

'Making the smart city safe for citizens: The case of smart energy and mobility'

Interdisciplinary perspectives on data ownership, data security and liability

Abstracts

KEYNOTE PRESENTATIONS

BISS

Open Universiteit
www.ou.nl



BISCHOFF, JOSCHKA

Mobility as a Service (MaaS) in urban and rural areas: The impact of shared autonomous vehicles

Joschka Bischoff, Technical University Berlin

Abstract

Autonomous Vehicles may have disruptive effects for people's mobility behavior both in urban and rural areas. Their introduction is likely to bring up different kinds of Mobility as a Service ("MaaS") concepts, which may be offered at very competitive rates. In this talk, we will provide an overview of chances and risks of autonomous MaaS solutions in Urban areas and present several scenarios of how a future may look like based on simulation results computed with state-of-the-art agent-based transport simulation technology.

Firstly, the impact of fleets of Shared Autonomous Vehicles will be discussed. With a taxi like services, fleets of SAVs may help to reduce the number of private vehicles in cities, as their usage costs is likely to be similar to those of owning and operating a car. Simulation results suggest that one SAV may replace five to ten private cars. However, SAV services are likely to lead to an increase in traffic, as also people who previously were not driving are likely to start using them and vehicles need to travel empty to get from one customer to another. This may lead to an unwanted increase in congestion and will require wise city and transport planning.

In smaller cities and suburban areas, fleets of pooled Shared Autonomous Vehicles may replace current public transport infrastructure. Contrary to densely populated urban areas, the positive effects of improved accessibility are likely to outweigh negative effects of increased vehicle miles traveled. These two, among many other examples, demonstrate the ambitious challenge Autonomous Vehicles will bring to decision makers in transport planning.

BRIA, FRANCESCA

Reclaiming the smart city for the citizens: Data sovereignty and encryption as human right

Dr. Francesca Bria, Chief Technology and Digital Innovation Officer, Barcelona

Abstract

Francesca Bria will present the Barcelona Digital City Plan: Towards Technological Sovereignty, an ambitious plan that put people first and uses data and technology to transform the city and tackle urban challenges such as sustainable mobility, energy transition, affordable housing, the creation of public space and participatory democracy. She will outline projects such as open data and participatory budgeting that use technology to make government more transparent, participatory and collaborative. She present Barcelona's smart infrastructure projects such as the open source sensor platform Sentilo and the urban data analytics platform CityOS that allows to better manage public services using data to monitor energy, noise, water metering, at the same time allowing startups to use the platform to test new solutions such as garbage collection, parking and mobility solutions etc. She will present a new Europe-wide project DECODE that uses blockchain technology to give back data sovereignty to people, or a city pilot that uses cryptocurrency to issue basic income for the citizens of Barcelona. Finally, she will describe the key element of the Barcelona's model, which is a large scale participatory democracy experiment that is an hybrid model of digital democracy and offline democracy where thousands of citizens can participate in shaping the policies of the city, propose ideas and propose how to implement them.

DODGE, MARTIN

The (in)security of smart cities: Vulnerabilities, risks, mitigation, and prevention

Dr. Martin Dodge, University of Manchester

Abstract

Smart city technologies are creating new vulnerabilities and risks, including making urban infrastructure and services more insecure, brittle, and open to extended forms of criminal attack. In this talk I examine the current state of play with regards to the security of smart city initiatives, identifying major areas of vulnerability in software and digital infrastructures, and present a number of illustrative examples relating to energy and mobility. The talk will then explore existing mitigation strategies and discuss how these might be better enacted and enforced through market-led approaches and governmental regulation. I will also consider a more radical preventative approach to security.

MARTIN, RALF

Making smart meters smarter the smart way

Prof. Ralf Martin, Imperial College London

Abstract

There is much hype about how various smart grid technologies will revolutionise the energy sector. EU wide much hope hinges on the ongoing roll out of smart meters. But how exactly will smart meters help energy consumers? One idea is that they provide more timely and better feedback about energy consumed, which might help reduce waste and improve energy efficiency.

However, it is not clear to what extent consumers are susceptible to such nudges and how much scope there is to improve efficiency. It is also unclear what type of feedback should be provided and how. Providing good evidence on these issues is hard, particularly because companies are often bound by legislative constraints in what they can implement which impedes experimentation.

However, as part of the so-called Smart Meter derogation, the UK government provided energy companies with a regulatory window to trial alternative approaches to energy feedback. Together with Scottish Power and ONZO (an energy analytics firm) we designed a randomized control trial (RCT) among nearly 40,000 customers to study various types of feedback. This suggests that such nudges can potentially have a dramatic effect reducing power consumption of some consumers by as much as 12%.

However, these effects are contingent on consumers using the relevant smart phone apps which is only the case in 30% of cases. Moreover, various consumers were served by different types of smart meter installation service firms. However, we only find feedback effects for customers of one specific installer. This could imply that behavioural change could also depend on the quality of guidance given to customers.

MOROZOV, EVGENY

A critique of digital capitalism: The smart city in the trap of data extractivism

Dr. Evgeny Morozov, Journalist and Author

Abstract

This talk will survey the political economy of today's digital capitalism, discussing how, on the one hand, data and artificial intelligence have emerged as important geopolitical battlefields of the global order, with the city - one of the main sites of data extractivism - becoming one of the key battlegrounds of ideological struggles which have ramifications stretching far beyond the usual problems of housing or of urban planning.

The first part of the talk will discuss how the ongoing concentration of power in the hands of Big Tech (most of America or Chinese provenance) has profound consequences for democratic politics as well as the economy at large. The second half will explore how the city has become an attractive target for Big Tech, with investors, venture capitalists, and technology firms seeing the city as the platform of platforms on which many of the latest digital services, from transportation to food delivery, will be tested and offered. On the other hand, it also figures quite prominently in the imagination of both cosmopolitan democrats - who see the open city as a bulwark against xenophobic politics of the right - and of many neoliberal and right-wing ideologues, who look upon Dubai or Singapore as role models that combine authoritarian and hierarchical politics with a hyper-capitalist and hyper-technological outlook. What, then, can be done to ensure that the democratic city - not the technocratic smart city dystopia - becomes a potent force for egalitarianism and solidarity in global politics writ large?

ROGGENKAMP, MARTHA

Energy networks, smart cities and the law

Prof. Martha Roggenkamp, University of Groningen

Abstract

The strive towards smart energy cities is closely linked to some key issues of energy law: market liberalization, security of supply and the need to combat climate change. Market liberalization is gradually resulting in an empowerment of energy consumers. Consumers are gradually becoming more active as they can choose their supplier, their energy source and can even start to produce energy themselves. The latter usually is usually based on renewable energy sources like solar or wind energy and will thus play a role in reducing greenhouse gas emissions and thus also can be instrumental in securing these consumers' energy supply.

However, there may be some technical and legal obstacles in applying these smart energy solutions. Can energy consumers act as an energy producer? How do network operators deal with the uncertainty of small scale intermittent energy production? This process becomes even more challenging in a build environment like towns and cities. How can we guarantee that all inhabitants can play a role in this process and not those with a roof top suitable for solar panels?

This presentation will first present the way in which the energy sector is organized and how it gradually is moving from a top-down to a bottom-up approach where energy consumers become more important. Then it will discuss the legal obstacles and challenges that can be encountered in this process. Finally it will address some possible legal solutions as the development of smart cities will depend on the introduction of some smart legal solutions.

VANOLO, ALBERTO

Auto-automobilities and being a passenger in tomorrow's smart city

Prof. Alberto Vanolo, University of Turin

Abstract

Autonomous cars are popular in discourses depicting optimistic urban futures, super-efficient mobilities, and the solution of traffic, pollution and sustainability problems. By drawing on theoretical debates on automobilities and time-space geography, I suggest that the driverless car is transversal to the politics of the present and the future, and that opportune social, cultural and political frameworks may allow to avoid narrow understandings of technological development, in order to envision and politicise alternative trajectories producing more just and livable (smart) cities.

WOLTMANN, NICOLAS

Do we need ethical and legal boundaries for the development of automated cars?

Nicolas Woltmann, University of Würzburg

Abstract

Industry, agriculture, households, the virtual world: mobility occupies a special position among all conceivable fields of application for smart systems. The vision of autonomous driving is not only backed by a huge industry (especially in Europe). For many, the self-driving car has also become the prototype of the intelligent machine. Both - economic potential and society's expectations of such a technology - make it necessary to consider whether its introduction should also entail legal innovations. Or is our legal system already prepared for the consequences of driverless vehicles? And if not, what ethical standards do we want to make the basis of new legislation?

The range of legal issues affected by this is astonishing: they range from data protection and the justification of legal responsibility for accidents to the general question of the admissibility of autonomous cars. And answering them requires far more than the opinion of a few lawyers. Politicians must succeed in drafting a set of rules that reflects a consensus throughout society on how to deal with artificial intelligence. Last year, for example, the German legislature took its first steps in this direction with the convening of the Ethics Committee for Autonomous Driving and the reform of the German Road Traffic Act.

The lecture will shed light on the results of the expert commission and the new regulations. In addition, it dares to address questions of legal responsibility that have so far been completely open and provides an overview of future regulatory requirements.