



On- / Offline Interferences

Digitalisation and Socio-Spatial Transformations

International Web-Conference
15-16 November 2021

Conference Concept

During the past three decades we have witnessed nothing less than a digital revolution. Digitalisation refers to a long-term process in the course of which more and more parts of social and economic life are being captured by digital technologies and the digitisation of human action. Digitalisation can thus be seen as the most disruptive part of the history of the mediatization of societies. Concepts of mediatization assume that the increasing everyday use of ever new analog and digital media leads to changes in human actions - and that the changed modes of action in turn bring about changes in the organization of social and also physical worlds (Hepp, Hjarvard and Lundby 2015). In the face of very extensive digitalisation, Hepp (2020) even speaks of a "deep mediatization," for which it is typical that all elements of our social world are closely connected to digital technologies and their underlying infrastructures. Even objects that are not traditionally considered digital media, such as a car, are turned into media because of their digital connectivity (Hepp 2020, 5 f.). The influence of digital technology has become so pervasive that the concrete and the virtual, the immediate and the mediated have become inseparable. Online and offline, in other words, are no longer understood as different spheres, but amalgamate to a synthetic on-/offline experience. At the same time, and despite all technological progress, on-/offline is not (and will probably never be) a seamless experience, but one that is ripe with technical frictions, social conflicts as well as sensual and emotional irritation. Not to mention the fact that digital technologies are typically software-based and thus controlled by algorithms. This means not only that human actors are guided by algorithms because of digital technologies, but in the sense of Latour's actor-network theory, that algorithms "too have agency" (Latour 2005).

There is increasing evidence that mediatized and especially digitalised action may result in different experiences, forms of knowledge, ways of acting, social processes, and possibly also in different perceptions and arrangements of spaces. The fact that social actors can be (virtually) present in several places simultaneously and that, depending on the media they use, they are able to act in various forms of translocality, illustrates this argument. Spatial constructs may be arranged in entirely new ways. In this context, Knoblauch and Löw (2020) and Christmann, Knoblauch and Löw (2022, in press) see indications that since the 1960s - gradually - a major refiguration of spaces has taken place. They state that the territorially based, centralized, and hierarchically structured figuration of spaces typical of modernism have not yet disappeared entirely, but in the meantime have increasingly been reshaped considerably by other ordering principles, such as deterritorialized, decentralized, and level structures.

There is, thus, a need both for theoretical concepts and empirical analyses in order to better understand the relationship between digitalisation in human action and socio-spatial transformations - or even of the refiguration of spaces. The conference takes this as its starting point. It intends, to explore and critically discuss the multiple forms of "interferences" between digitalisation and socio-spatial transformation. This project encompasses the broad spectrum of intersecting and interacting online/offline practices and spaces in selected social domains such as online platforms (Session 1), smart city solutions (Session 2), digital work (Session 3) as well as smart rural regions (Session 4).

Session 1

Embedding the Platform – Embracing the Users

Online platforms play an essential role as organizers, intermediaries, multisided markets, and algorithm-based curators of social interactions. While a growing number of empirical studies on single platforms or types of platforms provide deep insights into the complexities and social dynamics characterizing platforms' individual functions, this session focuses the practices and the various ways in which users or user groups utilize the diversity of online platforms to combine selected affordances and constraints according to their individual preferences. At the same time, it examines how socio-spatial arrangements change within the framework of these practices. Setting the user centre stage expands perspectives on online platforms by carving out the interrelations between several platforms (Kenney and Zysman 2016; Langley and Leyshon 2017; van Dijck 2013). A user-centred perspective accentuates the application of different platforms as an integral part of everyday life while emphasizing user practices and interactions (van Dijck, Poell and de Waal 2018). In addition, we seek to highlight the complexities of online-offline overlaps and propose a perspective that does not only integrate several platforms but also dwells on the complex spatial entanglements the user-centred platform application inherits (Kitchen and Dodge 2011; Brydges and Sjöholm 2019).

Against this background this session brings together conceptual and empirical contributions around

- / new spatialities of on-/offline practices,
- / interrelation of several platforms in everyday practises,
- / on-/offline entanglements,
- / refigurations of social practices and processes through platform applications.

Session 2

Smart City Solutions – Digitalisation of Urban Infrastructures

In the face of disruptive events, such as extreme weather events, and crises, political and societal actors are under increasing pressure to navigate complexity and uncertainty. Cities, in particular, are vulnerable hotspots for this type of disruption due to their high density of people, infrastructure, economic and cultural assets. Smart solutions promise the potential to deal with such current and future challenges. Especially latest technologies and advancements in the field of digitalisation of infrastructures are increasingly seen as a way to address urban challenges (Evans et al. 2019; Serrano 2018). In the smart city concept digitalisation plays a dominant role. However, the smart city concept is not only seen as a potential solution. Critics see the approach more as a pure marketing label (Hollands 2008; Krivý 2018; Vanolo 2014). In addition to smart city approaches, competing or overlapping concepts such as those of the resilient or sustainable city also rely on digitalisation as a tool to improve infrastructural systems. Ultimately, however, the digitalisation of urban infrastructures appears to be a complex and uncertain undertaking: It can be seen both as an instrument for systemic change and as potentially increasing system vulnerability, e.g. in IT security, with possible cascading effects (Häring, Gelhausen and Stolz 2016). Diverse actors influence the functions of digitalised infrastructures with their preferences and perceptions. Infrastructures are relational to organized practices and have a spatial and temporal component – they are socially and materially embedded in their respective urban

contexts. Coordination and co-design seem necessary between actors inside and outside the municipality, but are often a neglected form of interaction in practice (Monstadt and Schmidt 2019).

In this context, the session brings together theoretical and empirical contributions around smart city solutions, in particular infrastructure digitalisation, and socio-spatial transformations regarding

- / the role of guiding ideas for planning and implementation,
- / dealing with the embeddedness into the social context and material spatiality,
- / influence and intricacies of coordination and co-design,
- / dynamics, challenges and effects between optimization and potential threat.

Session 3 Digital Work Practices

The world of work has changed drastically in the course of digitalisation. More and more new digital technologies and applications are being used in all working spheres and functions and have enabled novel working practices and routines. Some work processes are even fully automated. Work no longer takes place only at the interface between human and machine or machine and machine, but between human beings and artificial intelligence, which is capable of learning and reprogramming itself independently. Probably most striking for social-science based spatial research are the changes in the division of labor and the increase in translocal or spatially distributed work. In many areas of work (such as in planning offices - to name just one example), team members no longer work in shared offices, but are distributed across various working locations around the world (and thus - remarkably in the example of urban planning - plan urban locations in other parts of the world that most team members know only through their geodatabases; Pinto 2014; Wilson 2017). They are connected only by a common server structure, common digital software tools, data bases and the necessary information and communication technologies (Schinagl and Christmann 2021). Digital platforms have also changed and created new labor markets and labor incentives and motivations. For instance, crowdwork platforms have increased the social and spatial reach of demand and supply of labor and have raised new questions of social justice and labor regulation (Wood, Graham, Lehdornvirta and Hjort 2019). Wages, for instance, are often calculated by algorithms that determine the price for labor specific to the delivered service (van Doorn 2020). Participating on the digital gig economy requires to invest unspecified hours of unpaid work readiness (Cooper 2012). Wages thus have become more dynamic, uncertain and speculative. Such digitally induced changes have far reaching consequences on work identities, forms of inclusion or exclusion from work opportunities, on the boundaries between employment, self-employment or on the incentives that motivate workers.

This session encompasses theoretical and empirical contributions on novel digital work practices, in particular

- / work identities in spatially distributed on/offline work settings,
- / new opportunities and challenges for inclusion in labor markets,
- / the blurring of boundaries between work and leisure, monetary incentives and playful engagement.

Session 4 Smart Rural Regions and Residents

Digitalisation has also gained momentum in rural regions worldwide in recent years, although the strategies and speeds of digitalisation differ from country to country (Malecki 2003; Saleminck 2017). What the countries have in common is that the digitalisation process involves, on the one hand, the development or expansion of broadband Internet. Mobile working from the countryside is thus becoming increasingly possible. For some, this seems to make rural life more attractive, at least in the context of multi-local (urban and rural) living. On the other hand, rural digitization is also about providing specific applications (specific village apps, for example) that enable novel and smart solutions to various rural challenges, especially in peripheral rural regions – be it in areas such as local supply, mobility, goods delivery, health care or village communication, to name just a few (Corr, Couper, Beningfield and Mars 2000; Qiang, Kuek, Dymond and Esselar 2012). Increasingly, rural residents are acting through digital technologies and become smart villagers in their daily lives as well as work (Lin, Xie and Lv 2016; Lulu 2019). In the hope of advancing creative community development (e.g., through digitally-enabled tourism development), even entire villages and municipalities are embracing digitalisation. So far, the rather scarce studies in this research field are strongly application-oriented and ask for appropriate digitization strategies and opportunities for rural development (Townsend, Wallace and Fairhurst 2015; Visvizi, Lytras and Mudri 2019). In the session we also want to consider, among other things, how the online and offline actions of rural residents can be described, especially how it affects life in the countryside and how perceptions of rurality change through the possibilities of national and even global connectivity (Bürgin and Mayer 2020; Zerrer and Sept 2020).

In Session 4, we will therefore discuss conceptual and empirical contributions to the digitalisation of rural areas and socio-spatial transformations in the specific context of

- / digitised actions, cyber-physical realities and possibly changed lifestyles of smart villagers in the countryside,
- / novel solutions and new residents for rural areas,
- / changing perceptions of rurality,
- / opportunities and limitations of rural development.

Organizers

Professor Dr. Gabriela Christmann (gabriela.christmann@leibniz-irs.de)

Professor Dr. Oliver Ibert (oliver.ibert@leibniz-irs.de)

Dr. Elisa Kochskämper (elisa.kochskaemper@leibniz-irs.de)

Professor Dr. Suntje Schmidt (suntje.schmidt@leibniz-irs.de)

Leibniz Institute for Research on Society and Space (IRS)
Flakenstraße 29-31, 15537 Erkner (near Berlin), Germany
Phone: +49 3362 793 299

Conference Programme

15 November 2021

/ 10:00 am Welcome

Oliver Ibert, Director of the IRS, Germany

Welcome and Introduction to the Conference

/ 10:15 am Session 1: Embedding the Platform – Embracing the Users

Chair: Gabriela Christmann, IRS

/ 10:15 am *Andrew Leyshon, University of Nottingham, UK and Allan Watson, Loughborough University*
Music in the Cloud, Money from the Crowd: Platform Reintermediation and Live Music in the Time of COVID-19

/ 10:45 am *Gernot Grabher, HafenCity University Hamburg, Germany*
Online Spillovers: The Proliferation of Strategic Networking through Social Media Platforms

/ 11:15 am *Attila Márton, Copenhagen Business School, Denmark*
A Digital Ecology of Platforms – Runaway, Erosion and Resilience

/ 11:45 am *Suntje Schmidt and Oliver Ibert, IRS, Germany*
Platform Ecology: A User-Centric and Relational Conceptualisation of Online Platforms

/ 12:15 pm Concluding Discussion of Session 1

/ 12:45 pm Lunch Break

/ 2:00 pm Session 2: Smart City Solutions – Digitalisation of Urban Infrastructures

Chair: Suntje Schmidt, IRS

/ 2:00 pm *Marikken Wulf-Wathne, KTH Royal Institute of Technology, Stockholm, Sweden and Norwegian Institute for Urban and Regional Research, Oslo Metropolitan University, Norway*
Planning the smart city

/ 2:30 pm *Andrew Karvonen, Lund University, Sweden*
Expanding the New Urban Science: Interdisciplinary and Transdisciplinary Approaches to Digitalising Cities

/ 3:00 pm *Andrés Luque-Ayala, Durham University, UK and Jonathan Rutherford, University of Sheffield, UK*
Emerging Techno-Ecologies of the City: Revisiting the Urban Ecological Flow Through Algorithmic Assemblages

/ 3:30 pm *Felicitas Klemp, Elisa Kochskämper and Wolfgang Haupt, IRS, Germany:*
Digitalisation Between the Promise of Effectiveness and the Threat of Vulnerability: Which Perceptions and Actors Shape Digitalised Urban Infrastructures?

/ 4:00 pm Concluding Discussion of Session 2

Conference Programme

16 November 2021

/ 10:00 am Session 3: Digital Work Practices

Chair: Elisa Kochskämper, IRS

- / 10:00 am *Elke Schübler, Johannes Kepler Universität Linz, Austria*
Fair Digital Work Practices: Avenues towards Crowdworker Voice
- / 10:30 am *Jeni Paay, Swinburne University of Technology, Australia*
Design of Spaces with People-Centred Interactive Technologies
- / 11:00 am *Niels van Doorn, University of Amsterdam, The Netherlands*
Gig Work as Migrant Work: The Platformization of Migration
- / 11:30 am *Anna Oechslen and Alica Repenning, IRS, Germany*
Creative Digipreneurs and Socio-Technical Niches: Work Practices of Entrepreneurship in a Platform Mediated Environment
- / 12:00 pm Concluding Discussion of Session 3
- / 12:30 pm Lunch Break

/ 2:00 pm Session 4: Smart Rural Regions and Residents

Chair: Oliver Ibert, IRS

- / 2:00 pm *Brian Whitacre, Oklahoma State University, Oklahoma, USA*
Economic and Social Benefits of Rural Broadband in the United States: A Summary of the Literature
- / 2:30 pm *Heike Mayer, University of Bern, Switzerland*
Digitalisation and Slow Innovation in Rural Regions
- / 3:00 pm *Yibo Qiao, Utrecht University, The Netherlands*
New Countryside in the Internet Age: The Development and Planning of Taobao Villages in China
- / 3:30 pm *Gabriela Christmann, Ariane Sept and Nicole Zerrer, IRS, Germany*
Smart Villagers in Germany
- / 4:00 pm Concluding Discussion of Session 4
- / 4:30 pm Farewell

Abstracts

Andrew Leyshon, University of Nottingham, UK and
Allan Watson, Loughborough University

/ Music in the Cloud, Money from the Crowd: Platform Reintermediation and Live Music in the Time of COVID-19

The outbreak of COVID-19 has had a dramatic impact on the cultural and creative sectors, especially those relying on an audience for live performance, such as gigging musicians. Live music not only represents an important cultural and social activity, but also a vital source of income for musicians in a digital platform age in which a 'value gap' has emerged between platform profits and returns to artists. During a period in which COVID-19 has prevented artists from performing live shows in physical venues, exacerbating the already precarious position of many musicians vis-à-vis income, online income streams have become increasingly important for musicians. Social media and crowdfunding platforms have, for example, emerged as a means through which artists can potentially reach new audiences and, in turn, monetise a fan base to generate income. More recently, developments in crowdfunding technologies have allowed fans to financially invest in songs. Furthermore, we are now witnessing the gamification of music as musicians begin to perform on live streaming platforms pioneered by gamers, allows fans to interact with performers, to donate directly to artists, and pay to access exclusive performances. In this article, we report the findings of an online ethnography of artists' use of such platforms during the COVID-19 pandemic. Specifically, we report on a detailed analysis of the Twitch accounts of forty artists, ranging from independent to major commercial artists, focusing on the ways in which the platform enables new ways of monetising music and musical performance. This is supplemented with broader observations on online performance, platform intermediation, and recent new trends in the online monetisation of cultural products. The paper provides insights into the key shifts in the monetisation of music in the online marketplace, the role of COVID-19 in accelerating these shifts, and the response to these.



[Andrew Leyshon](#) is Emeritus Professor of Economic Geography at the University of Nottingham and Academic Partner Coordinator at the Midlands Engine. His Research has focused mainly on money and finance and the music industry, and the emergence of diverse economies and the author and editor of numerous books that reflect these interests. They include: *Reformatted: code, networks and the transformation of the music industry* (Oxford University Press, 2014), which explores how P2P networks and MP3 software helped remake the musical economy, and *Money/Space: geographies of monetary transformation* (with Nigel Thrift, Routledge 1997), which argued that not only does money have a geography, but that it is inherently geographical.

Andrew.Leyshon@nottingham.ac.uk



Allan Watson is a Senior Lecturer in Human Geography at Loughborough University, UK, and the theme lead for Culture, Economy and Policy in the University's Centre for Research in Communication and Culture (CRCC). Allan has published widely on the economic geographies of the music industry and the wider creative industries in leading academic journals, as well as authoring the monograph *Cultural Production in and Beyond the Recording Studio* (Routledge, 2014). Allan is also co-editor of *Rethinking Creative Cities Policy: Invisible Agents and Hidden Protagonists* (Routledge, 2015) and *Music Cities: Evaluating a Global Cultural Policy Concept* (Palgrave Macmillan, 2020).

a.watson3@lboro.ac.uk

Gernot Grabher, Hafen City University Hamburg, Germany

/ Online Spillovers: The Proliferation of Strategic Networking through Social Media Platforms

Online and offline have long fused into an experience of simultaneous immersion in digital and physical environments. Despite this amalgamation, online and offline do not only represent different media but, in fact, embody different logics of interaction. Social media platforms like Facebook or LinkedIn have transformed our diffuse and tangled social worlds into crisp graphs of ties and nodes with, in principle, accurately specified relational features like social distance or strategic positioning. By rendering relationships transparent and calculable, social media platforms offer socio-technical affordances to strategically manage and furnish relational embeddedness; and by offering a range of digital tools, they translate incommensurable values like trust, influence and social standing into quantitative indices and competitive rankings.

The strategic management of relational capital is increasingly informed by key insights from social network analysis. An entire genre of "how-to"-guides mobilizes network concepts like structural holes, weak ties or transitivity to legitimize advice on the optimization of relational capital with the authority of scientific principles: network theory becomes performative. Rather than merely describing and analyzing, network theory produces our social worlds. The instrumentalization of social network analysis has been catalyzed by social media platforms; increasingly however, as the paper seeks to elucidate, the employment of network theory is spilling over into the making and braking of network ties in the offline world.



Gernot Grabher is Head of the Research Unit Urban and Regional Economics at the HafenCity University Hamburg (HCU). Previously he held positions at the University of Bonn, University of Konstanz, King's College London and the Wissenschaftszentrum Berlin (WZB). He was also visiting professor at Columbia University, Cornell University, the Santa Fe Institute, the University of Toronto, the Copenhagen Business School and Zhejiang University. He was co-editor of *Economic Geography* and

of the Routledge Regions and Cities book series; his work appeared in Economic Geography, Journal of Economic Geography, Environment and Planning A, Geoforum, Regional Studies, Industry and Innovation, Journal of Organizational Behavior, Management Learning, Organization Studies, Research in the Sociology of Organizations, Sociologica and Social Sciences.
gernot.grabher@hcu-hamburg.de

Attila Márton, Copenhagen Business School, Denmark

/ A Digital Ecology of Platforms – Runaway, Erosion and Resilience

The societal dominance of digital platforms is an outcome of the increasing digitalization of all human domains, short-circuiting across market, nation, lifeworld, mind and body. Diffused into the environment, especially through sensors and algorithms, technology has become ecological and the management of and through technology is increasingly becoming the orchestration of the organized complexity of the environment. If this is not accounted for, there is a risk of underestimating the wider consequences of digitalization, resulting in problematic runaway dynamics, by which our ecology of ideas ends up exploited and eroded by blitzscaling and disruption. Be it Facebook's complicity in the genocide of the Rohingya minority or Amazon invading the privacy of our living rooms, there are already many examples of such dynamics in the platform economy, especially when fuelled by a delusion in limitless user-growth and blitzscaling network effects.

Viewed against such backdrop, I will present research tracing the wider consequences of digital platforms in order to foreground the ecological pattern, by which the negative impacts of digitalization are displaced, typically onto users who are too weak to defend themselves. This pattern is a pattern of intensifying erosion, undermining the resilience of our ecology of ideas and, by extension, our capacities to find new solutions to unforeseen problems. As my conclusion, I will outline a research framework for a digital ecology of platforms, suggesting three approaches to counter the exploitative tendencies of the platform economy.



Attila Márton is a digital ecologist and associate professor at the Department of Digitalization, Copenhagen Business School. His main research is on the political ecology of platforms, digital labour and AI, and the sociology of digital knowledge and forgetting. His research is being published in leading journals in sociology, information systems research and organization studies.

am.digi@cbs.dk

Oliver Ibert and Suntje Schmidt, Leibniz-Institute for Research on Society and Space, Germany

/ Platform Ecology: A User-Centric and Relational Conceptualisation of Online Platforms

Today, online and offline practices are deeply interwoven, co-exist, overlap, interact in complex ways and thus permeate all spheres of social lives. In this context, online platforms play an important role as organizers, intermediaries, multisided markets, and algorithm-based curators of social interactions. While a growing number of empirical studies on single platforms or types of platforms provide deep insights into the complexities and social dynamics characterizing platforms' individual functions, little is still known on the practices and the various ways in which users or user groups utilize the diversity of online platforms to combine selected offers according to their individual preferences. Against this background, this paper aims at developing a heuristic of a platform ecology that positions the user(s) and their practices centre stage to accentuate the application of different platforms as an integral part of everyday life and as integral elements that link and intermingle on/offline activities and spaces. We illustrate the potential of the heuristic by tentatively elucidating the platform ecology of fashion design.



Oliver Ibert is the director of the Leibniz Institute for Research on Society and Space (IRS) in Erkner and Professor of Socio-Spatial Transformation at the Brandenburg University of Technology Cottbus-Senftenberg. From 2009-2019 he was professor of Economic Geography at the Freie Universität Berlin. He obtained his doctoral degree in 2002 at the University of Oldenburg completed his post-doctoral habilitation thesis at the University of Bonn in 2009. In summer 2014 Oliver Ibert was a visiting professor at the Department of Political Sciences at the University of Toronto and in autumn 2018 he was a Simon and Hallsworth Visiting Professor at the Department of Geography at Manchester University. He is a member of the editorial board of *Raumforschung und Raumordnung | Spatial Research and Planning*. His research on innovation, creativity, temporary organizations and crisis is located at the intersection of economic geography, sociology and organization studies. He published widely, for instance in *Economic Geography*, *Journal of Economic Geography*, *Dialogues in Human Geography* or *Research Policy*. oliver.ibert@leibniz-irs.de



[Suntje Schmidt](#) researches creative and innovation processes from a spatio-temporal perspective, the spatial dimensions of work and entrepreneurship, and the social construction of resilience in changing labour markets. With these perspectives, she addresses research topics such as the role of metropolitan regions in the knowledge economy and creative industries, urban and social resources for labour market-related resilience strategies in volatile labour markets and cities and regions as new spaces for creativity and work. She is currently working on the role of digital platforms in creative processes. Suntje Schmidt studied geography, American studies and business administration in Berlin and New York and did her doctorate at the Humboldt University in Berlin. Together with Oliver Ibert, she heads the research department "Dynamics of Economic Spaces" at the Leibniz Institute for Research on Society and Space (IRS) and is Junior Professor for Applied Economic Geography at the Humboldt Universität zu Berlin. suntje.schmidt@leibniz-irs.de

Marikken Wulf-Wathne, KTH Royal Institute of Technology, Stockholm, Sweden and Norwegian Institute for Urban and Regional Research, Oslo Metropolitan University, Norway

/ Planning the Smart City

In this paper, I argue that the implementation of smart city strategies, emphasizing using real-time data, digital twins, robotisation, Internet of Things (IoT) and Artificial Intelligence (AI) promotes a shift in social order where the planners of the smart city are planning themselves out of power. The planners are contributing to this by arguing for urban futures that are relatively self-planned, with decision-making processes handed over to new digital technologies. This development, however, rests on an apolitical understanding of planning embedded within smart city developments where planning practices are merely seen as rational and objective choices taken as a response to our knowledge (data) on the city. Thus, one can argue that if we deem it necessary to save the 'smart' planners from eradicating themselves from the planning field, what we need is precisely what these planners seem to currently avoid whole-heartedly: the re-politicization of the planning of the smart city.



[Marikken Wulf-Wathne](#) is a PhD student at the Division of Urban and Regional Studies at KTH Royal Institute of Technology, and at the Norwegian Institute for Urban and Regional Research at Oslo Metropolitan University. Her research explores digitalization of urban spaces and governance, and in particular so-called 'smart city' initiatives. In exploring digitalization of urban areas, Wulf-Wathne is particularly interested in the formulations of problems and solutions around which urban digitalization takes place and seeks legitimacy.

marikken@kth.se

Andrew Karvonen, Lund University, Sweden, Andrew Karvonen

/ Expanding the New Urban Science: Interdisciplinary and Transdisciplinary Approaches to Digitalising Cities

Digitalisation is emerging as a profound disrupter of urban development dynamics in the early 21st century. Sensor networks, dashboards, control rooms, platforms, the Internet of Things, and similar technological interventions are promoted by smart city advocates as the key to realising sustainable development ambitions. An influential smart city discourse is the New Urban Science that involves the application of digital tools to improve how we know and act upon cities. The New Urban Science is dominated by physicists and computer scientists who focus on data analytics and advanced modelling techniques to interpret the complex dynamics of cities. Missing from this discourse is the input of other urban stakeholders both within and outside of the academy. In this presentation, I reflect on the history of urban science practices and the potential for the New Urban Science to be opened up to interdisciplinary and transdisciplinary modes of knowledge production. Inclusion of a broader range of stakeholders presents multiple challenges to knowledge production activities but holds promise to steer digitalisation towards the development of cities that are socially equitable, environmentally robust, and economically prosperous.



[Andrew Karvonen](#) is Professor of Urban Design and Planning at Lund University. He conducts research on the politics and practice of sustainable urban development with a particular focus on the dynamics of socio-technical change. He has completed projects on infrastructure networks, urban laboratories and experiments, and smart cities and digitalisation. He serves on the editorial boards of Sustainability, Urban Planning, Geographies, Frontiers in Sustainable Cities: Governance and Cities, and Sustainability; Science, Practice and Policy.

andrew.karvonen@arkitektur.lth.se

Andrés Luque-Ayala, Durham University, UK, and Jonathan Rutherford, Paris Est University, Paris and Sheffield University Urban Institute, UK

/ Emerging Techno-Ecologies of the City: Revisiting the Urban Ecological Flow Through Algorithmic Assemblages

Drawing on the ongoing transformation of urban infrastructures associated to processes of urban datafication and the emergence of urban operating systems (c.f. Luque-Ayala and Marvin, 2020), this presentation discusses the ways in which a growing cadre of digitized infrastructures in the city point to potential reconceptualisations of the city-nature relationship. Infrastructures, long considered to be the networked materiality that both mediates and hybridizes nature and the city, are undergoing a rapid process of change through datafication and algorithmic assemblages. Water and energy, for example, are no longer simply

material flows in the city, but rather datafied ecologies made (and calculated) through both materiality and information. This chapter examines the increasing intertwining of digital and ecological logics and flows in urban infrastructures. While this appears at first to be something of a contradictory development in the juxtaposition or knitting together of the highly technological and the 'natural', we show that this is in fact part of an emerging hybrid rationality and process through which particular actors seek to deploy new capacities of intervention and control over material sites and circulations in contexts of geographical and climatic constraint and uncertainty.



Andrés Luque-Ayala is Associate Professor in the Department of Geography at Durham University, UK. His research focuses on a socio-technical examination of 'smart' forms of urbanization and the coupling of digital and material infrastructures as a new security apparatus in the city. His recent book, *Urban Operating Systems: Producing the Computational City* (2020, MIT Press) is available in Open Access format here: mitpress.mit.edu/books/urban-operating-systems
a.e.luque@durham.ac.uk



Jonathan Rutherford is senior researcher at LATTs (Laboratoire Techniques, Territoires et Sociétés), Paris Est University in France and visiting research fellow at the Sheffield University Urban Institute. His most recent book, *Redeploying Urban Infrastructure: The Politics of Urban Socio-Technical Futures* (Palgrave, 2020), critically unpacks how socio-technical arrangements of energy and water provision are being recast in continuing efforts towards realising 'sustainable' transformation of cities. Available here: www.palgrave.com/gp/book/9783030178864
jonathan.rutherford@enpc.fr

Felicitas Klemp, Elisa Kochskämper and Wolfgang Haupt Leibniz-Institute for Research on Society and Space (IRS), Germany

/ Digitalisation Between the Promise of Effectiveness and the Threat of Vulnerability: Which Perceptions and Actors Shape Digitalised Urban Infrastructures?

The digitalisation of critical infrastructure, such as energy, promises to offer smart solutions for current and future challenges in urban planning and living. At the same time, this type of digitalisation raises important questions regarding the smartification of urban live and policies, which gain increasing scholarly attention. In question is the dynamic relationship between digitalisation as a promise of more effective data gathering and as a potential threat through weakened IT-security. For exploring this dynamic, digitalisation is frequently tested through experiments in pilot areas. This in turn highlights the planning context of the socio-technical intervention: in which way perceive project planners the dynamic relationship,

select infrastructure (sub)systems, and integrate perceptions of local citizens or scientific knowledge?

We study digitalisation projects in two urban pilot districts in the German cities of Dresden and Düsseldorf, and trace how, by what, or whom the planning of digitalised infrastructures is influenced. Our preliminary findings reveal that disruptions are mainly perceived in the material space, for instance, caused by vandalism. Moreover, our findings show the planning process is primarily conducted top-down, through a technical lens, and, in line with critical literature on smart cities, motivated by economic incentives.



Felicitas Klemp is a research associate in the department "Institutional change and regional public goods" at the IRS and a PhD student at the Faculty of Geography at the Rheinische Friedrich-Wilhelms-University Bonn. She has a background in Urban Studies and Geography. Her cumulative PhD project combines critical infrastructure and digitalisation. She focuses on how discourses on critical infrastructure influence policy design and implementation. Her preliminary findings are that cyber discourse is dominant in Germany. From this, she derives a link between her research on critical infrastructures and digitalisation processes. She is particularly interested in the urban level, and how perceptions and actors shape the digitisation of urban infrastructures.
felicitas.klemp@leibniz-irs.de



Elisa Kochskämper is research associate in the department "Institutional change and regional public goods" at the IRS. Her research focuses on political paradigms in urban climate governance, power and agency in urban resilience, and diffusion and learning through policy experiments. She holds a PhD in Political Science from Leuphana University Lüneburg and has worked previously in the Mexican environmental ministry in Mexico City.
elisa.kochskämper@leibniz-irs.de



Wolfgang Haupt is research associate in the department "Institutional change and regional public goods" at the IRS. He has a background in Geography and holds a PhD in Urban Studies from Gran Sasso Science Institute L'Aquila and Sant'Anna School of Advanced Studies, Pisa. His research focuses on local climate governance (mitigation and adaptation), transnational municipal networks, urban resilience, and policy learning
wolfgang.haupt@leibniz-irs.de

Elke Schübler, Johannes Kepler Universität Linz, Institut für Organisation, Austria

/ Fair Digital Work Practices: Avenues towards Crowdworker Voice

Within public debates as well as scholarly literature, we find increasing criticism regarding the labour conditions on digital work platforms. Issues such as precarious work conditions, dumping "wages" far below the legal minimum, or opaque work processes disadvantaging and ignoring workers' needs while favouring clients raise concerns regarding the opportunity for platform workers to express their voice. Based on evidence from the German crowdwork field, this presentation gives insights into different avenues for crowdworker voice ranging from (limited) participation options on crowdwork platforms themselves towards new regulatory initiatives, such as the "Crowdwork Agreement" concluded by the German trade union IG Metall and several crowdworking platforms to set standards for decent crowdwork. The presentation critically discusses the kinds of voice regimes resulting from these forms of regulation and outlines policy implications.



Elke Schuessler is Professor of Business Administration and Head of the Institute of Organization Science at Johannes Kepler University, Linz. Her research focuses on societal transformation processes related to globalization, digitalization and the climate crisis and examines in particular the role of work, organizations and organizing in these processes. Her work has been published in leading journals such as Academy of Management Journal, Human Relations or Socio-Economic Review.

elke.schuessler@jku.at

Jeni Paay, Swinburne University of Technology, Australia

/ Design of Spaces with People-Centred Interactive Technologies

Rising land values, increasing population, sustainable practices and the evolving nature of work indicate an immediate need for efficient, connected, flexible and portable individual workspaces that ensure worker wellbeing necessary for optimum productivity. Blended interaction space design revolutionizes workplaces through effective hybrid digital/physical integration. Blended spaces use internet connectivity and appropriate spatial configurations to facilitate seamless and intuitive human-computer interactions (HCI). Integrating latest research in HCI, augmented reality, personal digital assistance, smart lighting, and acoustic design creates a shareable workspace that is dynamically reconfigurable and personalisable. This supports remote and decentralized work practices, e.g. working from home, which reduces work-miles and thus CO2 footprint of our cities. While office designs move from typical configurations of individual offices to "open plan" shared cubicles to minimize the amount of space required per worker, research shows that shared cubicles negatively impact

worker wellbeing and productivity. This indicates the need to explore if personalisation and sound-containment can solving these problems. Such workspaces would support the next generation of office workers, who will be more mobile and flexible in their work practices. Discovering a design that is adaptable, connected, sharable and portable will provide significant environmental, economic and social benefits for both workers and organisations.



Jeni Paay is a leading international researcher in Human Centred Computing. She is Professor of Interaction Design at Swinburne University of Technology, Melbourne, Australia. She is Director of the Centre for Design Innovation in the School of Design and Architecture. She also a Program Director in the Smart Cities Research Institute, for the "Future Urban Living" program. Jeni has a transdisciplinary background spanning architecture, computer science, and Human-Computer Interaction. Her research areas include: Design Methods; Interaction Design for Mobiles, Augmented Reality and Virtual Reality; Digital Health; Interaction Design for Smart Spaces; Design for Digital Workspaces and User Experience Design.

jpaay@swin.edu.au

Niels van Doorn, University of Amsterdam, The Netherlands

/ Gig Work as Migrant Work: The Platformisation of Migration Infrastructure

With markets concentrating predominantly in and around large cities, gig platforms across the globe depend as much on the cheap labour of migrants and minorities as on investment capital and permissive governments. Accordingly, there is an urgent need to centre migrant experiences and the role of migrant labour in gig economy research, in order to generate a better understanding of how gig work offers certain opportunities and challenges to migrants with a variety of backgrounds and skill levels. In this presentation, I discuss why migrant workers take up platform labour and how they incorporate it into their everyday lives and migration trajectories. Additionally, I reflect on the role of gig platforms as emerging institutional actors in the political economy of migration, as a result of how they absorb migrant labour and mediate migrant mobilities. I move beyond the existing parameters of gig economy research, by engaging with two strands of literature on migration and migrant labour that are particularly useful for framing the analysis: the autonomy of migration (AoM) approach and the migration infrastructures perspective. Combining these conceptual lenses enables the identification of an app-based migrant division of labour and situates its emergence within a broader development: the platformisation of migration infrastructure.



Niels van Doorn is an Assistant Professor of New Media and Digital Culture at the University of Amsterdam. He is also the Principal Investigator of the ERC-funded Platform Labor project (2018-2023), which examines the impact of platformisation on (low-wage) labour, social reproduction, and urban governance in Amsterdam, Berlin and New York City. His research is especially interested in teasing out how the opportunities and challenges of platformisation and platform labour are distributed along lines of class, race, gender, and citizenship status. Research findings have so far been published in journals such as *Antipode*, the *Socio-Economic Review*, and *Work Organisation, Labour & Globalisation*. To learn more about the project, please visit platformlabor.net.

N.A.J.M.vanDoorn@uva.nl

Anna Oechslen and Alica Repenning, Leibniz-Institute for Research on Society and Space (IRS), Germany

[/ Creative Digipreneurs and Socio-Technical Niches: Work Practices of Entrepreneurship in a Platform Mediated Environment](#)

In this paper, we study digital entrepreneurship from a practice perspective while examining creative micro-entrepreneurs' digital practices on Instagram. The paper contributes to the emerging research on digital platforms and their role as orchestrators of social situations and spaces. Besides a growing body of literature on this topic, little is still known 1) on the way digital platforms impact work practices on the micro-level and 2) how online and offline spaces interrelate.

We address this gap by exploring how entrepreneurs use and work with digital technologies from a micro-level, everyday perspective. We look into how digital technology mediates the entrepreneurial process as well as the product and which opportunities and constraints arise in the platform mediated environment.

The research questions are explored along the lines of two in-depth case studies: a textile designer based in Berlin, Germany, and a filmmaker based in Bengaluru, India. Based on their everyday work practices, we advance the notion of 'creative digipreneurs' by combining the notion of the culturepreneur with literature on digital entrepreneurship. They are simultaneously cultural and entrepreneurial agents and their personal identity and online presence intersect. They are characterised by the creative and playful nature of their work and the central role of digital media in their businesses. The paper suggests the heuristic of the socio-technical niche to develop a spatio-temporal perspective on the digipreneurs' practices in relation to the online platform Instagram and to critically reflect on matters of agency and uncertainty. We find that digital, creative, and entrepreneurial work practices are deeply entangled, and that online platforms are implicated in an emerging co-constitutive relationship with the entrepreneur in which they shape opportunities and practices.



[Anna Oechslen](#) works as a research associate in the department „Dynamics of Economic Spaces“ at the IRS. As a project member of “Platform Ecology: Creative Collaboration in the Field of Tension between Virtual and Concrete Spaces in the Case of Fashion Design”, she researches the various ways in which online platforms are incorporated into everyday creative work practices. She is affiliated with the institute for anthropological studies in culture and history at Universität Hamburg as a PhD candidate. In her PhD project, she studies how graphic designers in India navigate their everyday work practices using crowdwork platforms. She is interested in everyday experiences of digital work and the interrelation of physical and virtual spaces.

anna.oechslen@leibniz-irs.de



[Alica Repenning](#) is a research associate and PhD Candidate at the Leibniz Institute for Research on Society and Space (IRS) and at the Humboldt University Berlin (HU). She is a member of the research project “creative collaboration in the field of tension between virtual and concrete spaces in the case of fashion design”. Her research topics comprise the mediation of practices and spaces of creative production. She studies how fashion designers navigate in work settings mediated by the platform Instagram and how the on-offline entanglements in the designer’s everyday life cause altered opportunities and introduce new difficulties. She is interested in theories on spatial mediation, everyday perspectives on online platforms in practice, the way platforms alter time-space-dynamics, as well as in the means platforms impact forms of creative entrepreneurship.

alica.repenning@leibniz-irs.de

Brian Whitacre, Oklahoma State University, Oklahoma, USA

/ Economic and Social Benefits of Rural Broadband in the United States: A Summary of the Literature

In the United States, rural areas have lagged behind their urban counterparts in internet connectivity for more than two decades. There is an increasing body of evidence that improved broadband availability and adoption has positive effects on the quality of life for rural residents in America. This presentation reviews the rural broadband situation in America, including recent policy changes brought about by COVID-19. It will summarize the literature documenting economic and societal benefits of rural broadband in the U.S. context, including for firm attraction, job availability, entrepreneurship, in-migration, farming yields and profits, income levels, productivity, and civic engagement. Of particular note is the ongoing argument of whether the supply side (infrastructure availability) or demand side (residential adoption) is more important to achieve these outcomes. It also reviews the limited, but growing, evidence on the impacts associated with “ultra-fast” networks in rural locations.



Brian Whitacre is a Professor and Jean & Patsy Neustadt Chair in the department of Agricultural Economics at Oklahoma State University. Brian's main area of interest is rural economic development, with a focus on the role that technology can play. He has published over 60 peer-reviewed journal articles, with most exploring the relationship between Internet access and rural development. He has developed innovative outreach programs that help small towns benefit from the Internet. Brian has won regional and national awards for his research, teaching, and extension programs.

brian.whitacre@okstate.edu

Heike Mayer, University of Bern, Switzerland

/ Digitalisation and slow innovation in rural region

Rural regions are often deemed to be less innovative than their urban counterparts. This might be true when taking traditional innovation measures (e.g. new products, face-to-face interaction, etc.) into account. However, innovation in rural regions might work differently than in urban areas. In particular, peripheral locations might be characterized by "slow innovation" (Mayer, 2020; Shearmur, 2015; Shearmur & Doloreux, 2016). In this talk, I will present insights from two projects that examined the ways in which innovative actors operate in rural peripheral regions. More specifically, I will highlight the role of slow innovation in the work of entrepreneurs in peripheral regions in the European Alps and illustrate how they develop products and ideas in a process that is characterized by the involvement of technical/scientific but also traditional knowledge, by low frequency of interaction with innovation interlocutors, by the utilization of internal capacities, etc., but also by deceleration of their activities in the sense of meaningfulness of work, connection to the community, etc. In the project on digital multilocality, for which we examined the work practices of knowledge workers who work at an urban workplace and switch to a mountain workplace, we found they utilize marginality of the rural environment for their work practices. The two projects highlight the need to incorporate aspects of "slowness" into the conception of innovation in rural areas.



Heike Mayer is professor of economic geography at the University of Bern in Switzerland. Her research is in local and regional economic development with a focus on dynamics of innovation and entrepreneurship, place making and sustainability. Heike started her academic career in the United States, where she completed a Ph.D. in Urban Studies (Portland State University) and held a tenured professorship at Virginia Tech University. She is author of the book *Entrepreneurship and Innovation in Second Tier Regions* (Edward Elgar, Cheltenham), co-author of *Small Town Sustainability* (Birkhäuser Press, Basel), and co-author of *The Political Economy of Capital Cities* (Routledge, London).

heike.mayer@giub.unibe.ch

Yibo Qiao, Utrecht University, The Netherlands

/ New countryside in the Internet Age: The Development and Planning of Taobao Villages in China

With the progress of economic globalization and Internet informatisation, Taobao Village become a special economic geographic phenomenon in Chinese rural region. Through analysis of the spatial distribution data of Taobao Villages from 2014 to 2018, this presentation points out that the spatial distribution of Chinese Taobao Villages shows a longitudinal "North-Middle-South" agglomeration structure and a latitudinal "East-Middle-West" diffusion trend, and a rapid fissile proliferation among Taobao Village industry clusters. In the Yangtze River Delta region, three major Taobao Village agglomeration areas are located in the "double-marginal" zone, that is, the urban margin and the margin of the metropolitan area. A "diamond model" will be proposed to explain the formative mechanism of Taobao Villages, in which grassroots entrepreneurs, main products, facilities support and governments support constitute the four key factors, and the village Party branch and village committee are the main agents for Taobao Villages to transform the rural governance pattern and accomplish a beautiful village construction. In order to cope with the disorder of built environment which is caused by weak regulation, the planning and construction of Taobao Villages should focus on the bottom-up and implementation-oriented construction of rural living environment.



Yibo Qiao is a PhD student in the Department of Spatial Planning and Human Geography in Utrecht University in the Netherlands. He obtained his master's and bachelor's degree from Nanjing University and Zhejiang University respectively, both in the Department of Urban-Rural Planning. His research topic is regional diversification and innovation.

y.qiao@uu.nl

Gabriela Christmann, Ariane Sept and Nicole Zerrer, Leibniz-Institute for Research on Society and Space (IRS), Germany

/ Smart villagers in Germany

Even before the pandemic, rural residents in peripheral and structurally weak rural areas began to move into the digital age and became smart villagers. They develop and use digital solutions to address existing challenges in rural areas such as local communication, health care or mobility. Against the background of a conceptual framework of social and digital innovations from a process perspective, the article asks how processes and dynamics of digitally supported social innovations in rural areas can be understood and described. By analysing five villages in Germany, we show that the digital initiatives – despite their different contexts, contents and driving actors – develop over three phases, an inspiration phase, an emergence phase and a consolidation phase. This dynamic process can be interpreted as "linear-circular",

because while overall a very targeted development of innovative problem solutions could be observed within the three-phase process, at the same time creative development loops and new inspirations take their influence.



Gabriela Christmann heads the research department "Dynamics of Communication, Knowledge and Spatial Development" at the Leibniz Institute for Research on Society and Space (IRS), Erkner, Germany. She is also an Adjunct Professor at the Department of Sociology at the Technische Universität Berlin, Germany. Her research interests include urban and regional sociology, spatial theories, social innovations in rural areas, and digitalisations of action.

gabriela.christmann@leibniz-irs.de



Ariane Sept is deputy head of the research department "Dynamics of Communication, Knowledge and Spatial Development" at the IRS. Her research interests include developments in rural and urban areas, rural and regional planning, social innovations, socio-spatial acceleration and deceleration.

ariane.sept@leibniz-irs.de



Nicole Zerrer is PhD researcher in the research department "Dynamics of Communication, Knowledge and Spatial Development" at the IRS. Her research interests include rural digital social innovation, mediatisation of rural areas, and communicative figurations.

nicole.zerrer@leibniz-irs.de

Bibliography

- Brydges, T., and Sjöholm, J. (2019). Becoming a personal style blogger: Changing configurations and spatialities of aesthetic labour in the fashion industry. *International Journal of Cultural Studies*, 22, 119–139.
- Bürgin, R., and Mayer, H. (2020). Digital Periphery? A Community Case Study of Digitalisation Efforts in Swiss Mountain Regions. In S. Patnaik, S. Sen, and M. S. Mahmoud (eds.), *Smart Village Technology: Concepts and Developments* (pp. 67–98). Cham: Springer International Publishing.
- Christmann, G., and Schinagl, M. (2022). Digital Urban Planning and Urban Planners' Mediatized Construction of Spaces. In G. Christmann, H. Knoblauch, and M. Löw, M. (eds), *Communicative Constructions and the Refiguration of Spaces. Theoretical Approaches and Empirical Studies* (pp. 135–148). New York and London: Routledge.
- Christmann, G., Knoblauch, H., and Löw, M. (2022, in press). Introduction. *Communicative Constructions and the Refiguration of Spaces*. In G. Christmann, H. Knoblauch, and M. Löw (eds.), *Communicative Constructions and the Refiguration of Spaces. Theoretical Approaches and Empirical Studies* (pp. 9–20). New York and London: Routledge.
- Cooper, M. (2012). Workfare, familyfare, gadcare: Transforming contingency into necessity. *South Atlantic Quarterly*, 111, 643–661.
- Corr, P., Couper, I., Beningfield, S. J., and Mars, M. (2000). A simple telemedicine system using a digital camera. *Journal of Telemedicine and Telecare*, 6, 233–236.
- Evans, J., Karvonen, A., and Luque-Ayala A. (2017). Smart and sustainable cities? Pipe dreams, practicalities and possibilities. *Local Environment*, 24, 557–564.
- Häring, I., Gelhausen, P., and Stolz, A. (2016). Safety, Security und Resilience Engineering: Sicherheit entwickeln und nachweisen im Zeitalter der Digitalisierung. *Bevölkerungsschutz*, 4, 32–33.
- Hepp, A. (2020). *Deep Mediatization*. London: Routledge.
- Hepp, A., Hjarvard, S., and Lundby, K. (2015). Mediatization. *Media, Culture and Society*, 37, 314–324.
- Hollands, R.G. (2008). Will the real smart city please stand up? *City: Analysis of Urban Trends. Culture, Theory, Policy, Action*, 12, 303–320.
- Kenney, M., and Zysman, J. (2016). The rise of the platform economy. *Issues in Science and Technology*, 3, 61–69.
- Kitchin, R., and Dodge, M. (2011). *Code/Space: Software and everyday life*. Cambridge, Mass.: MIT Press.
- Knoblauch, H., and Löw, M. (2020). The Re-Figuration of Spaces and Refigured Modernity – Concept and Diagnosis. *Historical Social Research*, 45, 263–292.
- Krivý, M. (2018). Towards a critique of cybernetic urbanism: The smart city and the society of control. *Urban Studies*, 17, 8–30.
- Langley, P., and Leyshon, A. (2017). Platform capitalism: the intermediation and capitalization of digital economic circulation. *Finance and Society*, 3, 11–31.
- Latour, B. (2005). *Reassembling the Social: An Introduction to Actor–Network–Theory*. Oxford: Oxford University Press.
- Lin, G., Xie, X., and Lv, Z. (2016). Taobao practices, everyday life and emerging hybrid rurality in contemporary China. *Journal of Rural Studies*, 47, 514–523.
- Lulu, F. (2019). *Taobao Villages. The Emergence of a New Pattern of Rural Ecommerce in China and its Social Implications*. Friedrich-Ebert-Stiftung, Indonesia Office: Jakarta.
- Malecki, E. J. (2003). Digital Development in Rural Areas. *Journal of Rural Studies*, 19, 201–214.
- Monstadt, J., and Schmidt, M. (2019). Urban resilience in the making? The governance of critical infrastructures in German cities. *Urban Studies*, 56, 2353–2371.
- Pinto, N.N. (2014). *Technologies for Urban and Spatial Planning*. Hershey: IGI Global.
- Qiang, C.Z., Kuek, S.C., Dymond, A., and Esselaar, S. (2012). *Mobile Applications for Agriculture and Rural Development*. World Bank, Report No. 96226–GLB. Online: <https://openknowledge.worldbank.org/bitstream/handle/10986/21892/MobileOap-licaOndOruralOdevelopment.pdf?sequence=1&isAllowed=y> (zuletzt aufgerufen: 09 März 2021).
- Salemink, K., Strijker, D., and Bosworth, G. (2017). Rural development in the digital age: A systematic literature review on unequal ICT availability, adoption, and use in rural areas. *Journal of Rural Studies*, 54, 360–371.

- Serrano, W. (2018). Digital Systems in Smart City and Infrastructure: Digital as a Service. *Smart Cities*, 1, 134-153.
- Townsend, L., Wallace, C., and Fairhurst, G. (2015). 'Stuck Out Here': The Critical Role of Broadband for Remote Rural Places. *Scottish Geographical Journal*, 131, 171-180.
- van Dijck, J. (2013). *The Culture of Connectivity: A Critical History of Social Media*. Oxford: Oxford University Press.
- van Dijck, J., Poell, T., and de Waal, M. (2018). *The Platform Society. Public Values in a Connective World*. Oxford: Oxford University Press.
- van Doorn, N. (2020). At what price? Labour Politics and calculative power struggles in on-demand food delivery. *Work Organisation, Labour and Globalisation*, 14, 136-149.
- Vanolo, A. (2014). Smartmentality: The Smart City as Disciplinary Strategy. *Urban Studies*, 51, 883-898.
- Visvizi, A., Lytras, M.D., and Mudri, G. (eds.). (2019). *Smart Villages in the EU and Beyond*. Bingley: Emerald Publishing.
- Wilson, M.W. (2017). *New Lines – Critical GIS and the Trouble of the Map*. Minneapolis: University of Minnesota Press.
- Wood, A.J., Graham, M., Lehdonvirta, V., and Hjort, I. (2019). Good gig, bad gig. Autonomy and control in a global gig economy. *Work, Employment and Society*, 33, 56-75.
- Zerrer, N., and Sept, A. (2020). Smart Villagers as Actors of Digital Social Innovation in Rural Areas. *Urban Planning*, 5, 78-88.