

DIGITIZING EUROPEAN CITIES – CONNECTED AND EFFICIENT SOLUTIONS FOR A MORE SUSTAINABLE FUTURE

“THINK DIGITAL!” EVENT SERIES: POLICY TOPIC #1 – SMART CITIES

‘Think Digital!’ – a year-long series on the opportunities and challenges of the digital transformation has concluded its first bloc with a panel discussion on 06 March 2017. The series’ first topic was all about smart cities: Today, more people around the world live in cities than in rural areas and 75 percent of the worldwide resources and energy is consumed in cities. How can we use digital technologies to improve the quality of life in urban areas, to reduce energy consumption and to ensure sustainable growth? What will be the role of policy makers, industries and citizens in this process? What challenges and risks do we have to encounter? These were some of the questions addressed during the panel discussion and by two previous workshops. ‘Think Digital!’ is organised jointly by the European Office of the Konrad-Adenauer-Stiftung, Google, Siemens and ZVEI (German Electrical and Electronic Manufacturers’ Association).

What makes a city smart? The elements are as diverse as the life in a city itself. Governance, transportation, business, energy consumption, health services, waste management and education are only some of the areas in which digital technologies can radically change how urban citizens live. While there is no universally shared definition of a smart city, all attempts to circumscribe the term share certain features: Smart cities use digital technologies not only in isolated projects, but in all aspects of city life, allowing the different solutions to support and reinforce each other. The technologies employed include state of the art information and communication technology, the Internet of Things, data analysis and even artificial intelligence. Smart cities use these means to maximize the utility of their infrastructure, to engage with their citizens and to be more adaptable for the future. By doing this, their citizens can enjoy a higher quality of life, while their environmental impact is reduced.

More specifically, a study by the European Commission has identified nine types of smart city solutions. Examples include: Real-time road user information, such as variable message signs displaying traffic and parking information; enhancements of public transport, such as contact less public transport cards; improved traffic management, for instance through cameras and sensors; smart buildings, using technologies such as automated meters; sustainable districts, making use of smart water networks and district-wide energy management; and intelligent city services and smart IT-based toolkits to ensure reciprocal communication between city authorities and citizens.

Indeed, smart cities are an important aspect of the EU’s 2020 Strategy, which calls for smart, sustainable and inclusive growth. The European Commission has launched the European Innovation Partnership for Smart Cities and Communities in order to “*establish strategic partnerships between industry and European cities to develop the urban systems and infrastructures of tomorrow*”. The European People’s Party supports these efforts and “*encourages European cities to become digital platforms that supplement the economy, society, environment and welfare of these cities*”.



**THINK
DIGITAL!**

THE ‘THINK DIGITAL!’ SERIES

On 06 March 2017, the organisers welcomed a panel of distinguished speakers to discuss about smart cities in Europe. The event, which was kindly hosted by the Bavarian Representation to the EU, featured keynote

Around 200 guests
joined the debate on
smart cities



speeches from Federica Bordelot (Policy Adviser at Eurocities) and Elisabeth Merk (Head of Department of Urban Planning and Building Regulation in the City of Munich). The two speakers were subsequently joined by Eva Maydell (Member of the European Parliament and patron of the 'Think Digital!' series), Svetoslav Mihaylov (DG Connect, European Commission), Julie Alexander (Siemens) and David Brown (Telensa). The panel was moderated by Paul MacDonnell (Executive Director of the Global Digital Foundation).

ZARAGOZA AND MUNICH: TWO EUROPEAN SMART CITIES

In her keynote, Federica Bordelot gave an overview of smart city projects throughout Europe. She emphasised that citizens had to be put at the heart of the smart city process. This is the case, for example, in the 'Zaragoza Citizen Card' project, an *"all in one digital access card"* which allows access to public services and facilities, such as public transport, parking, libraries, swimming pools, and wireless internet. In combination with an open public interface which can be used by citizens to ask questions, the card reinforces the citizens'

Elisabeth Merk, Head
of Department of
Urban Planning and
Building Regulation
from the City of
Munich



feeling of belonging to their city. So far, more than 200.000 cards have been issued, which represents more than half of Zaragoza's adult population. As a role model for how to integrate citizens in the smart city process, the 'Zaragoza Citizen Card' won the Green Digital Charter Award from Eurocities.

According to Bordelot, the 'Zaragoza Citizen Card' also underlines that *"data is the backbone of smart cities"*. She added, however, that data protection is highly important to secure participants' trust. Lastly, Bordelot stressed the importance of common standards and the interoperability of systems in order to connect smart cities with each other; the decisive precondition for establishing a Smart Europe.

Elisabeth Merk lauded the digital activities from Eurocities, a network of major cities – one of which is Munich. *"If you are a representative of a city, which is not yet a member of Eurocities, then join in"*, she said. Munich, which alongside Vienna and Lyon will be one of three European flagship locations for the development of smart cities, was committed to the idea of a sustainable and healthy city development, Merk said. As part of the project, Munich was creating an 'urban lab' in one of its districts, where it wants to lower carbon emissions, while creating jobs and improving citizens' lives. Merk said that some of the ways to achieve this was by making buildings more energy-efficient and by building mobility stations where citizens can charge their electric cars, rent bicycles or buy public transportation tickets.

However, smart city development had to go beyond lighthouse projects and change into city-wide movements, Merk demanded. *"For this to happen, the current rules are too rigid. Sometimes we have good ideas, but we can only try them in lighthouse projects."* Despite this, Munich was constantly active to implement solutions on a city-wide basis, she said. Much like Bordelot, Merk highlighted the importance of working



Federica Bordelot,
Policy Adviser for
'Digital Economy &
Society, Smart Cities',
EUROCITIES

with citizens and encouraging their participation. She agreed that a successful urban modernization required not only the citizens' consent, but their active involvement during planning, implementation and evaluation.

CONTENTIOUS ISSUES

Citizens' participation, standards and data protection – those were also the themes of the subsequent panel discussion.

"We need to engage the younger generation!"

MEP Eva Maydell from Bulgaria urged for greater participation. Those who live in Brussels may have a feeling that almost everyone is active. But that was precisely because they lived in Brussels, she said, a city that draws in many who already have such a mindset. From her travels across Europe she reported: *"Many of the youth in Europe are disengaged. When you tell them how future cities will look like, they don't believe you."* All panellists agreed that there had to be a much higher involvement from young people. Elisabeth Merk even joked: *"All day long I'm dealing with old people, including myself."* While it made sense that decisions were taken by experienced professionals, one should not underestimate the input younger generations can give to the process of making our cities smarter. Federica Bordelot concurred but added: *"We generally need more skilled people."* Digital literacy was very uneven in both the younger and older generations, she said. Merk concluded: *"If the digital evolution is to become a revolution, it must be implemented on all levels, in all dimensions, not just from the top downwards."*

"Standards are important, but we should not over-regulate!"

Standards were seen as important by all panelists, although there was some concern that premature regulation could cut off innovation and provide disincentives

for businesses to take risks. *"Open and common standards are fundamental. We need to raise awareness for that"*, Bordelot said. Other speakers warned that without adequate standards, communities and cities risk to become locked in a system of a specific provider. However, MEP Maydell cautioned that it would be ill-advised for the European Parliament or the European Commission to engage in premature regulation. *"Standards should be market-driven"*, she said. A particular concern was that given the speed of transformation, many regulations would quickly be outdated. Indeed, MEP Maydell said, we currently had to deal with various regulations that were old-fashioned and harmed the digitization of European cities. Svetoslav Mihaylov from the European Commission admitted that it was due to the speed of the evolution in the market that the



EVA MAYDELL
MEP and Patron of 'Think Digital!'

"We need to improve people's understanding that smart technologies can help ease and better manage day-to-day problems, such as congestion, high energy bills, air pollution, living comfort, even problems with integration."



David Brown, VP
Sales, Telensa

regulator could not always keep pace and that this was a challenge for all participants of the smart city process. Finally, Julie Alexander from Siemens said it had to be one of the top priorities to remain conscious about the effects of regulation: *"Regulation has a huge impact, so we must be careful with it"*.

Lastly, prompted by a question from the audience, the panel addressed the question of data protection. As evidenced by the discussion, smart city projects generate huge amounts of data, and they also depend on the use of this data to allow, for instance, the regulation of traffic or of energy supply. This naturally raises concerns regarding privacy. While a consensus emerged that data protection had to be taken very seriously, the panelists agreed that the potential benefits were too large to be ignored.

Overall, all participants were enthusiastic about the possibilities that digital technologies presented for urban life. David Brown from Telensa gave insights into the industry behind smart technologies. His company, which produces intelligent light systems, was observing how the installation of digital connected city lights

The audience witnessed a lively debate.



was a tempting offer to many cities inside and outside the European Union, he said. *"Smart streetlights are a perfect example of what smart city products can be."* But such small types of improvement can take place in many parts of the urban life, which may in part explain the difficulty to define precisely what a smart city is.

The 'Think Digital!' series featured two additional workshops, which allowed for a deeper discussion of two of the most relevant aspects of smart cities: clean and efficient energy, and intelligent traffic management.

CLEAN AND EFFICIENT ENERGY: AN URGENT TASK FOR A SMARTER FUTURE

The first workshop took place on 25 January 2017, in the European Parliament. In order to ensure that the EU remains a leader in climate policy, the European Commission proposed the Clean Energy Package in November 2016. This package calls for a binding energy-efficiency target of 30 percent by 2030 and an increased focus on renewable energy. Cities, where most energy is consumed, will be where this battle is won or lost. The many opportunities for making urban life more energy-efficient were discussed by MEP Angelika Niebler (another patron of the 'Think Digital!' series), Christoph Conrad (Siemens), Philipp Offenberg (European Political Strategy Centre, European Commission) and Marco Marijewycz (EON).

MEP Angelika Niebler opened the discussion by saying: *"It is time that Europe becomes smart, also with regards to buildings and energy consumption. I believe there are great opportunities for both businesses and citizens."* Christoph Conrad (Siemens), speaking from a business point of view, agreed and welcomed the opportunities associated with the digitization of the energy market. According to Conrad, the energy consumption of public and commercial buildings in urban areas was growing fast. While this in itself was not problematic, one had to mind the type and efficiency of energy consumption. There



Svetoslav Mihaylov,
DG Connect, Euro-
pean Commission (l.)
and Paul MacDonnell,
Executive Director,
Global Digital Founda-
tion (r.)

could be no more business-as-usual, Conrad said. While new buildings had to be made completely or nearly energy neutral, the focus should lie particularly on the old building stock, the vast majority of which is at least 25 years old. Philipp Offenberg (EPSC) illustrated the potential amount of improvement: 75 percent of the building stock in the EU was not energy-efficient, Offenberg said, and the current renovation rate of 1 percent per year means that it would take approximately a century to de-carbonise the existing building stock. *“One of the central problems is the financing of renovation projects. The Clean Energy Package tries to create an environment which facilitates investment in this area”*, Offenberg said.

Christoph Conrad from Siemens offered more insights into what state of the art technology already allowed: Digital buildings are able to manage their energy usage proactively by receiving information about utility prices and weather forecasts, predicting their demands autonomously and implementing energy management strategies on their own. Digital buildings can take on surplus energy when it is cheap and plentiful, storing it for later and feeding it back to the grid when demand is high. Buildings may also generate energy onsite, granting more flexibility in their energy management process.

The discussion highlighted two crucial requirements for smart energy projects: First, energy storage



Christoph Conrad,
Head Marketing
Solution & Service,
Siemens

capacities need to be improved to allow the implementation of sophisticated energy consumption strategies. With the help of storage assets, a consumer of energy in the morning may become a producer of energy in the afternoon only to return to a consumer again in the evening. Second, as with smart city projects in general, data analysis is a highly relevant factor in successful energy management. Whether by using data visualization to engage occupants in energy reduction initiatives or by predicting market conditions, good data analysis is a game-changer when it comes to clean and reliable energy.

INTELLIGENT TRAFFIC MANAGEMENT

A second workshop, held on 08 February 2017 in the European Parliament, addressed intelligent traffic management systems. While modern cars rely heavily on software to provide advanced driver assistance systems – including a variety of functions such as automated lighting, traffic warnings and emergency braking assistance – the full benefit of digital technologies in the transport sector will only be realized when cars begin to communicate with each other and with the infrastructure they are using. The panel of the





(From left to right)
 Claire Depré, Head
 of Unit Sustainable &
 Intelligent Transport,
 European Commis-
 sion; Dr. Gerhard
 Ploss, CEO, SWARCO
 Traffic Systems; Dita
 Charanzová, MEP; Dr.
 Steffen Nolte, Head of
 Economic and Legal
 Policy, Corporate Rep-
 resentation of Daim-
 ler AG in Brussels

workshop consisted of MEP Dita Charanzová, Steffen Nolte (Daimler AG), Gerhard Ploss (SWARCO) and Claire Depré (DG Move, European Commission).

In the topic of smart mobility, much attention naturally falls on the vehicles themselves. However, as Ploss emphasised, there should be at least an equal amount of focus on car-to-infrastructure systems. Depré fully agreed and said: *"This is the first time – honestly – since I've been working on this topic that there is a workshop on traffic management. It is usually always about connected cars."* Ploss explained that today, there are at best individual detectors in the road-network. *"Between those detectors we are blind"*, he said. If cars were to submit their data to the infrastructure management, it would give traffic managers the full picture of the current traffic situation.

If fully implemented, intelligent traffic systems could bring about a wide range of significant benefits.

First, by informing drivers of traffic-light phases and roadwork as well as by warning them of hazardous situations, such as accidents, obstacles or icy roads, these systems contribute greatly to the safety of driving. Road safety has steadily increased in Europe over the last decades, but recently this progress has slowed down. Intelligent traffic systems are uniquely suited to bring a new boost to safe driving. Second, by coordinating individual vehicles, congestion can be reduced. This allows for a smooth and nuisance-free driving experience. Moreover, it has an important economic implication, given that traffic jams are a huge cost to the EU economy. Third, enabling unobstructed travelling has a highly significant impact on the environment. Road transportation is still a major contributor to air pollution. Intelligent traffic systems do not only help to avoid congestion, but they may also be used to integrate different forms of transportation, helping commuters to use public transport when available.





ANGELIKA NIEBLER

MEP and Patron of 'Think Digital!'

"Smart Cities means bringing IT technology 'downtown', get people, infrastructure and assets in a community connected and thus, facilitating people's life. Smart cities allow communities to be more sustainable and thus, increase the value of life for our citizens."

Yet although all panellists agreed on the wide range of benefits from intelligent traffic management systems, they were puzzled as to why implementation was not forthcoming more quickly. Nolte said that the underlining issue was that of a missing business case. He used the truck industry as an example. While there was a business case for truck companies to invest in systems that allowed them to manage their fleets already in the early 2000s, there seemed to be no comparable business case in the private transportation market. Ploss said that cities which are currently investing in traffic infrastructure should understand that these systems would stay in place for a long time. *"They should be future ready. There is a political will to become connected but they do not buy it on the ground. And I really wonder why."*

The issue of data protection was also present in this workshop. There was a general understanding that intelligent traffic management depends on a constant flow of data from the vehicles. Although this data would preferably be anonymised, an individual driver could still be identified given the multitude of parameters that are being transmitted. Thus, it seemed that privacy concerns would still need to be addressed. MEP Charanzová ended the event by saying that although she can understand the scepticism and fears of the critics, the benefits of intelligent traffic management outweighed the associated risks. According to her, *"we need to have more people who are happy about these new technologies"*.

SO, HOW SHOULD WE DIGITIZE OUR CITIES?

The speakers at the three 'Think Digital!' events covered a broad range of topics and raised a lot of questions politics and the industry need to tackle in the future. However, there were five points that were

consistently mentioned at all sessions and seem to be particularly relevant for successfully establishing smart cities on a broad scale across Europe: (1) Smart city systems must fulfil a certain kind of interoperability and must adhere to common standards. Premature regulation which cuts off innovation or quickly becomes outdated does however more harm than good. (2) Data is the most important element for smart cities. Therefore, we need better data collection, data analysis and a responsible use of data. (3) Investments in infrastructure as well as in data and energy storage units are key for using today's state of the art technologies and unlocking their full potential. (4) Best practice and lighthouse examples are a good way to illustrate the advantages and opportunities of certain technologies. Nevertheless, one has to invest in all elements of a city and connect those with each other. (5) The digitization of cities must be a common project by politics, industry and citizens. All groups must be involved in the process and be aware of the benefits this revolution brings for their lives or businesses.

The European People's Party (EPP) recognizes that Europe is facing an era of great technological change and that societies, economies and industries are being reshaped on a scale and speed like never before. Mobile and cloud technologies, big data and the Internet of Things offer enormous opportunities for the economy and could improve the lives of citizens immensely. The EPP calls for using these new technologies and exploit the enormous potentials of the digital revolution. At the same time, it will also safeguard the civil rights and freedoms of citizens during this transformation. Thus, the EPP is committed to leverage the benefits and to tackle the challenges in order to create an inclusive, secure and sustainable digital society, benefitting from the internet and digital technologies.



CONCEPT OF THE 'THINK DIGITAL!' PROJECT

Since the European Union has to deal with several existential crises, the 'political will' to complete the Economic and Monetary Union or to discuss institutional reforms has slowed down. One of the issues on which member states and the European Institutions can agree on is the need to digitize economies and societies within Europe. When presenting the Digital Single Market Strategy of the European Commission in April 2016, Vice-President Andrus Ansip said: *"Our Strategy is an ambitious and necessary programme of initiatives that target areas where the EU can make a real difference. They prepare Europe to reap the benefits of a digital future. They will give people and companies the online freedoms to profit fully from Europe's huge internal market. The initiatives are inter-linked and reinforce each other. They must be delivered quickly to better help to create jobs and growth. The Strategy is our starting point, not the finishing line."*

The European Office of the Konrad-Adenauer-Stiftung shares the European Commission's view and fully supports its Digital Single Market Strategy (DSM). Only a substantial and successful digitization of both the economy and the society allows Europe to remain competitive in an increasingly global market. Policy-makers have a big role to play in delivering this vision. Moreover, they have the difficult task to strike a balance between innovation and key principles. To participate in the political debate about the DSM, the European Office of the Konrad-Adenauer-Stiftung has launched an event-series called 'Think Digital!'. In cooperation with Google, Siemens and the ZVEI we are organizing conferences and workshops on a broad range of digital topics, investigating the relationship between digital technologies and all economic sectors.

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Fokus Europa
Digitizing European Cities
"Think Digital!" event series:
Policy Topic #1 – Smart Cities

Publisher
 Konrad-Adenauer-Stiftung e.V.
 European Office
 11, Avenue de l' Yser
 B-1040 Brussels
 Belgium

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