., Holman, N., Gurran, N., Sadowski, J., Ferreri, M., Sanyal, R., Bastos, M., & Kresse, K. 2019. Planning and the So-Called 'Sharing' Economy / Can Shared Mobility Deliver Equity?/ The Sharing Economy and the Ongoing Dilemma about How to Plan for Informality/Regulating Platform Economies in Cities - Disrupting the Disruption?/ Regulatory Combat? How the 'Sharing Economy' is Disrupting Planning Practice/ Corporatised Enforcement: Challenges of Regulating AirBnB and Other Platform Economies/ Nurturing a Generative Sharing Economy for Local Public Goods and Service Provision. *Planning Theory & Practice*, 20(2): 261-287. https://doi.org/10.1080/14649357.2019.1599612

Leung, X.Y., Xue, L., & Wen, H. 2019. Framing the sharing economy: Toward a sustainable ecosystem. *Tourism Management*, 71: 44-53. https://doi.org/10.1016/j.tourman.2018.09.021

Lindstedt, N.C. 2019. Structural Topic Modeling For Social Scientists: A Brief Case Study with Social Movement Studies Literature, 2005-2017. *Social Currents*, 6(4): 307-318. https://doi.org/10.1177/2329496519846505

Lulin, E. 2017. Smart cities and sharing cities: How to foster collaborative local public services. *Field Actions Science Reports*, Special Issue, 16: 66-69. http://journals.openedition.org/factsreports/4362

May, S., Königsson, M., & Holmstrom, J. 2017. Unlocking the sharing economy: Investigating the barriers for the sharing economy in a city context. *First Monday*, 22(2). https://doi.org/10.5210/fm.v22i2.7110

Netter, S., Pedersen, E.R.G., & Lüdeke-Freund, F. 2019. Sharing economy revisited: Towards a new framework for understanding sharing models. *Journal of Cleaner Production*, 221: 224-233. https://doi.org/10.1016/j.jclepro.2019.02.225

Nikolenko, S.I., Koltcov, S., & Koltsova, O. 2015. Topic modelling for qualitative studies. *Journal of Information Science*, 43(1): 88-102. https://doi.org/10.1177/0165551515617393

Novikova, O. 2017. The Sharing Economy and the Future of Personal Mobility: New Models Based on Car Sharing. *Technology Innovation Management Review*, 7(8): 27-31. http://doi.org/10.22215/timreview/1097

Paik, Y., Kang, S., & Seamans, R. 2019. Entrepreneurship, innovation, and political competition: How the public sector helps the sharing economy create value. *Strategic Management Journal*, 40(4): 503-532. https://doi.org/10.1002/smj.2937

Pawlicz, A. 2019. Pros and cons of sharing economy regulation. Implications for sustainable city logistics. *Transportation Research Procedia*, 39: 398-404. https://doi.org/10.1016/j.trpro.2019.06.042

Pedroni, M. 2019. Sharing economy as an anti-concept. *First Monday*, 24(2). https://doi.org/10.5210/fm.v24i2.9113

Rajala, R., Westerlund, M., & Möller, K. 2012. Strategic Flexibility in Open Innovation - Designing Business Models for Open Source Software. *European Journal of Marketing*, 46(10): 1368-1388. https://doi.org/10.1108/03090561211248071

Russo, F., & Stasi, M.L. 2016. Defining the relevant market in the sharing economy. *Internet Policy Review*, 5(2). https://doi.org/10.14763/2016.2.418

Sobkowicz, P., Thelwall, M., Buckley, K., Paltoglou, G., & Sobkowicz, A. 2013. Lognormal distributions of user post lengths in Internet discussions - a consequence of the Weber-Fechner law? *EPJ Data Science*. 2, 2. https://doi.org/10.1140/epjds14

Stake, R.E. 1995. *The art of case study research*. Thousand Oaks, CA: Sage Publications.

Citizen Perceptions of Government's Resistance to Shared Parking

Mika Westerlund

Uzunca, B., & Borlenghi, A. 2019. Regulation strictness and supply in the platform economy: the case of Airbnb and Couchsurfing. *Industry and Innovation*, 26(8): 920-942. https://doi.org/10.1080/13662716.2019.1633278

Vith, S., Oberg, A., Höllerer, M.A., Meyer, R.E. 2019. Envisioning the 'Sharing City': Governance Strategies for the Sharing Economy. *Journal of Business Ethics*, 159: 1023-1046. https://doi.org/10.1007/s10551-019-04242-4

Westerlund, M., Leminen, S., & Rajahonka, M. 2018. A Topic Modelling Analysis of Living Labs Research. *Technology Innovation Management Review*, 8(7): 40-51. http://doi.org/10.22215/timreview/1170

Xu, F., Chen, X., Zhang, M., Zhou, Y., Cai, Y., Zhou, Y., Tang, R., & Wang, Y. 2020. A sharing economy market system for private EV parking with consideration of demand side management. *Energy*, 190, 116321. https://doi.org/10.1016/j.energy.2019.116321

Zhang, J. 2019. What's yours is mine: exploring customer voice on Airbnb using text-mining approaches". *Journal of Consumer Marketing*, 36(5): 655-665. https://doi.org/10.1108/JCM-02-2018-2581

Ziegler, R. 2017. Citizen Innovation as Niche Restoration —A Type of Social Innovation and Its Relevance for Political Participation and Sustainability. *Journal of Social Entrepreneurship,* 8(3): 338-353, https://doi.org/10.1080/19420676.2017.1364286

Zon, N. 2015. The sharing economy and why it matters for policy makers. Public Sector Digest, December 2015. [Retrieved from https://publicsectordigest.com/article/sharing-economy-and-why-it-matters-policy-makers]

Zvolska, L., Palgan, Y.V., & Mont, O. 2019. How do sharing organisations create and disrupt institutions? Towards a framework for institutional work in the sharing economy. *Journal of Cleaner Production*, 219: 667-676. https://doi.org/10.1016/j.jclepro.2019.02.057

About the Author

Mika Westerlund, DSc (Econ), is an Associate Professor at Carleton University in Ottawa, Canada. He previously held positions as a Postdoctoral Scholar in the Haas School of Business at the University of California Berkeley and in the School of Economics at Aalto University in Helsinki, Finland. Mika earned his doctoral degree in Marketing from the Helsinki School of Economics in Finland. His research interests include open and user innovation, the Internet of Things, business strategy, and management models in high-tech and service-intensive industries.

Citation: Westerlund, M. 2020. Citizen Perceptions of Government's Resistance to Shared Parking. *Technology Innovation Management Review*, 10(5): 28-40. http://doi.org/10.22215/timreview/1354

CC BY

Keywords: Sharing economy services, government, innovation, resistance, topic modelling, parking

Values and Practices behind Collaborative Childcare in Knowledge-based Organizations

Gianluca Schiavo, Chiara Leonardi, Massimo Zancanaro

> *"Strong families build strong business. … Providing quality on-site child care and paid leaves for working families is at the heart of responsible business."*
>
> Malinda Chouinard and Jennifer Ridgeway,
> Patagonia

New forms of socializing care that leverage community networks and are based on alternative social arrangements are being experimented with in different grassroots contexts. They are being framed as innovative practices to facilitate the integration of professional and caring responsibilities. In this changing landscape, the private sector might benefit from new forms of welfare policies and family-friendly practices that are based on the co-participation of employees, and encouraged by public policies targeting workplace solutions for childcare. This paper intends to contribute to the ongoing debate on socio-technical innovation in management by exploring how collaborative childcare services might be deployed in workplace settings. At the same time, it investigates the role of digital technology in facilitating employees' engagement and participation.

Introduction

As with many local public services, childcare is currently witnessing a profound change (Pestoff, 2006). Amid widespread budget cuts, families increasingly need to devise alternative solutions for childcare provision. At the same time, managing work and family life responsibilities is a challenge for working parents, in particular for women, who still carry most of the family work (Ashforth et al., 2000). In order to cope with the increasing challenges of balancing work and family duties, alternative forms of welfare are indeed emerging in the public and private sectors (Osborne et al., 2013). Governments are exploring new forms of partnerships to involve citizens in the provision and governance of public services and to encourage the emergence of workplace initiatives (Hein & Cassirer, 2010; Brandsen, Verschuere & Steen, 2018). Furthermore, forms of public-private initiative for the provision of these type of services are also being encouraged by recent European initiatives (see for example, Barcevi ius et al., 2019)

At the same time, new forms of socializing care that leverage community networks and "alternative" social arrangements have been proposed as a viable solution to these challenges, not in view of replacing welfare state provisions, but rather for complementing them. In this changing landscape, the private sector, organizations, and companies, often supported by national or local government Work-Life Balance programs, are promoting new welfare policies. This goes along with family-friendly practices based also on co-participation in order to promote gender equality and retain employees (Connelly et al., 2004; Grosser & Moon, 2008; Lewis, 2018), as part of Corporate Social Responsibility (CSR) initiatives (Carroll, 1999, Wang et al., 2016).

This paper intends to contribute to the ongoing debate on innovative socio-technical practices in organizations by exploring how collaborative childcare services might be deployed in work settings. Our case study targets knowledge-based organizations that are considered one of the key pillars of today's knowledge economies, while being characterized by flexible working time arrangements and short-term work contracts (Correia de Sousa & van Dierendonck, 2010). Although scholars have provided many different examples of direct contributions by parents to the value created by childcare facilities (Pestoff, 2012), previous studies are mainly focused on traditional forms of co-production, and the potential role of technology in supporting the co-creation of public value has not yet been investigated. In this paper we present a specific case study of an organization experimenting with new forms of collaborative welfare policies. Specifically, the organization implemented some family-friendly

Values and Practices behind Collaborative Childcare in Knowledge-based Organizations

Gianluca Schiavo, Chiara Leonardi & Massimo Zancanaro

practices based on the active participation of employees in co-producing and co-delivering childcare, supported also by digital tools for collaboration and information sharing.

Background

Childcare for working parents and government innovation

Childcare provision is crucial to modern societies and a required step towards equalising opportunities in employment between women and men (Connelly et al., 2004; Lewis, 2018). However, despite the expansion of childcare across the globe, there is further need to provide affordable and flexible childcare services, making childcare more accessible to working parents.

Generally, public authorities are encouraged to "promote" childcare facilities, to develop policies to reduce work-family conflict, and prevent labour market discrimination resulting from family responsibilities (Hein & Cassirer, 2010). However, there are big differences among countries in how much governments and their citizens consider supporting childcare for working parents as a public rather than a private or personal responsibility (Hein & Cassirer, 2010; Pestoff, 2012). In countries where there is little government support for childcare centres, the costs for working parents can be particularly high, thus exposing additional pressures that lead to inequality.

Sharing networks and collaborative practices in the workplace

The 2008 global financial crisis has encouraged the development of a multitude of self-organized networks and co-produced initiatives where communities of citizens have been trying to address their needs collectively by sharing knowledge, goods, and services (Selloni, 2017). The proliferation of new social and political arrangements that span alternative forms of participatory democracy to alternative markets based on reciprocity are difficult to classify. Still, as pointed out by Vlachokyriakos and colleagues (2017), a number of values distinguish these new arrangements from the traditional economy. Namely, the new market networks focus on cooperation vs. competition, reciprocity vs. isolation, horizontal participation vs. centralized control, and pluralism vs. monoculture.

Sharing economics has also made its impact in the workplace. A form of sharing practice that has become increasingly popular is coworking (Bouncken & Reuschl, 2018) which is characterized not only by the sharing of office spaces and facilities, but also by connecting and sharing social resources, supporting knowledge, and idea exchanges. The integration of sharing practices in the provisions of welfare services is an attempt to provide multiple answers to the problems of traditional welfare by leveraging collaborative practices, co-production, and the use of digital platforms (Morgan & Zeffane, 2003; Pestoff, 2012; Schiavo et al., 2019).

Values and challenges of childcare in the workplace

Work-life balance is an important issue for modern organizations because it mediates several outcomes, including job and life satisfaction (Baral & Bhargava, 2010; Anafarta, 2011; Haar et al., 2014). Traditionally, several welfare policies have been developed to provide a balance between work and private life, based on the assumption that work and life outside of work are separated, as well as that people should have them in balanced proportions (Grzywacz & Carlson, 2007). Recently, a different approach has been proposed, in which work and nonwork life boundaries are integrated together in such a way that welfare policies should support the integration of multiple life roles, and thus the integration of work and personal life (Sirgy & Lee, 2016).

The shift from "work-life balance" to "work-life blending" has influenced welfare policies targeting childcare provision, moving from traditional childcare services (for example, assisting with access to external childcare facilities) to more innovative solutions that emphasize the co-participation of employees themselves. For example, Patagonia, an American company marketing outdoor clothing, was one of the first companies to promote innovative on-site childcare, integrating a pedagogical approach inspired by the company's values of unstructured play and exploration (Chouinard & Ridgeway, 2016). Connelly and colleagues (2004) discussed how employees working in organizations that provide on-site childcare feel more productive and are more satisfied with their job, they are more likely to return to work after the birth of their child, feel more involved in their child's daily activities, and have a higher level of commitment to the company. From a company's perspective, employee-based childcare can promote improvements in worker productivity, as well as reductions in absenteeism, turnover, and recruitment costs, thus benefitting the company towards maintaining a competitive position in the industry. However, on-site childcare facilities require a considerable investment and recurring costs, and, for many companies, the costs may still outweigh the benefits.

Values and Practices behind Collaborative Childcare in Knowledge-based Organizations *Gianluca Schiavo, Chiara Leonardi & Massimo Zancanaro*

On the other side, studies (among others, Rothausen, 1998; Perrigino et al., 2018) have investigated the so-called work-family backlash. This features negative emotions, attitudes, and behaviours associated with work-life balance policies, including on-site childcare provisions. Positive and negative effects of work-life balance policies are mediated by the type of job (Perrigino et al., 2018; Kossek & Lautsch, 2018).

In this study, we contribute to knowledge about the acceptance and adoption of work-life balance initiatives by presenting a case study of two initiatives that, beyond just providing support for childcare, tried to involve employees as co-producers of the service. We analysed the values and challenges of these activities as seen from the perspective of both management and employees, and investigated the support provided by digital technology to facilitate the provision and the acceptance of these initiatives.

A Case Study of Two Initiatives

The case study was conducted within a medium-size knowledge-based organization with almost 400 employees based in North Italy, in the autonomous Province of Trento. The organization holds a Family Audit certification that qualifies an organization's commitment to a favourable work-life balance of its employees. The certification requires that organizations and companies identify solutions to help improve work-life balance through direct involvement of their employees.

Within this framework, the organization already had experience in the provision of work-life balance initiatives and, to some extent, also the employees were actively involved in some of the implemented activities. For example, summer camps were regularly held in the organization's premises in which employees' children could spend the day in educational and entertaining activities, while their parents were at work. During these activities, employees are encouraged to organize and conduct some of these activities with children. Their participation is informally valued while there is no compensation for these tasks, but the time spent is considered as part of their working time. From the point of view of the HR Department, these cross-generational initiatives and the participation of employees were considered as part of their Corporate Social Responsibility plan.

Background and Organization of the Study

The study is organized as an action research intervention in which the researchers both actively participated in the study, while also observing in a participatory way its effects (Stringer, 2013; Coghlan 2019). We framed our study following the Grounded Design approach (Rohde et al. 2017; Wulf et al., 2018) as a case study to understand the design and appropriation of a specific form of service in support of work-life balance, using a digital tool in support of it.

In 2018, one of the research groups in the organization had been involved in a European project called Families_Share (https://families-share.eu) with the goal of co-designing services and supporting a digital platform for facilitating collaborative childcare initiatives in the workplace. In accordance with the HR department, a decision was taken to create a living lab (Dell'Era & Landoni, 2014). As a first step, institutional stakeholders and employees were involved in order to better understand their attitude toward collaborative forms of childcare. This preliminary study reported by Leonardi and colleagues (2019) identified perceived values and potential barriers of social and organizational arrangements, describing the mediating role of interpersonal trust, social exchange, and reciprocity. The second phase of the investigation consisted in action research inside the organization, as described in this paper below.

The digital tool

One of the outcomes of the first step of the project was to (co-)design and develop an app to support managing the parent groups and decision-making process related to the design and implementation of activities (time schedule, role assignment, registration of children, and so on). The application includes features for building a community around childcare activities, and for supporting the cooperative management of these activities. In particular, the app functionalities available are: i) group creation, ii) membership management, iii) activities creation, iv) management of shifts among volunteers, v) information about children attending the activities (age, special needs).

The action research

As the second step of the case study, two different forms of collaborative on-site childcare initiatives were activated within the organization in close collaboration

Values and Practices behind Collaborative Childcare in Knowledge-based Organizations

Gianluca Schiavo, Chiara Leonardi & Massimo Zancanaro

with the HR department. One (Summer Labs) was based on a mixed collaboration between external professionals (paid by the organization) and the involvement of employees for proposing scientific activities or supporting more mundane activities such as serving food. The other types of activity (the Afternoon Labs) were fully organized and self-managed by the employees, while the organization gave support in term of working spaces and time flexibility. The two activities differed also on the governance approach adopted: Summer Labs were characterized by a prevalent top-down approach from the organization's management to the employees, while the Afternoon Labs adopted a bottom-up, grassroots collaborative governance involving employees and management.

Specifically, the characteristics of the two initiatives are summarized in Table 1 and described as follows:

A. *Summer Labs*: one-week long educational and recreational activities organized for employees' children during the summer school break. They were run by external childcare professionals with the involvement of employees. Four employees participated as volunteers proposing educational activities, in some cases based on their professional competencies (for example, educational robotics), and in other cases based on other skills (for example, origami). Another 11 employees were involved in more mundane activities, such as providing support during lunch breaks. Volunteering was not set as mandatory for enrolling kids. The organization provided the physical space and covered the costs for the insurance and the external educators. The employees' participation and coordination were managed by exploiting a digital platform and encouraged by a community management team.

B. *Afternoon Labs*: after-school activities hosted in a specific dedicated room at the organization's premises and during the working hours of Friday afternoon. These activities were entirely organized and coordinated by employee volunteers without the support of external childcare professionals (but with the support of the community management team). Each activity was managed by groups of two or three employees. Ten children registered in the activity and participated in the 4 Afternoon Labs. Participation was considered part of working time and the organization provided the physical space and paid the costs for insurance coverage.

Evaluation: Methods and participants

The evaluation activities consisted of 6 in-depth individual interviews and 2 focus groups (with 4 participants each; different employees participated in the interviews or in the focus groups - see Table 1). In total, 14 employees (knowledge workers, aged 40-50, 6 males and 8 females) were involved on a voluntary basis. All of them participated in the activities of either the Summer Labs, the Afternoon Labs, or both. Thirteen

Table 1. Main characteristics of the two collaborative childcare activities investigated in the case study

Pilot	Title	Type	Model	Duration	Total # participants (volunteers)	Total # children	# participants involved in the evaluation
A)	*Summer Labs*	Summer camp	Mixed model (external educators + employee volunteers)	2 hours of co-organized labs and 1 hour of lunch break - repeated for 5 days, total 15 hours	15 (10F, 5M) (4 volunteered with scientific labs, 11 volunteered for the lunch breaks) + 2 external educators	15 children (min 6 years and max 12 years old)	Interviews with 3 participants (2F, 1M) + 1 focus group (4 participants)
B)	*Afternoon Labs*	After-school program	Self-managed model (only employee volunteers)	2 hours. Activity repeated one day per week for 5 weeks, total 10 hours	12 (6F, 6M) volunteers participated in groups of 2 or 3 people.	10 children (min 6 years and max 11 years old)	Interviews with 3 participants (2F, 1M) + 1 focus group (4 participants)

Values and Practices behind Collaborative Childcare in Knowledge-based Organizations *Gianluca Schiavo, Chiara Leonardi & Massimo Zancanaro*

were parents of children participating in these activities, whereas 1 of them volunteered without having any children taking part in the activities.

The 6 semi-structured in-depth interviews explore dimensions related to the childcare experience, including *overall evaluation, benefits* and *criticalities* observed, *impact* on personal work/life balance, and *individual consideration* of the sharing experience. In parallel, we ran two focus groups (one for each childcare initiative) investigating *opinions* related to the activities, how the tasks were *shared* among the group, which *challenges* they faced and their use of the *digital platform*. The interviews investigated more personal aspects of co-participation in childcare experience, while focus groups explored social dimensions and group dynamics around such participatory practices. Furthermore, the qualitative data include notes taken by researchers during the observations and discussions carried out with two HR staff members assigned to the project.

Results

The themes that emerged from the qualitative analysis were divided according to the two main perspectives: the point of view of employees, and the point of view of the organization.

Employee perspectives

Wellbeing and work-life integration

These activities had a positive impact for all participants on their personal wellbeing, helped improve the quality of the organizational context, and contributed to the development of a more inclusive workplace. Participants remarked that these activities represent a good opportunity to manage work-life balance. Yet, the positive impact was considered more for employees living close to the organization's premise. For those living further away, the effort of commuting may reduce some of the perceived benefits. For most parents, the childcare initiatives were very convenient when matching their work schedule (for example, summertime or other vacation periods, unexpected closures such as in case of strikes). Another aspect that emerged as important was the positive value of organizational wellbeing (Cartwright & Cooper, 2009). For example, participants reported that a more blurred division between personal and professional life may break down the strict division of work and life and create a more inclusive and positive working environment. Another example was the increased sense of community reported by the participants: new relationships are built with colleagues. Shared childcare experiences in the workplace foster trust and a sense of reciprocity. Nevertheless, some participants noted that these effects might also be a barrier to access workplace childcare services, since some employees may prefer to keep work and life separated. These employees might be willing to use a standard childcare service organized in the workplace, but might refrain from participating in such sharing activity if they feel the pressure to actively participate as volunteers too.

Figure 1. Photos from childcare activities described in the case study

Parent involvement

The participation of parent employees in the delivery of care on-site has been in general positively valued. As already remarked by employees during the co-design activities (Leonardi et al., 2019), a strong value of on-site childcare is that children can participate more actively in their parent's daily routine and can have the opportunity to get familiar with their parent's

Values and Practices behind Collaborative Childcare in Knowledge-based Organizations

Gianluca Schiavo, Chiara Leonardi & Massimo Zancanaro

workplace and professional life. In this sense, collaborative childcare activities allow parents to spend more time with their children, especially during the school breaks, and to be more involved in their lives. The motivations of participating parents were related to their willingness to share their professional competences, such as their area of expertise or their research topic, translating their knowledge into something that their children can also understand and appreciate. Yet, preparing for and carrying out labs is both demanding and difficult in the task of identifying activities suitable for groups of children of different ages. This aspect convinced several parents to volunteer for more mundane support activities as needed (like helping during lunch time), rather than proposing to lead or assist with educational activities.

Recognition of participation

Some volunteering parents felt that their participation was not properly recognised by the organization, at least not in a formal manner. Although participation was indeed taking place within working hours and employees were authorized by management, the participants suggested that this aspect should be formalized in the organization's internal regulation. For example, employees may have a certain number of hours allocated for community volunteering activities, which can be proposed as internal on-site activities that promote work-life balance, along with other external activities.

The limits of participation

Although the co-production of childcare services in the workplace was considered an intriguing idea, completely self-organized childcare activities by the employees have been thought appropriate only for shorter stay childcare activities, involving a limited number of children (5 to 10) for more limited amounts of time (few hours or an afternoon, as in the study). Several participants noted that in case of week-long activities like a summer camp, the presence of external educators is much needed. This was motivated by the higher effort required to plan and manage week-long activities, and by the lack of skills required by participants to manage large groups of children, possibly including children with behavioural/emotional difficulties, for long periods of time. In this respect, the presence of professional educators during the week-long Summer Lab was considered important such that the participating employees regarded their participation as a significant opportunity for personal growth.

Managing conflicts among children is considered as a sensitive issue in particular because it takes place in the working environment where volunteering parents are also colleagues. This means that power relations and hierarchies are in some ways implicitly in place even during these kinds of activities.

Nevertheless, participants did not suggest completely removing the role of employees' participation. Synergy between the professional educators and the volunteering employees was thought to enrich the educational value of the experience for the children. This means professional educators can support employee volunteers in the ideation and implementation of educational activities. As these will be partly based on the particular skills of employees at the organization, it may provide a unique opportunity for children and a valuable way to connect with their parents. On the other side, professional educators can equally benefit from the support of workplace volunteers for managing their regular activities, such as lunch breaks or outdoor activities, thereby reducing the cost of on-site service.

The role of technology

Overall, 11 participating employees (41% of the total) downloaded the app and actively used it for managing activities during the childcare initiatives. The app was regarded to be more useful for self-organized activities, rather than for supporting activities that involved the presence of professional educators. For the Summer Labs, several actors worked together in the process of organizing activities in various roles (the HR department, the social cooperative of educators, as well as many employees, both parents and volunteers).

Furthermore, the needed planning activities were more and more complex (requiring organization of lunches, activities spanning several days, issues related to insurance and so on). Because of this complexity and the physical proximity of the actors involved, face-to-face meetings were easier and more effective. Nevertheless, the app proved useful for impromptu planning and coordination of small tasks among the volunteers, such as coordinating the schedule of educational activities, or the lunch duty shifts. For these cases, face-to-face meetings would have been time consuming and inefficient, while having a mobile channel able to support last minute scheduling was valued positively.

In line with findings described in Leonardi (2019), we

witnessed employees' concerns about the introduction of technology. They criticized the idea of having to use another social media and expressed concerns of "bureaucratizing" the participation process with a tool that requires users to follow predefined procedures. One of the added values for employees to participate in childcare activities was felt to be the informal interaction with colleagues, and the opportunity to relate to the organization's management in a friendlier way. Employees also appreciated the opportunities offered by the app of efficiently organizing shifts among colleagues in a way that could be quickly updated for any changes to the schedule of activities.

Organizational perspectives

Collaborative childcare has been identified by HR departments, as well as by organizational governance as an opportunity that matches the interest of organizations toward work-life balance initiatives, the increase of employee participation in welfare initiatives ("participative welfare"), and the strengthening of employees informal social networks (workplace as a "community of people"). These positive aspects emerged in the case study as discussed above. Nevertheless, along aspects that can be considered as enablers for the adoption of collaborative childcare, several potential barriers also emerged from our study.

Logistic issues

One problematic aspect that often surfaced in discussions with HR representatives regarded the budget. Although the initiative's cost may be reduced by employees participating as volunteers, and even more in the case of totally self-organized activities, these types of initiatives are anyway more expensive than the typical work-life benefits offered by companies. This is the case in particular if the time of HR staff and working hours of volunteering employees are properly accounted. Another potential barrier concerns the types of duties of the employees. For instance, collaborative childcare services might be more difficult to attend by staff with working shifts, or by employees in front-end service positions with customers. This may prevent the possibility of organizing workplace childcare with such modalities, or it may provide only the reality of unfair access to it inside an organization.

Legal and insurance aspects

Insurance and legal aspects are critical, specifically because young children are involved. Beyond simple budget issues, the possibility of negotiating insurance coverage for children in a workplace is not simple. It requires the need of properly equipped spaces and access to proper infrastructure that are not always available in a workplace context. It also needs an assumption of responsibility by the management team. From the legal point of view, it requires dealing with family privacy issues to an extent than an organization or its employees might be ready.

The role of technology

From the point of view of the organization, the app, which was designed specifically to support employees' collaboration, received ambivalent responses. From one side, it was considered useful, at least in principle, by alleviation their supervision effort on employees' collaboration, and as a tool that might encourage employee engagement. As discussed above, the additional effort needed by HR staff to manage this service for work-life balance emerged as a major concern. The app may thus also serve as a tool for monitoring activities as well as to effectively communicate norms and regulations. From the other side, the use of the app by the HR representative was very limited and mediated largely just by the researcher involved in the study.

Communication challenges

Another barrier was the difficulties in efficiently communicating opportunities to employees and quickly assessing their needs in terms of work-life balance. This represented a main critical feature for employee engagement, and for a proper mapping of employees needs. The making of a map can turn in a mismatch between employee needs and what the organization offers. For instance, the organization examined in this case study uses an online survey to map the needs of parents in terms of childcare. But there is often a mismatch between the collective needs and the participation of employees to initiatives proposed by the organization aimed at addressing those needs.

Conclusion

Our case study was based on the implementation and analysis of two different initiatives of collaborative childcare in the workplace. This was part of a wider program of work-life balance pursued by the organizations and encouraged by local administration policies. The two childcare initiatives differed on the duration and degree of involvement of employees, and on a combination of bottom-up and top-down approaches. Both situations provided an opportunity for employees to experience support for a better blending of work and family life, by being involved in a community of co-working parents and actively

participating in childcare activities. As already discussed in the literature (Connelly et al., 2004), this experience tends to have a strong positive value for all the employees, not only the ones involved in the initiatives.

Despite initial enthusiasm for the program, the study highlighted some problematic aspects too. Participation might be too demanding in terms of time, effort, and emotional involvement for the employees. Sharing practices require active and cohesive communities of peers in order to create and coordinate sharing initiatives (Vlachokyriakos et al., 2017). At work, these networks include colleagues and are characterized by heterogeneity of relationships and potential conflicts between them (Berman, 2002). For organizations too, despite the reduction of external costs, it requires much effort in terms of dealing with logistic and legal aspects. Completely self-managed activities might be too demanding to be sustained for long periods and require a community of highly motivated employees, who are willing to commit to multiple cohorts of young children. A mixed model that balances the support of external professional competences in childcare with a limited involvement in terms of on-site support and involvement in educational activities by employees seems to maximise the benefits and minimize the drawbacks.

Our study confirms that collaborative childcare can be an effective way to implement work-life balance services. Offering it also provides an opportunity to improve other aspects of organizational wellbeing, such as a greater sense of community. Nevertheless, the cost and effort to sustain such practices should not be under-estimated. There is a need to provide adequate activity space and comply with specific regulations for the presence of children in an organization's premises, as well as to negotiate insurance and assume specific responsibilities among employees. Furthermore, it is worth noting, that together with an increase in organizational wellbeing, this approach raised the request for a more formal and structural way of recognizing employees' participation, together with a request for wider recognition for the value of volunteering by employees.

Regarding the role that digital technology might play, our study provided evidence of the need to support this form of collaborative practice, while its actual use was hindered by the possibility of face-to-face meetings, and previous negative experiences with other digital tools for office productivity. Nevertheless, the app was used and considered useful for planning and executing small and simple tasks on a schedule. This may provide some initial evidence that a transition to the app may happen in the longer term, overriding a negative "familiarity effect" coming from other tools, which prevented the app's full use by employees in this study. A different aspect concerns the (lack of) use of the app by HR staff. While the app was considered useful to monitor and regulate self-organized activities by employee-volunteers, it was not designed in a way to facilitate integration with the organization's existing IT infrastructure.

Lastly, considering government innovation and the role of public authorities, public bodies devote significant efforts at making childcare more available. Companies, as well as labour unions and civil society groups, are and should be central to this effort. While there is still considerable progress to be made, the active involvement of both public and private sectors, as well as a more direct involvement of parents/employees in the management of childcare activities can be considered as a promising approach for improving and extending childcare services. In this respect, the creation of innovative and flexible childcare arrangements based on public–private partnerships, such as the ones presented in this study, might show how to leverage resources from peer support and highlight the value of collaborative networks to harness and share efforts to provide workplace childcare.

In conclusion, the experience and results reported in this case study contribute to the ongoing debate on collaborative practices in the workplace. They provide informed suggestions on how to handle infrastructure top-down and bottom-up approaches in a way that creates a socio-technical environment for shared childcare in the workplace. This work investigates how childcare services can be reimagined thanks to the synergy between local authorities' programs, the endorsement of companies and organizations, and the direct participation of voluntary employees. Perceived values and potential barriers of social and organizational arrangements around such innovative caring practices were presented, in the hope that these insights can guide companies and practitioners in further unveiling the potential of collaborative and shared practices in the workplace. The results reported in this case study are also relevant to government and public authorities as examples with insights for implementing innovative forms of childcare solutions based on public-private partnerships and collaborative engagement for greater work-life balance.

Values and Practices behind Collaborative Childcare in Knowledge-based Organizations

Gianluca Schiavo, Chiara Leonardi & Massimo Zancanaro

Acknowledgments

The work presented in the paper was supported by the European Union's Horizon 2020 research and innovation programme under grant agreement N° 780783 (FAMILIES_SHARE).

References

Anafarta, N. 2011. The relationship between work-family conflict and job satisfaction: A structural equation modeling (SEM) approach. *International Journal of Business and Management*, 6(4): 168-177.

Ashforth, B.E., Kreiner, G.E., & Fugate, M. 2000. All in a Day's Work: Boundaries and Micro Role Transitions. *Academy of Management Review*, 25(3): 472-491. https://doi.org/10.5465/amr.2000.3363315

Baral, R., & Bhargava, S. 2010. Work-family enrichment as a mediator between organizational interventions for work life balance and job outcomes. *Journal of Managerial Psychology*, 25(3): 274-300. https://doi.org/10.1108/02683941011023749

Barcevičius, E., Cibaitė, G., Codagnone, C., Gineikytė, V., Klimavičiūtė, L., Liva, G., & Vanini, I. 2019. *Exploring Digital Government transformation in the EU*. doi:10.2760/17207, JRC118857.

Berman, E.M., West, J.P., & Richter, Jr, M.N. 2002. Workplace relations: Friendship patterns and consequences (according to managers). *Public Administration Review*, 62(2): 217-230.

Brandsen, T., Verschuere B., & Steen, T. (Eds). 2018. Co-production and co-creation: Engaging citizens in public services. Routledge.

Bouncken, R.B., & Reuschl, A.J. 2018. Coworking-spaces: how a phenomenon of the sharing economy builds a novel trend for the workplace and for entrepreneurship. *Review of managerial science*, 12(1): 317-334.

Carroll, A.B. 1999. Corporate Social Responsibility: Evolution of a Definitional Construct. *Business & Society*, 38(3): 268-295. https://doi.org/10.1177/000765039903800303

Cartwright, S., & Cooper, C.L. (Eds.). 2009. *The Oxford handbook of organizational well-being*. OUP UK.

Chouinard, M., & Ridgeway, J. 2016. *Family Business: Innovative On-Site Child Care Since 1983*. Patagonia.

Coghlan, David. 2019. *Doing action research in your own organization*. SAGE Publications Limited.

Connelly, R., DeGraff, D.S., & Willis, R.A. 2004. *Kids at Work: The Value of Employer-Sponsored On-Site Child Care Centers*. W.E. Upjohn Institute. https://doi.org/10.17848/9781417505913

Correia de Sousa, M., & van Dierendonck, D. 2010. Knowledge workers, servant leadership and the search for meaning in knowledge driven organizations. *On the Horizon*, 18(3): 230-239. https://doi.org/10.1108/10748121011072681

Dell'Era, C., & Landoni, P. 2014. Living Lab: A methodology between user-centred design and participatory design. *Creativity and Innovation Management*, 23(2): 137-154.

Grzywacz, J. G., & Carlson, D. S. 2007. Conceptualizing Work– Family Balance: Implications for Practice and Research. *Advances in Developing Human Resources*, 9(4): 455-471. https://doi.org/10.1177/1523422307305487

Grosser, K., & Moon, J. 2008. Developments in company reporting on workplace gender equality?: A corporate social responsibility perspective. *Accounting Forum*, 32(3): 179-198. https://doi.org/10.1016/j.accfor.2008.01.004

Haar, J.M., Russo, M., Suñe, A., & Ollier-Malaterre, A. 2014. Outcomes of work–life balance on job satisfaction, life satisfaction and mental health: A study across seven cultures. *Journal of Vocational Behavior*, 85(3): 361-373.

Hein, C., & Cassirer, N. 2010. *Workplace solutions for childcare*. Geneva, Switzerland: International Labour Office.

Kossek, E.E., & Lautsch, B.A. 2018. Work–life flexibility for whom? Occupational status and work–life inequality in upper, middle, and lower level jobs. *Academy of Management Annals*, 12(1): 5-36.

Lewis, J. (Ed.). 2018. *Gender, social care and welfare state restructuring in Europe*. Routledge.

Leonardi, C., Schiavo, G., & Zancanaro, M. 2019. Sharing the Office, Sharing the Care? Designing for Digitally-mediated Collaborative Childcare in the Workplace. In *Proceedings of Communities and Technologies* C&T 2019.

Morgan, D., & Zeffane, R. 2003. Employee involvement, organizational change and trust in management. *International journal of human resource management*, 14(1): 55-75.

Osborne, S.P., Radnor, Z., & Nasi, G. 2013. A new theory for public service management? Toward a (public) service-dominant approach. *The American Review of Public Administration*, 43(2): 135-158.

Pestoff, V. 2006. Citizens and co-production of welfare services: Childcare in eight European countries. *Public Management Review*, 8(4): 503-519. https://doi.org/10.1080/14719030601022882

Pestoff, V. 2012. Co-production and Third Sector Social Services in Europe: Some Concepts and Evidence. *VOLUNTAS: International Journal of Voluntary and Nonprofit Organizations*, 23(4): 1102-1118. https://doi.org/10.1007/s11266-012-9308-7

Rohde, M., Brödner, P., Stevens, G., Betz, M., & Wulf, V. 2017. Grounded Design– A praxeological IS research perspective. *Journal of Information Technology*, 32(2): 163-179. https://doi.org/10.1057/jit.2016.5

Values and Practices behind Collaborative Childcare in Knowledge-based Organizations *Gianluca Schiavo, Chiara Leonardi & Massimo Zancanaro*

Rothausen, T.J., Gonzalez, J.A., Clarke, N.E., & O'Dell, L.L. 1998. Family-friendly backlash-fact or fiction? The case of organizations on-site child care centers. *Personnel Psychology*, 51(3): 685-706.

Schiavo, G., Villafiorita, A., & Zancanaro, M. 2019. (Non-) Participation in deliberation at work: a case study of online participative decision-making. *New Technology, Work and Employment*, 34(1): 37-58.

Selloni, D. 2017. New forms of economies: sharing economy, collaborative consumption, peer-to-peer economy. In *CoDesign for Public-Interest Services*, Springer: 15-26.

Sirgy, M.J., & Lee, D.J. 2016. Work-Life Balance: A Quality-of-Life Model. *Applied Research in Quality of Life*, 11(4): 1059-1082. https://doi.org/10.1007/s11482-015-9419-6

Stringer, E.T. 2013. *Action research*. SAGE Publications Limited.

Vlachokyriakos, V., Crivellaro, C., Wright, P., Karamagioli, E., Staiou, E.R., Gouscos, D., Thorpe, R., Krüger, A., Schöning, J., Jones, M. & Lawson, S. 2017. HCI, solidarity movements and the solidarity economy. In *Proceedings of the 2017 CHI Conference on Human Factors in Computing Systems*: 3126-3137.

Wang, H., Tong, L., Takeuchi, R., & George, G. 2016. Corporate Social Responsibility: An Overview and New Research Directions. *Academy of Management Journal*, 59(2): 534-544. https://doi.org/10.5465/amj.2016.5001

Wulf, V. (Ed.). (2018). *Socio-informatics: A practice-based perspective on the design and use of IT artifacts*. Oxford University Press.

About the Authors

Gianluca Schiavo is a researcher with the Intelligent Interfaces and Interaction (i3) unit, Fondazione Bruno Kessler (FBK), Trento, Italy and an affiliate faculty member with the University of Trento in the Department of Psychology and Cognitive Science. His primary research area is Human-Computer Interaction, specifically Computer-Supported Cooperative Work and Social Computing. His current research focuses on the design, development, and evaluation of intelligent, collaborative, and inclusive technology for social good.

Chiara Leonardi is a researcher with the Intelligent Interfaces and Interaction (i3) unit, Fondazione Bruno Kessler (FBK), Trento, Italy. Her work is at the intersection of Social Sciences and Computing. She leads human-centred studies applying inclusive and participative methods aimed at understanding possible domains for technology use, designing and evaluating digital services. Drawing on sociological qualitative methods, her goal is to understand users' needs, values and practices, envision novel digital solutions, and iteratively evaluate design ideas with users.

Massimo Zancanaro is a full professor of Computer Science at the Department of Psychology and Cognitive Science of the University of Trento and the head of the Intelligent Interfaces and Interaction (i3) unit at Fondazione Bruno Kessler (FBK). His research interests are in the field of Human-Computer Interaction and specifically on the topic of intelligent interfaces for which he is interested in investigating aspects related to design as well as to the study of reasons for use and non-use. He co-edited two books and has authored or co-authored more than a hundred papers in journals, conferences, and peer-reviewed symposia.

Citation: Schiavo, G., Leonardi, C., Zancanaro, M. 2020. Values and Practices behind Collaborative Childcare in Knowledge-based Organizations. *Technology Innovation Management Review*, 10(5): 41-50. http://doi.org/10.22215/timreview/1355

CC BY

Keywords: Collaborative workplace practices, Sharing networks, Employee participation, Work-life balance, Grounded design.

Understanding Civic Crowdfunding as a Mechanism for Leveraging Civic Engagement and Urban Innovation

Bastiaan Baccarne, Tom Evens, Lieven De Marez

"*Crowdfunding is not about the funding, it's about the crowd.*"
Anonymized study respondent

This article studies the emergence of government-initiated civic crowdfunding platforms. Such platforms can be considered as governmental responses for bottom-up peer-to-peer support mechanisms related to urban innovation, which also allows top-down governance and governmental support systems for civic entrepreneurship. To better understand the implications of these innovative ICT-enabled interaction interfaces for collective urban innovation, this study investigates participation inequalities from the perspective of campaign instigators, using in-depth interviews (N=28), and from the perspective of the citizen-funder, using a survey (N=265). The analysis shows that urban crowdfunding practices mainly contribute to higher-level development of collective identities with increased neighborhood capacities. Although participation in such ICT-enabled interaction interfaces could reinforce digital inequalities and existing power balances, this research shows a more nuanced perspective, in which online and offline practices intertwine. Furthermore, while civic crowdfunding campaigns are driven by a traditional 'participation elite', the deliberation process on development projects involves new publics that are not typically engaged in civic activities. Hence, civic crowdfunding formulates a new mode of civic engagement in which institutional involvement acts as a trust broker between civic funders and civic entrepreneurs, as well as adding legitimacy to innovation processes in the public sphere.

Introduction

Over the past decade, crowdfunding has emerged as a peer-to-peer (P2P) digital technology. It enables a new way to receive support for entrepreneurship in various domains, including canvassing grassroots urban initiatives and tactical urbanism, often with a societal orientation (Stiver et al., 2015). However, such 'civic' (meaning, 'from the citizens') crowdfunding initiatives at the same time contribute to a growing tension between increasingly empowered bottom-up peer-to-peer innovation processes and the top-down management of urban innovation (Davies, 2015). Hence, in line with broader challenges regarding the peer-to-peer economy, local governments are faced with questions regarding adequate governance models against over-the-top models for urban innovation, especially in a public-democratic context (Koopman et al., 2015).

Governments generally are increasingly exploring new modes of governance that tend to shift from 'rules' to 'tools' (Holverson, 2017). This also encompasses the implementation of 'government-owned' civic crowdfunding platforms, on which policy and grassroots initiatives can interact. They allow governments to integrate civic entrepreneurship in existing support and control processes such as funding programs (Stiver et al., 2015; Lee et al., 2016). On top of that, these initiatives can also be interpreted as a way of shifting investments from centralized governments to distributed 'crowds', in a way that lines up with the broader neo-liberal tendency to optimize efficiency, which is often related to budget cuts (Brenner & Theodore, 2002; Lee et al., 2016).

On the other hand, 'government-owned' civic crowdfunding initiatives can also be situated within the broader transformation from government managerial control, towards participation and ownership of societal

Understanding Civic Crowdfunding as a Mechanism for Leveraging Civic Engagement and Urban Innovation

Bastiaan Baccarne, Tom Evens, Lieven De Marez

actors and civic entrepreneurship (Janssen & Estevez, 2013). From a positive, techno-optimistic perspective it is believed that this leads to civic empowerment (Carè et al., 2018), through which civic or socially-oriented entrepreneurs can take (joint) action that is inherently positive for society. However, this entrepreneurial focus also has implications for the democratic aspect of urban innovation, adding to the conceptualization of digital citizenship (Mossberger et al., 2008). Often, (both theoretical and practical) knowledge, processes and even technologies are adopted from a commercial context. It is clear, however, that civic applications of the adopted platforms come with questions and challenges specific to their implementation in a public-democratic context (Lee et al., 2016; Logue & Grimes, 2019).

An increased participatory potential also implies an increased individual citizen responsibility to adopt these instruments, which can be conceptualized as (a subset of) online civic engagement (Kligler-vilenchik, 2017). Research has shown that digital participation interfaces have the potential to involve wider audiences, engage younger citizens, and support communities (Fredericks & Foth, 2013), but that those who participate tend to be highly educated and already well connected with local institutions (Tonkens et al., 2015). This reveals some of the (potential) *inequality patterns* that can be observed in the adoption of online civic engagement practices. More specifically, urban technologies such as civic crowdfunding platforms are appropriated as co–production places (Forlano, 2013), and thus also raise several issues regarding legitimacy and responsibility. For example, new ownership models have started emerging when cities are shaped through such digital participation interfaces (de Lange & de Waal, 2013; Lee et al., 2016).

This study therefore explores individual participation inequalities in civic crowdfunding. It aims to contribute to the current theoretical understanding in regard to the legitimacy and democratic aspects of such initiatives. It also illustrates and supports policy decisions regarding the implementation of government-owned civic crowdfunding platforms.

Research Framework

Civic crowdfunding

Since 2008, crowdfunding has emerged as a technology-enabled platform-based mechanism to obtain project resources. It builds upon (usually) small donations by a large group of 'backers' (Davies, 2015), usually without the involvement of traditional investors, such as financial institutions. Hence it enables new and interesting dynamics for entrepreneurship (Mollick, 2014). Civic crowdfunding is considered a subset of crowdfunding that entails those projects aimed at tackling societal challenges or community needs, as a form of social enterprise (Mayer, 2018). As such, it is an instrument to empower civic or social entrepreneurs whose aim is to contribute to society by stimulating the cultural and social domains.

In this context, projects are being financed by inhabitants of a neighborhood, city or region. This also implies that civic crowdfunding practices are closely entangled with broader practices of citizenship and civic (national) engagement, establishing new interaction possibilities with policy and policymaking (Brabham, 2009). Or, as O'Connor (2012) put it: civic crowdfunding can "*open up the possibility for the commons to participate within the political and economic system of the state and compete against large corporations which in turn influences the 'democratic' practices of the state*". Therefore, it is not unexpected that (local) governments proactively shape and govern such crowdfunding platforms to be able to in some way manage or at least contribute to bottom-up practices. They can then be embedded as part of the (local) policy toolbox (Carè et al., 2018).

Inequalities in civic crowdfunding

Hence, as the diffusion of such participatory communication technologies proceeds, they start to play an increasingly important role in the way citizens engage themselves politically and socially. Authors such as Castells (2007) stress that access and usage of such technologies have become an important aspect in the acquisition of wealth, power, and knowledge. However, as was introduced earlier, access, skills, and especially usage of such technologies are not distributed equally (Mossberger et al., 2008). In the digital age, there are still differences in technology access and usage, and in the uptake of the empowering potential of new online participatory platforms (Van Dijk & Hacker, 2003 Dimaggio et al, 2004; Jenkins et al., 2006; Hargittai & Hinnant, 2008). So, while digital platforms increasingly empower citizens, participation on these platforms is not distributed evenly across society, which might confirm or reinforce existing power imbalances (Albrecht, 2006; Davies, 2015).

On the one hand, such inequalities are often studied from a socio-demographic perspective. For example, research has shown that online civic participation platforms engage mainly younger citizens (Fredericks &

Understanding Civic Crowdfunding as a Mechanism for Leveraging Civic Engagement and Urban Innovation

Bastiaan Baccarne, Tom Evens, Lieven De Marez

Foth, 2013) who are highly educated (Stern & Dillman, 2006), and well connected with local institutions (Tonkens et al., 2015). Hence, a socio-demographic perspective to understand participation inequalities in civic crowdfunding will be the first perspective of this study. which will include the role of gender, age, income, education, occupation, and residency (cfr. Stiver et al., 2015). Complementary to this socio-demographic approach, we take a 'uses and gratifications' perspective that allows us to obtain a better understanding of motivations and expected outcomes (gratifications). This is implemented as an open-ended way of capturing latent drivers and barriers (in line with Charbit & Desmoulins, 2017). Especially the relationship between instigators and backers, which distinguishes civic crowdfunding from traditional entrepreneurship (Hui et al., 2014), is taken into account.

A second perspective of this study is embedded in literature on digital citizenship (Mossberger et al., 2008), that builds upon insights regarding broader digital inequalities from a digital divide perspective. This is now possible since civic crowdfunding practices can be conceptualized as a subset of digital engagement (in line with Norris, 2001). Hence, this perspective allows the study of participation inequalities in civic crowdfunding within a broader context of digital literacy and digital engagement. Within this elaborate research domain, Van Deursen, Helsper and Eynon (2014) built upon an earlier digital literacy framework (Helsper & Eynon, 2013) to distinguish five types of digital skills and four types of digital engagement. From these dimensions, in particular operational skills (to be able to handle ICT on a technical level) and digital engagement (the active usage of web technologies), are seen as relevant predictors of participation inequalities in civic crowdfunding.

Civic engagement & institutionalized participation

As was mentioned earlier, the application of crowdfunding mechanisms in a societal context implies that such practices can be interpreted as a new mode of citizenship (Stiver et al., 2015). This relates to the notion of '*active citizenship*' and '*civic engagement*' (Mayer, 2018). These are concepts with a long history and often discussed definitions (Adler & Goggin, 2005). They entail 'trying to make a difference' (Ehrlich, 2000; Adler & Goggin, 2005) and 'solving problems' (Byrne, 2007), both in a political (Ehrlich, 2000; Byrne, 2007) and a community context (Ehrlich, 2000; Adler & Goggin, 2005; Byrne, 2007). While these aspects assume explicit active aspects of citizenship, other authors distinguish between such active modes of civic participation, and a more latent dimension of (often online) communicational practices and civic involvement (Preece & Shneiderman, 2009; Ostertag & Ortiz, 2015). According to Bobek, Zaff, Li and Lerner (2009), active engaged citizenship should be interpreted as combining civic participation, civic engagement and social cohesion. This definition includes an even more latent dimension of 'civic identity' (Atkins & Hart, 2003; Carè et al., 2018). Hence, this study explores the relationship between participation inequalities in civic crowdfunding and (1) civic engagement (offline practices), (2) online civic engagement (online communicational practices) and (3) civic identity (urban collective identifiers).

As mentioned earlier, governments are increasingly taking control over new modes of civic engagement. Their aim is to institutionalize these practices into more formal interactions that can be implemented in existing governance structures. Given the top-down ownership of government-initiated civic crowdfunding technologies, attitudes towards the government might contribute to our understanding of participation differences, especially when compared with non-formal notions of civic engagement (Lee et al., 2016). Authors such as Ekman and Amnå (2012), and Talò and Mannarini (2015), have made an explicit distinction between the community aspect of civic engagement and its political aspect. From this perspective, innovative ICT-mediated participation platforms are considered as an effort of governmental institutions to promote meaningful citizen engagement, thereby attempting to narrow the 'public-police disengagement gap' (Warren et al., 2014).

Our approach to this was twofold: First, we investigated the role of political efficacy in explaining participation inequalities, which entails the degree of agency an individual experiences towards local policy making (Craig et al., 2017). Second, we studied the government's role in these multi-actor collaborations in a more open way, in order to better understand the intertwined inter-actor dynamics of the institutionalized aspect of government-owned civic crowdfunding processes.

Methodology

To do this, this study utilizes a single case study design combining qualitative and quantitative research methods. The single case study entails the study of a single civic crowdfunding platform, initiated and controlled by a single local government. Hence, external

contextual parameters were kept constant to ensure maximum internal validity and avoid confounding parameters outside the scope of this research (Yin, 1984). Building upon this central case, qualitative research was applied to study the perspective of citizen-users who instigated crowdfunding campaigns on the platform. Using in-depth interviews (N=28), we obtained a better understanding of the dynamics driving both their own behavior and the behavior of their funders. Next, these interviews were coded and implemented in an online survey studying the perspective of the citizen-funder (N=265).

Research context

The central case study is a civic crowdfunding platform built and governed by the local municipality of the city of Ghent, Belgium. This city has officially 220,640 inhabitants older than 15 (http://gent.buurtmonitor.be), in addition to around 30,000 students who live in the city on a temporary basis (http://kot.gent.be/cijfers-en-trends). In 2015, the local government launched a crowdfunding platform to support bottom-up urban innovation (see info box).

Data collection

Given the boundaries of our central case study, the research population for this study is limited to inhabitants (both permanent and temporary) of the city of Ghent. For the in-depth interviews, our research population entailed project instigators, from which 26% was interviewed (N=28). As a sampling technique for the citizen-funder, we combined a convenience sample which was complemented with a quota sample, based on age and gender categories.

[INFO BOX]

Case study: crowdfunding.gent

"An idea for the city [...]? Do something with it! Do you have an idea for the city? Something to make a difference? Small or large? Disruptive? Or just something very cool? Is it not easy or obvious to get the right funding to support this idea? Then [this website] is probably something for you!" (https://crowdfunding.gent)

The platform crowdfunding.gent is built and maintained by the local government. With this platform, the city wants to facilitate bottom-up, local citizen empowerment. Successful projects can get co-financed up to 75% by the local government, a process which is governed by a board of experts. The platform is donation-based and does not provide refunds if the funding goal is not reached. Project examples include (A) MissWizz, a female urinal for public events, and (B) Pluk, an initiative to harness left-over apples and pears to make juice and syrup for the neighborhood.

Figure 1. MissWizz (A) and Pluk (B).

Understanding Civic Crowdfunding as a Mechanism for Leveraging Civic Engagement and Urban Innovation

Bastiaan Baccarne, Tom Evens, Lieven De Marez

To avoid biases and participation inequality in the data collection itself, no digital skill-related measures were used for the quota sample. However, the recruiting activities were aimed at maximum inclusion of groups particularly with lower digital literacy. This recruiting took place online (newsletters, social media, targeted mailing), but mainly offline, through paper printouts (face-to-face in a public environment, more specifically in city-center streets, public places such as the local library and community locations, including public computer rooms at the local library).

The final sample, after data cleaning, entailed 265 respondents (42.6% male, 57.4 female). A more elaborate description of both the qualitative and quantitative research samples can be found in the addendum.

Measures

The in-depth interview used a semi-structured format, covering the following topics: (1) motivations, (2) digital citizenship, (3) civic engagement, and (4) the role of the government. The data were analyzed in an inductive manner using NViVo. Key elements in this analysis were implemented in the quantitative study. The survey applied the following measurements. All questions were framed using a seven-point Likert scale (1=totally disagree; 7=totally agree), unless otherwise mentioned.

Given the low number of citizen funders at the time the survey was conducted, and given the strong relationship between behavioral intention and actual behavior (Fishbein & Ajzen, 1975), this survey first introduced the platform and projects, and afterwards investigated funding intentions. *Funding intention* was measured using items to analyze the citizens' intention to fund, in line with Davis (1989) (such as "*I expect to fund such a civic crowdfunding project in the future*"). This could be answered after exposure to a platform stimulus (α=.87, M=4.13, S.D.=1.42).

Seven central *gratifications sought* (such as "*If I would fund such a project, it would be to improve my neighborhood*") were derived from the interviews and implemented as Likert-items in the survey. In the analysis, we applied principle components analysis (PCA) to explore higher level dimensions. As discussed, we disentangled *digital skills* in two subdimensions (derived from van Deursen et al., 2014): operational skills (α=.80, M=5.27, S.D.=1.31) and digital engagement (α=.89, M=5.92, S.D.=1.19). *Civic entrepreneurship* was disentangled in three subdimensions (adapted from Jugert et al., 2013): traditional civic engagement (α=.68, M=2.08, S.D.=1.03), online civic engagement (α=.91, M=2.36, S.D.=1.54), and civic identity (α=.81, M=5,08, S.D.=1.33). For the *institutionalized aspect of civic crowdfunding*, finally, we combined political efficacy (in line with Craig et al., 2017) and an explorative PCA-based analysis of seven interview-derived statements related to the role of the local government. More elaborate information on the measures used can be found in the addendum.

Results

Socio-demographic aspects of funding intentions

Considering traditional factors that might explain both participation inequalities as well as measures of the digital divide, this study investigates the role of six central socio-demographic variables in explaining funding intentions: gender, age, income, education, occupation, and residency. The results show that these dimensions only have a limited explanatory power regarding differences in funding intentions. While several studies mention that participants tend to be higher educated, our data shows no significant relationship between level of education and funding intention ($F(5)=2.04$, $p=0.07$). Nor did we find any significant differences in funding intentions between occupations ($F(9)=1.61$, $p=0.11$). Furthermore, contrary to what might be expected, income does not correlate significantly with funding intentions ($r=-0.08$, $p=0.21$).

Due to the high number of temporary (often students) city inhabitants, we also controlled for funding intention differences between permanent (M=4.08, S.D.=1.54) and non-permanent (M=4.22, S.D.=1.20) residents, but this difference is not significant ($t(252.14)=0.85$, $p=0.34$). Furthermore, male (M=4.04, S.D.=1.55) and female (M=4.20, S.D.=1.32) citizens do not have different funding intentions ($t(217.67)=-0.93$, $p=0.35$). However, our data do confirm the hypothesis that such platforms attract younger citizens, since age is negatively correlated to funding intentions ($r=-0.21$, $p<.001$). Hence, younger citizens have higher intentions to fund projects on government initiated civic crowdfunding platforms. However, age only explains 4.3% of the variation in funding intention ($R^2=.043$, $F=11.80$, $df=1$, $p<.001$).

Funding motivations

The first topic of the in-depth interviews considered what drives funders to support a project. While

Understanding Civic Crowdfunding as a Mechanism for Leveraging Civic Engagement and Urban Innovation

Bastiaan Baccarne, Tom Evens, Lieven De Marez

crowdfunding is usually related to business investment, and contains a financial logic of extrinsic reward mechanisms, our qualitative research shows that altruistic motivations play an even more important role. Considering the social proximity of funders as a driver for funding motivation (friends and family), campaign instigators disagreed whether crowdfunding is able to access new social capital, or if it should rather be understood as a mechanism to access resources within existing networks of strong and weak ties. Although most respondents consider crowdfunding hard work, they also believe that as an online tool it has served to facilitate the generation of new network ties. Nevertheless, the importance of the project instigator's existing social capital is perceived as crucial for the ultimate success of the project.

> "*I think my existing network is the only reason my project achieved its goal*" (male respondent, 42 years of age)

On the other hand, once projects take off, they tend to generate momentum, attracting wider audiences, in which the online environment allows for an amplification of this effect.

> "*Once you have a nice percentage, other people start getting convinced*" (female respondent, 40)

> "*Uhm, what made it work? The social media that we've got*" (female respondent, 24)

What is more, most project instigators even considered the social capital that was generated as more valuable than the (financial) resources they needed for the project. These new ties helped them strengthen the project and improved social cohesion in the neighborhood, leveraging neighborhood capacities beyond the scope of the project itself.

> "*I mean that's just like, [uhm] the money is only like the bread and butter, like it's the base*" (male respondent, 26)

> "*Crowdfunding is not about the funding, it's about the crowd. It's actually more about the crowd than about the money.*" (female respondent, 49)

From the analysis of funding motivations, seven central dimensions could be derived, which were questioned using Likert statements in the survey (Table 1). The motivations of respondents were first analyzed using principle component analysis to reveal potential latent constructs, then checked for scale reliability using Cronbach's alpha, and finally tested in correlation with funding intentions (Table 1).

The PCA analysis for this study reveals three factors, which can be conceptualized as *community altruism, individual rewards*, and *strong ties*. Since the two items related to the factor 'individual rewards' did not show good scale validity metrics, we studied these as separate dimensions. Furthermore, this analysis shows that community altruism correlates very strongly with funding intention ($r=0.41$, $p<0.001$). These data do not support strong social ties (accessing existing social capital), nor rational extrinsic trade logic as important factors to explain differences in funding intention, although non-material rewards are related with slight significance. This supports the assumption that strong ties only account for a limited aspect of crowdfunding dynamics. Community altruism explains 16.1% of the variation in funding intention ($R^2=.164$, $F=51.75$, $df=1$, $p<.001$).

Digital citizenship

Regarding digital citizenship, this study investigated the relationship between crowdfunding intention and two metrics of digital literacy. Both digital ***operational skills*** (to be able to handle ICT on a technical level) and *digital engagement* (the active usage of web technologies) showed good scale reliabilities. It is worth noting that the means of both constructs were rather high (respectively 5.27 and 5.29), which suggests that, despite our efforts to include groups with lower digital literacy, our sample shows high average levels of digital literacy. However, both digital operational skills ($r=0.23$, $p<.001$) and digital engagement ($r=0.25$, $p<.001$) show significant and meaningful correlations with funding intention. When included in a multiple regression model, these constructs only explain 7.1% of the variation in civic crowdfunding intention ($R^2=.071$, $F=10.02$, $df=2$, $p<.001$). This might suggest a potential divide between those who are highly engaged in digital media and those who are technologically left behind. However, this analysis also reveals that individual contributions of the predictors are not significant, neither for operational skills ($\beta=0.13$, $t=1.63$, $p=0.11$), nor for digital engagement ($\beta=0.21$, $t=2.31$, $p=0.02$).

This implies that traditional perspectives regarding the digital divide and its implications for digital citizenship only have limited value for understanding differences in funding intentions. Presumably, this could be explained

Understanding Civic Crowdfunding as a Mechanism for Leveraging Civic Engagement and Urban Innovation

Bastiaan Baccarne, Tom Evens, Lieven De Marez

Table 1. Motivations for civic crowdfunding in relation to funding intentions

	Factor loading	Cronbach's α	Mean	S.D.	r	p
Community altruïsm		0.68	5.23	0.96	0.41	< 0.001
To help people with a good idea	0.75					
To contribute to a societal challenge	0.72					
To improve my neighborhood	0.69					
To be part of a community in my neighborhood	0.56					
Individual rewards		0.45	-	-	-	-
To receive a material reward	0.82		3.40	1.80	0.10	0.10
To receive a non-material reward	0.77		4.42	1.80	0.18	0.01
Strong ties						
To support people I know well	0.88		4.43	1.76	-0.08	0.19

due to the fact that civic crowdfunding practices blur online versus offline boundaries, as project instigators provide their own platforms in addition to the online infrastructure to facilitate donations in-situ. Although hyperlocal digital communication infrastructure (re)connects neighborhood residents, this cannot be studied separately from the tangible urban environment of cities or regions, as these interactions also extend beyond the digital interface.

> "*After all, I think about one third of my donations came from an envelope I left behind at the butcher in* [street], *which is a good friend of mine.*" (male respondent, 26)

Hence, participation through new modes of digital civic engagement should not be studied from a binary online versus offline perspective, as these practices occur across boundaries in a very flexible way. In this sense, the study should feed into a more complex understanding of e-inclusion and digital divides.

Civic engagement

This analysis explicitly distinguishes campaign instigators from citizen-funders. The qualitative research revealed very high levels of civic engagement for project instigators, who consider themselves as engaged more than average in society, and showed high levels of individual agency regarding their neighborhood. Hence, these campaign instigators can be considered hyperlocal opinion leaders with a wide variety of action-oriented engagements in the neighborhood. They consider themselves as a medium between politics, mass media and the general public. These prototypical civic or social entrepreneurs are, in all their civil society activities, looking for support mechanisms to leverage their ideas and initiatives. These actors are therefore often known to the local authorities as they make extensive use of both unsolicited and solicited participation practices.

At the level of the citizen-funder, civic engagement was measured at three levels of abstraction. Firstly, civic engagement measures the intensity of volunteering activities, the amount of material support for social causes, and civic action (including a.o. signing petitions and participating in protest marches). A second measure, online civic engagement, is comprised of online communicative practices related to civil society causes (such as posting messages on social media with a societal or political topic). The final, and most abstract, dimension of civic engagement is civic identity, which relates to the connectedness one feels with the city and local government as an identity. As was hypothesized, civic engagement ($r=0.17$, $p<.005$), online civic engagement ($r=0.28$, $p<.001$) and civic identity ($r=0.36$, $p>.001$) correlate well with platform users' funding intentions.

Understanding Civic Crowdfunding as a Mechanism for Leveraging Civic Engagement and Urban Innovation

Bastiaan Baccarne, Tom Evens, Lieven De Marez

The rising correlation coefficients for higher levels of abstraction suggest that civic crowdfunding can be a mechanism to convert latent urban engagement into action. A multiple regression of these three constructs on crowdfunding intention (R^2=0.188, F=20.18, df=3, p<.001) shows that civic identity (β=0.35, t=5.76; p<.001) and online civic participation (β=0.21, t=3.91, p<.001) are better predictors than traditional civic engagement (β=0.06, t=0.77, p=.44). This supports the assumption that participation in urban crowdfunding is still considered as a relatively new mode of civic engagement, which appeals to new publics, thus allowing new modes of action.

In other words, civic crowdfunding serves a limited group, a 'participation elite', with new instruments to look for support and engage communities in the realization of their social enterprise ideas. However, this does not necessarily imply that the urban environment is tailored to the needs of only those 'happy few'. The deliberation process is not shaped by traditional participating publics, but rather through the activation of "new publics" that make more use of digital instruments in an online connected world.

Institutionalized Civic Crowdfunding

This brings us to the role of governments and the institutionalized aspects of civic crowdfunding. As discussed above, campaign instigators are often well connected with local governments. They consider the government reliable, goal-aligned, and transparent. Furthermore, they consider governments as necessary actors in molding public space. On the other hand, governments are also considered as slow and bureaucratic.

Although some interviewees mentioned their concerns about neo-liberal budget cut strategies and outsourcing public investments (subsidies) to society, most considered civic entrepreneurship, fueled by civic crowdfunding, as a bypass for such governmental inertia. As such, campaign instigators prefer their own entrepreneurial activities over urban innovation executed by local governments. However, governments are also considered as trust brokers between civic entrepreneurs and city inhabitants. Regarding the relationship with existing governmental support mechanisms for civic entrepreneurship, attitudes varied with some believing online crowdfunding offers a new mode of public financing, even for projects by the government itself. Others have explicitly taken a distance from these ideas, viewing civic crowdfunding as a strictly bottom-up mechanism. These two dimensions were also studied from a citizen-funders perspective to understand its relationship with funding intention.

More specifically, in addition to the concept of political efficacy, the in-depth interviews distinguished two additional constructs: (1) *openness to governmental involvement* ("The crowdfunding website can be a supplementary funding source for those projects the municipality lacks the resources to execute." - Interviewee) and (2) *government as a trust enhancer* ("The active role of the municipality increases my trust in the execution of the projects." - Interviewee). Both constructs show a good scale reliability (respectively α=0.72 and α=0.73; see addendum for scale items). The analysis shows a meaningful and significant correlation between civic crowdfunding intention and 'openness to governmental involvement' (r=0.21, p<.001), as well as less significant correlations with 'government as a trust enhancer' (r=0.21, p<.005) and 'political efficacy' (r=-0.19, p<.005; negative formulation). However, in a multiple regression analysis on funding intention (R^2=.087, F=8.29, df=3, p<.001), none of these predictors show high levels of explanatory power.

Quantitative summary table

Table 2 provides an overview of the main quantitative research results. Overall, this research shows the limited importance of *socio-demographic aspects* when explaining differences in funding intentions, besides the (small, but significant) role of *age* (R^2=0.04). Although aspects of *digital citizenship* (and digital divides) correlate well with funding intentions, these aspects have equally limited predictive power regarding such intentions (R^2=0.06), similar to *attitudes towards the government* (R^2=0.08). An important aspect in explaining differences in funding intention, however, is the *gratification sought*, which reveals community altruism as the most important predictor of funding behavior (R^2=0.16). Finally, aspects related to *civic engagement*, especially civic identity, appear to be the most determining (R^2=0.19).

Conclusion and Reflection

This research investigated dynamics of government-initiated civic crowdfunding platforms to better understand these innovative ICT-enabled interaction interfaces for collective urban innovation with regards to participation inequalities and its defining dimensions.

Understanding Civic Crowdfunding as a Mechanism for Leveraging Civic Engagement and Urban Innovation

Bastiaan Baccarne, Tom Evens, Lieven De Marez

Table 2. Explaining differences in funding intentions (summary table)

	bivariate relationship with funding intention		multivariate relationship with funding intention [a]		hypothesis supported?
	r | t | F	p	β	p	
Socio-demographic					
Level of education	2.04	0.07			not supported
Occupation	1.61	0.11			not supported
Income	- 0.08	0.21			not supported
Residency	0.85	0.34			not supported
Gender	- 0.93	0.35			not supported
Age	- 0.21 **	< 0.001			fully supported
Funding motivations					
Community altruïsm	0.41 **	< 0.001			fully supported
Individual material reward	0.10	0.10			not supported
Individual non-material reward	0.18 *	0.01			partially supported
Support strong ties	- 0.08	0.19			not supported
Digital citizenship					
Digital operational skills	0.23 **	< 0.001	0.13	0.11	partially supported
Digital engagement	0.25 **	< 0.001	0.21 *	0.02	partially supported
Civic engagement					
Civic engagement	0.17 *	< 0.005	0.06	0.44	partially supported
Online civic engagement	0.28 **	< 0.001	0.21 **	< 0.001	fully supported
Civic identity	0.36 **	< 0.001	0.35 **	< 0.001	fully supported
Attitude towards government					
Political efficacy (neg.)	- 0.19 *	< 0.005	- 0.17 *	0.01	partially supported
Openness to governmental involvement	0.21 **	< 0.001	0.16 *	0.04	partially supported
Government as a trust enhancer	0.21 **	< 0.005	0.16	0.06	partially supported

* significant result at p<0.05 - level
** significant result at p<0.001 -level

[a] No multiple regression is reported when only one predictor was significantly related at a p<0.005 confidence level.

As a result, we began to provide guidance for the many associated institutional governance challenges. Our research revealed high levels of civic engagement for project instigators, which is related to a positive partnership attitude towards the local government, which they consider reliable, aligned with their needs, transparent, and necessary for innovation in the public space. This is also represented an institutionalized subset of what often comes across as anti-governmental tactical urbanism initiatives. Although

project instigators perceive the local government as slow and bureaucratic, their governance role adds credibility and trust to the crowdfunding process.

However, to reach true success in crowdfunding, campaigns depend on different kinds of online and offline interactions. Through these interactions, existing social capital generates new ties with civic organizations and neighborhood residents (Stiver et al., 2015). Hence, online crowdfunding is perceived as a process to strengthen local ties and to improve neighborhood cohesion. Interestingly, however, online civic crowdfunding behavior of citizens was not seen as being related to broader practices of traditional civic engagement. This finding adds to the theoretical understanding of new participatory platforms. Although several authors claim that this innovative tool mainly empowers a traditional 'participation elite' that shapes the urban environment to their needs, this does not seem to be valid for civic crowdfunding, as the deliberation process involves new participatory publics and can be considered as a collaborative peer-to-peer funding instrument for co-produced urban innovation (Carè et al., 2018). There is, however, a very strong relationship between the intention to fund and a sense of civic identity, which relates to the neighborhood capacity building dynamics of civic crowdfunding.

Similarly, the research results show that community altruism is an important factor in predicting civic crowdfunding behavior. Rather than individual returns, participation is driven by societal goals such as helping others, tackling social challenges, and becoming part of a community (Carè et al., 2018). However, digital divides also formulate possible barriers for participation. This implies a potential divide between those who are highly engaged in digital media and those who are struggling with it or getting left behind.

The research shows that participation in civic crowdfunding is indeed partially embedded in broader practices of digital engagement. The success of crowdfunding campaigns, however, is more complex and dependent on both offline and online interactions, as a way of extending beyond the digital interface, which nuances traditional digital divide insights (Stiver et al., 2015). Furthermore, contrary to what was expected, neither income, nor education have a significant role in predicting participation behavior, although age does (younger citizens have a higher funding intention).

From a managerial perspective, considering the role of the government in leveraging social entrepreneurship though civic crowdfunding, the results show that government-ownership has a trust-enhancing role. This stimulates funding intention among citizens and social entrepreneurs, and also includes increased legitimacy of collaborative urban innovation processes in public environments. Such legitimacy is, of course, dependent on the inclusivity of civic crowdsourcing. In line with Hui et al. (2014), we conclude that the strong reliance on the involvement of a broad community is beneficial for civic entrepreneurship and urban innovation, since this implies that projects are constantly evaluated and collaboratively molded by funding communities throughout a campaign. However, the inclusivity of civic crowdfunding processes mainly depends on fostering a broader collective identity (rather than traditional digital divides), which is a topic beyond the scope of this paper.

Hence, when considering participation inequalities, it should be clear that these rely upon hyperlocal social dynamics, in which technology plays an intermediate role, one that both captures and catalyzes neighborhood capacities. This research shows that online civic crowdfunding itself can be considered as an innovative intervention that stimulates a new generation of network ties that extend individual civic crowdfunding campaigns. Hence, considering the importance of the crowd over the funding, both theoretical and managerial (strategic and practical) attention should be given to community dynamics, such as neighborhood cohesion and the construction and maintenance of a collective identity.

Understanding Civic Crowdfunding as a Mechanism for Leveraging Civic Engagement and Urban Innovation

Bastiaan Baccarne, Tom Evens, Lieven De Marez

References

Adler, R.P., & Goggin, J. 2005. What Do We Mean By "Civic Engagement"? *Journal of Transformative Education*, 3(3): 236-253.

Albrecht, S. 2006. Whose voice is heard in online deliberation?: A study of participation and representation in political debates on the internet. *Information, Communication & Society*, 9(1): 62-82.

Atkins, R., & Hart, D. 2003. Neighborhoods, adults, and the development of civic identity in urban youth. *Applied Developmental Science*, 7(3): 156-164.

Bobek, D., Zaff, J., Li, Y., & Lerner, R.M. 2009. Cognitive, emotional, and behavioral components of civic action: Towards an integrated measure of civic engagement. *Journal of Applied Developmental Psychology*, 30(5): 615-627.

Brabham, D.C. 2009. Crowdsourcing the public participation process for planning projects. *Planning Theory*, 8(3): 242-262.

Brenner, N., & Theodore, N. 2002. Cities and the Geographies of "Actually Existing Neoliberalism." *Antipode*, 34(3): 349-379.

Byrne, D. N. 2007. Public discourse, community concerns, and civic engagement: Exploring black social networking traditions on BlackPlanet. com. *Journal of Computer-Mediated Communication*, 13(1): 319-340.

Carè, S., Trotta, A., Carè, R., & Rizzello, A. 2018. Crowdfunding for the development of smart cities. *Business Horizons*, 61(4): 501-509.

Castells, M. 2007. Communication, power and counter-power in the network society. *International Journal of Communication*, 1(2007): 238-266.

Charbit, C., & Desmoulins, G. 2017. *Civic crowdfunding: A collective option for local public goods?* Paris: OECD Regional Development.

Craig, S.C., Niemi, R.G., Silver, G.E., Craig, S.C., Niemi, R.G., et al. 2017. Political Efficacy and Trust: A Report on the NES Pilot Study Items. *Political Behavior,* 12(3): 289-314.

Davies, R. 2015. Three Provocations for Civic Crowdfunding. *Information, Communication and Society*, 18(3): 1-18.

Davis, F. 1989. Perceived usefulness, perceived ease of use and user acceptance of information technology. *MIS Quarterly*, 13(3): 319-340.

de Lange, M., & de Waal, M. 2013. Owning the city: New media and citizen engagement in urban design. *First Monday*, 18(11).

Dimaggio, P., Hargittai, E., Celeste, C., & Shafer, S. 2004. Digital inequality: From unequal access to differentiated use. In K. Neckerman (Ed.), *Social Inequality*: 355-400. New York: Russell Sage Foundation.

Ehrlich, T. 2000. *Civic responsibility and higher education*. Cambridge, MA: Oryx Press.

Ekman, J., & Amnå, E. 2012. Political participation and civic engagement: Towards a new typology. *Human Affairs*, 22(3): 283-300.

Fishbein, M., & Ajzen, I. 1975. *Belief, Attitude, Intention, and Behavior: An Introduction to Theory and Research*. Reading, MA: Addison-Wesley.

Forlano, L. 2013. Making waves: Urban technology and the co–production of place. *First Monday*, 18(11).

Fredericks, J., & Foth, M. 2013. Augmenting public participation: Enhancing planning outcomes through the use of social media and web 2.0. *Australian Planner,* 50(3): 244-256.

Hargittai, E., & Hinnant, A. 2008. Digital Inequality: Differences in Young Adults' Use of the Internet. *Communication Research*, 35(5): 602-621.

Helsper, E.J., & Eynon, R. 2013. Distinct skill pathways to digital engagement. *European Journal of Communication*, 28(6): 696-713.

Holverson, C. 2017. Overcoming Barriers to Adoption for Innovations in Policy. *Innovations: Technology, Governance, Globalization*, 11(3-4): 64-79.

Hui, J., Greenberg, M., & Gerber, E. 2014. Understanding the role of Community in Crowdfunding Work. *Proceedings of the 17th ACM conference on Computer supported cooperative work & social computing*: 62-74.

Janssen, M., & Estevez, E. 2013. Lean government and platform-based governance-Doing more with less. *Government Information Quarterly,* 30(S1): S1-S8.

Jenkins, H., Clinton, K., Purushotma, R., Robison, A.J., & Weigel, M. 2006. *Confronting the Challenges of Participatory Culture: Media Education for the 21 Century*. White Paper for MacArthur Foundation.

Jugert, P., Eckstein, K., Noack, P., Kuhn, A., & Benbow, A. 2013. Offline and Online Civic Engagement Among Adolescents and Young Adults from Three Ethnic Groups. *Journal of Youth and Adolescence*, 42(1): 123-135.

Kligler-vilenchik, N. 2017. Alternative citizenship models: Contextualizing new media and the new " good citizen." *New Media & Society*, 19(11): 1887-1903.

Koopman, C., Mitchell, M.D., & Thierer, A.D. 2015. The Sharing Economy and Consumer Protection Regulation: The Case for Policy Change. *The Journal of Business, Entrepreneurship & the Law*, 8(2): 529-546.

Lee, C.H., Zhao, J.L., & Hassna, G. 2016. Government-incentivized crowdfunding for one-belt, one-road enterprises: design and research issues. *Financial Innovation*, 2(2): 1-14.

Logue, D., & Grimes, M. 2019. Platforms for the people: Enabling civic crowdfunding through the cultivation of institutional infrastructure. *Strategic Management Journal*, November (online first): 1-31.

Understanding Civic Crowdfunding as a Mechanism for Leveraging Civic Engagement and Urban Innovation *Bastiaan Baccarne, Tom Evens, Lieven De Marez*

Mayer, M. 2018. Examining Community Dynamics of Civic Crowdfunding Participation. *Computer Supported Cooperative Work: CSCW: An International Journal*, 27(3-6): 1137-1151.

Mollick, E. 2014. The dynamics of crowdfunding: An exploratory study. *Journal of Business Venturing*, 29(1): 1-16.

Mossberger, K., Tolbert, C.J., & Mcneal, R.S. 2008. *Digital Citizenship: The internet, society and participation*. Cambridge, MA: MIT Press.

Norris, P. 2001. *Digital divide: Civic engagement, information poverty, and the Internet worldwide*. Cambridge, MA: Cambridge University Press.

Ostertag, S.F., & Ortiz, D.G. 2015. "Katrina bloggers activate!": The long-term effects of digital media on civic participation. *Sociological Inquiry*, 85(1): 28-54.

Preece, J., & Shneiderman, B. 2009. The Reader-to-Leader Framework: Motivating Technology-Mediated Social Participation. *AIS Transactions on Human-Computer Interaction*, 1(1): 13-32.

Stern, M., & Dillman, D. 2006. Community participation, social ties, and use of the internet. *City & Community*, 5(4): 409-424.

Stiver, A., Barroca, L., Minocha, S., Richards, M., & Roberts, D. 2015. Civic crowdfunding research: Challenges, opportunities, and future agenda. *New Media and Society*, 17(2): 249-271.

Talò, C., & Mannarini, T. 2015. Measuring Participation: Development and Validation the Participatory Behaviors Scale. *Social Indicators Research*, 123(3): 799-816.

Tonkens, E., Trappenburg, M., Hurenkamp, M., & Schmidt, J. 2015. *Montessori-democratie. Spanningen tussen burgerparticipatie en de lokale politiek*. Amsterdam: Amsterdam University Press.

van Deursen, A., Helsper, E., & Eynon, R. 2014. Measuring Digital skills. From *Digital Skills to Tangible Outcomes* project report. Retreived from Www.Oii.Ox.Ac.Uk/Research/Projects/?Id=112.

Van Dijk, J., & Hacker, K. 2003. The digital divide as a complex and dynamic phenomenon. *The Information Society*, 19: 315-326.

Warren, A.M., Sulaiman, A., & Jaafar, N.I. 2014. Social media effects on fostering online civic engagement and building citizen trust and trust in institutions. *Government Information Quarterly*, 31(2): 291-301.

Yin, R. 1984. *Case study research*. Beverly Hills, CA: Sage Publications.

About the Authors

Dr. Bastiaan Baccarne is a senior researcher at imec-mict-Ghent University, Belgium. His academic interests converge on the crossroads between urban challenges, (urban) living labs, civic technology and smart cities. His work focusses on the potential and development of new interfaces in the urban environment to solve wicked urban issues. In September 2019, Bastiaan finished his PhD on innovative ICT-enabled interaction interfaces in the urban environment, titled: "collaborative and participatory challenges in urban innovation". This includes research on online civic engagement, digital citizenship, urban commons, innovation ecosystems and urban social informatics.

Professor Tom Evens is Assistant Professor at the Department of Communication Sciences at Ghent University, Belgium. He holds Masters Degrees in Communication Sciences (2005) and Business Administration (2006) from Ghent University. Tom teaches in Media Economics (Ba1), Innovation and Tech Policy (Ma) and Business Models in Media and Technology (Ma). He is fellow holder of the chair 'Media in a Society in Transition'.

Professor Lieven De Marez holds degrees in in communication sciences (1999) and marketing (2000), and a PhD on the 'Diffusion of ICT-innovations: more accurate user insight for better introduction strategies'. He heads the interdisciplinary research group imec-mict-Ghent University, Belgium, a group of approx. 50 researchers teaming up around a mission to empower users in a digitizing society. His personal research focus is on methodological innovation to feel the digital pulse of users in a digitizing society.

Citation: Baccarne, B., Evens, T., De Marez, L. 2020. Understanding Civic Crowdfunding as a Mechanism for Leveraging Civic Engagement and Urban Innovation. Technology Innovation Management Review, 10(5): 51-66. http://doi.org/10.22215/timreview/1356

CC BY

Keywords: Civic crowdfunding, Urban innovation, Civic entrepreneurship, Participation inequalities, Civic engagement, Digital citizenship, Peer-to-peer economy, Social cohesion, Civic identity.

Understanding Civic Crowdfunding as a Mechanism for Leveraging Civic Engagement and Urban Innovation

Bastiaan Baccarne, Tom Evens, Lieven De Marez

Addendum

Table 3. Survey sample description (N = 265)

	N	%	Mean	S.D.
Age	265		34.73	18.20
Gender				
Male	113	42.6		
Female	152	57.4		
Education				
None	1	0.4		
high school or less	10	3.8		
bachelor's degree short-type	100	37.7		
bachelor's degree long-type	81	30.6		
master's degree	66	24.9		
doctoral degree	7	2.6		

Table 4. Campaign instigator sample description (interviews, N = 28)

	N	%
Gender		
Male	16	57%
Female	12	43%
Education		
high school or less	5	18%
bachelor's degree short-type	9	32%
bachelor's degree long-type	0	0%
master's degree	14	50%
Age		
20-30	8	29%
30-40	8	29%
40-50	9	32%
50-70	3	11%
Campaign status		
Success	15	54%
Failed	5	18%
Active	8	29%
Obtained funding		
< € 1,000	2	7%
€1,000 - €5000	8	29%
€5000 - €15,000	7	25%
> €15,000	11	39%

Understanding Civic Crowdfunding as a Mechanism for Leveraging Civic Engagement and Urban Innovation

Bastiaan Baccarne, Tom Evens, Lieven De Marez

Table 5. Constructs and correlations with funding intention (1/3)

Construct	Factor loading	Cronbach's α	Mean	S.D.	r	p
Behavioral intention		0.87	4.13	1.42	-	-
Funding such civic crowdfunding projects is a good idea	0.82					
I expect to fund such civic crowdfunding project in the future	0.92					
I am planning to fund such civic crowdfunding projects.	0.93					
Community altruïsm If I would fund such a project, it would be to …		0.68	5.23	0.96	0.41	< 0.001
… help people with a good idea	0.75					
… contribute to a societal challenge	0.72					
… improve my neighborhood	0.69					
… be part of a community	0.56					
Individual rewards If I would fund such a project, it would be to …		0.45	-	-	-	-
… receive a material reward	0.82		3.40	1.80	0.10	0.10
… receive a non-material reward	0.77		4.42	1.80	0.18	0.01
Strong ties If I would fund such a project, it would be to …						
… support people I know well	0.88		4.43	1.76	-0.08	0.19

Understanding Civic Crowdfunding as a Mechanism for Leveraging Civic Engagement and Urban Innovation *Bastiaan Baccarne, Tom Evens, Lieven De Marez*

Table 5. Constructs and correlations with funding intention, cont'd (2/3)

Digital operational skills		0.80	5.27	1.31	0.23	< 0.001
I'm skilled in installing new programs on a computer	0.78					
I'm skilled in installing new devices on a computer	0.70					
Finding the right information on the internet is hard for me (recoded)	0.72					
I'm very interested in computers	0.68					
Digital engagement		0.89	5.92	1.19	0.25	< 0.001
I often use search engines	0.76					
I often read and send e-mails	0.78					
I often use social media	0.77					
I often visit news websites	0.84					
I use the internet for a lot of different things	0.77					
The internet is very important in my life	0.74					
Civic Engagement		0.68	2.08	1.03	0.17	< 0.005
Volunteer engagement	0.74					
Material support	0.81					
Civic action	0.63					
Online Civic Engagement		0.91	2.36	1.54	0.28	< 0.001
I often like statuses, posts or tweets with a societal or political message.	0.86					
I often share statuses, posts or tweets with a societal or political message	0.92					
I often post messages on social media with a societal or political topic.	0.90					
I often encourage others online to take action regarding societal or political issues.	0.84					
Civic Identity		0.81	5.08	1.33	0.36	< 0.001
I feel involved with my city	0.83					

Understanding Civic Crowdfunding as a Mechanism for Leveraging Civic Engagement and Urban Innovation

Bastiaan Baccarne, Tom Evens, Lieven De Marez

Table 5. Constructs and correlations with funding intention, cont'd (3/3)

I am proud on my city	0.86					
I feel connected with the decisions in this city	0.84					
Political efficacy		0.72	3.75	1.31	-0.19	< 0.005
People like me don't influence local policy	0.84					
Voting is the only thing people like me can do to influence local policy	0.78					
I don't think local policymakers care about what people like me think	0,.70					
Local politics is often so complex that people like me can't understand it.	0.62					
Openness to governmental involvement		0.72	4.62	1.22	0.21	< 0.001
The municipality can also publish crowdfunding projects to finance them through the website.	0.86					
The crowdfunding website can be a supplementary funding source for those projects the municipality lacks the resources to execute.	0.79					
The municipality can be involved in the projects and the way they are financed.	0.65					
Government as a trust enhancer		0.73	4.72	1.16	0.21	0.001
The active role of the municipality increases my trust in the execution of the projects.	0.74					
I don't think the municipality should be involved in such projects. (rescaled)	0.71					
The active involvement of the municipality increases my trust in the financial transaction.	0.68					
I trust websites like these more when a government is not involved. (rescaled)	0.67					

Author Guidelines

These guidelines should assist in the process of translating your expertise into a focused article that adds to the knowledge resources available through the Technology Innovation Management Review. Prior to writing an article, we recommend that you contact the Editor to discuss your article topic, the author guidelines, upcoming editorial themes, and the submission process: timreview.ca/contact

Topic

Start by asking yourself:

- Does my research or experience provide any new insights or perspectives?
- Do I often find myself having to explain this topic when I meet people as they are unaware of its relevance?
- Do I believe that I could have saved myself time, money, and frustration if someone had explained to me the issues surrounding this topic?
- Am I constantly correcting misconceptions regarding this topic?
- Am I considered to be an expert in this field? For example, do I present my research or experience at conferences?

If your answer is "yes" to any of these questions, your topic is likely of interest to readers of the TIM Review.

When writing your article, keep the following points in mind:

- Emphasize the practical application of your insights or research.
- Thoroughly examine the topic; don't leave the reader wishing for more.
- Know your central theme and stick to it.
- Demonstrate your depth of understanding for the topic, and that you have considered its benefits, possible outcomes, and applicability.
- Write in a formal, analytical style. Third-person voice is recommended; first-person voice may also be acceptable depending on the perspective of your article.

Format

1. Use an article template: .doc .odt
2. Indicate if your submission has been previously published elsewhere. This is to ensure that we don't infringe upon another publisher's copyright policy.
3. Do not send articles shorter than 2000 words or longer than 5000 words.
4. Begin with a thought-provoking quotation that matches the spirit of the article. Research the source of your quotation in order to provide proper attribution.
5. Include an abstract that provides the key messages you will be presenting in the article.
6. Provide a 2-3 paragraph conclusion that summarizes the article's main points and leaves the reader with the most important messages.
7. Include a 75-150 word biography.
8. List the references at the end of the article.
9. If there are any texts that would be of particular interest to readers, include their full title and URL in a "Recommended Reading" section.
10. Include 5 keywords for the article's metadata to assist search engines in finding your article.
11. Include any figures at the appropriate locations in the article, but also send separate graphic files at maximum resolution available for each figure.

Issue Sponsor

Lead To Win

Do you want to start a new business?

Do you want to grow your existing business?

Lead To Win is a free business-development program to help establish and grow businesses in Canada's Capital Region.

Benefits to company founders:

- Knowledge to establish and grow a successful businesses
- Confidence, encouragement, and motivation to succeed
- Stronger business opportunity quickly
- Foundation to sell to first customers, raise funds, and attract talent
- Access to large and diverse business network

Apply Now

leadtowin.ca

Twitter
Facebook
Linkedin
Eventbrite
Slideshare
YouTube
Flickr

Academic Affiliations and Funding Acknowledgements

Technology Innovation Management (TIM; timprogram.ca) is an international master's level program at Carleton University in Ottawa, Canada. It leads to a Master of Applied Science (M.A.Sc.) degree, a Master of Engineering (M.Eng.) degree, or a Master of Entrepreneurship (M.Ent.) degree. The objective of this program is to train aspiring entrepreneurs on creating wealth at the early stages of company or opportunity lifecycles.

The TIM Review is published in association with and receives partial funding from the TIM program.

SCALE EARLY RAPIDLY AND SECURELY (SERS)

The TIM Review team is a key partner and contributor to the Scale Early, Rapidly and Securely (SERS) Project: https://globalgers.org/. Scale Early, Rapidly and Securely (SERS) is a global community actively collaborating to advance and disseminate high-quality educational resources to scale companies.

The SERS community contributes to, and leverages the resources of, the TIM Review (timreview.ca). The authors, readers and reviewers of the TIM Review worldwide contribute to the SERS project. Carleton University's Technology Innovation Management (TIM) launched the SERS Project in 2019.

We are currently engaged in a project focusing on identifying research and knowledge gaps related to how to scale companies. We are inviting international scholars to join the team and work on shaping Calls for Papers in the TIM Review addressing research and knowledge gaps that highly relevant to both academics and practitioners. Please contact the Editor-in-Chief, Dr. Stoyan Tanev (stoyan.tanev@carleton.ca) if you want to become part of this international open source knowledge development project.