Smart Cities, Intelligent Cities?

Special Session of the Club of Three
London (Canary Wharf), 23-24 November 2018

INTRODUCTION

Some 50 senior figures from business and key political figures from national and local government leading urban projects in France, Germany and the UK gathered in Canary Wharf in November for a special session of the Club of Three on smart cities.

The meeting, entitled "Smart Cities, Intelligent Cities?", was hosted by the Canary Wharf Group at its arched glass atrium, East Wintergarden, located at the heart of the financial district. It was the last of two meetings held in 2018, looking at opportunities and challenges of digitalisation from a city-level perspective.

The first meeting was held in London in March with a group of thirty business leaders from our three countries. This event, during which Valérie Pécresse (President of the Ile-de-France region) gave a keynote speech, looked at the role of technology in creating attractive living spaces.

The November meeting began on the Friday afternoon with a keynote speech by Professor Tony Travers on current urban challenges in major world cities and the smart city policies that London had initiated in recent years.

Left: Theo Blackwell (Friday afternoon session), East Wintergarden

Right: Laurel Powers-Freeling (Saturday sessions)

This was followed by a first session on governance issues. During dinner at Canary Wharf Group's smart city hub Level39 at the One Canada Square skyscraper, Gerhard Fettweis (Vodafone Chair Professor at TU Dresden) spoke about the tactile internet and its underpinning 5G technology.

There were two sessions on the Saturday morning, focusing respectively on the role of the private sector in making cities smarter and more sustainable, and on smart infrastructure with specific emphasis on urban air mobility and prospects for the development of the so-called flying cars.




Top left: Beate Weber-Schuerholz during the Friday afternoon session

Top right: Club of Three Chairman Michael Maclay

Bottom left: Gerhard Fettweis speaking at dinner (Level39) **Right-hand side:** Jean-Louis Gergorin during dinner

MEETING PARTNERS

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KEYNOTE ADDRESS: LONDON 2030

During his keynote address entitled “London 2030”, Professor Travers gave an overview of the steps that London had taken to become smarter, including the creation of the London Datastore – a free and open data-sharing platform where anyone can access data relating to the city – a Smart Mobility Living Lab and Digital Security Centre. Research showed that the provision of open data was benefiting London’s economy, generating economic gains and savings of up to £130m a year.

This was still a work in progress however and a number of issues about public consent, transparency and private access to city data needed to be addressed. Every city had different government systems, local concerns and politics. What worked in Singapore might not be acceptable in New York for instance. Like others in Europe, London was an old city with immense openness and adaptability. This was the key to a balanced and successful future.

Technology industries appeared to flourish in environments where millions of people lived and enjoyed a high level of freedom and cultural tolerance, and had flexible labour laws and international links. Many cities looked well placed to take advantage of artificial intelligence and automation to boost their productivity, but measures would need to be put in place to help those affected by change. Data collection and analytics would also have to be regulated.

Top: Professor Tony Travers (Friday afternoon), East Wintergarden

Middle: Bertrand Serp (centre)

Bottom: Tony Travers during the Q&A after his keynote

FRIDAY 23 NOVEMBER

SESSION I – GOVERNING SMART CITIES: BY THE PEOPLE, FOR THE PEOPLE?

Chair: **Beate Weber-Schuerholz**

Speakers: **Theo Blackwell | Julie de Pimodan | Franz-Reinhard Habbel**

During the first session that followed the opening speech, participants heard more about London's approach to smart cities. Some noted that 'smart city' was a very loose term that referred to a variety of different concepts. A number of cities were putting emphasis on developing the digital economy while others were focusing their efforts on eGovernment.

London was increasingly thinking in terms of digital transformation and particularly how it could mobilise its public assets to develop a digital infrastructure. For instance, the city's network of 600,000 lampposts could be utilised to house 5G receivers or charging points for electric vehicles. Getting this infrastructure right was more important than setting targets on drones or autonomous cars.

One of London's priorities was also to build a data sharing ecosystem across its thirty-three boroughs. The London Datastore was an important source of information for users of local services but it only represented a small part of the very large amount of data held by the boroughs. The UK's distributive power system meant that data could not automatically be requested from them. Data lakes (storage repositories where a vast amount of raw data is held until needed) were therefore not an option. The plan was to gather and collect data by developing close relationships between City Hall and the boroughs.

One step towards the creation of this collaborative environment was the establishment of the London Office of Technology and Innovation, which would work on the development of common

Bottom (left): Julie de Pimodan (session I)
Right: Theo Blackwell

standards for data collection and also find ways of exploiting the untapped planning data containing crucial information about how the city worked as a whole.

Traditional IT systems were seen as major barriers to data sharing and innovation. In order to spur innovation, cities needed to have the confidence to build their own systems with the support of small IT firms within their immediate surroundings.

Another aspect of smart governance was the growing use of civic technology. In the US, 'civic-tech' now represented 25% of IT government spending and this sector was also booming in Europe. Companies like Fluicity in France were working with municipalities to help them better understand the needs of their citizens and improve local services. Online participative platforms were able to involve adults with young families and youngsters in a way that was not possible before.

The issue of trust was pivotal to the development of civic-tech. Third party platforms and the EU's GDPR regulation offered guarantees in relation to this. Listening to what citizens had to say, even though their views might not coincide with the local political agenda, and showing that they had an impact were also important aspects of building trust. Although politicians were increasingly acknowledging the power of civic-tech, this more collaborative way of doing politics remained marginal at present.

The security of these platforms was also paramount. Technology was a double-edged tool: it could either be used to energise societies or to undermine them and this latter aspect was not always given equal priority. In France, the government was now providing technology that could clearly identify each user and very effectively protect platforms against trolls and foreign interference in the democratic process.

As far as cities were concerned, securing open data systems was only one part of the challenge. They were often using combinations of different data sources and open data was just the tip of the iceberg, as one participant noted. The London Schools Atlas for instance, which provided information about school locations across the capital, current patterns of attendance and potential future demand, used a mix of open data and private data provided by the UK Department of Education.

DINNER DISCUSSION

The Friday session was followed by a dinner at the Canary Wharf Group's smart city hub Level39 at the One Canada Square skyscraper. Level39 was the birthplace of a number of successful start-ups such as banking app Revolut and it was also currently the only place in Europe with a live 5G network. 5G was the technology that underpinned the so-called tactile internet. One of its creators, Gerhard Fettweis, described the tactile internet as the next major phase of development after the mobile internet and Internet of Things. This 'internet of sensors' was an ultra-low latency end-to-end communications system that sent and received data in a millisecond, which mimicked the human tactile reaction time. By comparison, the visual reaction was in a range of 10 milliseconds. Existing 4G networks had a latency of 25 milliseconds.

This remarkably responsive system meant that sensors could be controlled remotely very efficiently. In urban areas, automated cars would be able to detect fast moving cars would be able to detect fast moving objects and send this information to nearby vehicles in real time. In the energy sector, smart grids would also be relying on this technology to operate properly.

Real-time remote control would inevitably lead to a high degree of robotisation. This would for instance pave the way for the use of robots in the construction industry and many other sectors of the economy. The maintenance of sensors, which would represent lucrative contracts, could also be conducted by robots. The socio-economic changes that this next revolution would bring about were on a much bigger scale than what was anticipated in the present digital age.

However, the tactile internet was still in its infancy and there were technical issues that needed to be resolved. Contrary to 4G technology, which operated within regulated frequency bands, the potential for interferences between 5G networks was very significant.

LIST OF PARTICIPANTS

Claude **ALBER** *Rockwell Collins* | Matteo **ANDREOLETTI** *Whitehelm Capital* | Katherine **BENNETT OBE** *Airbus* | Theo **BLACKWELL** *Greater London Authority* | Pascal **BORIS CBE** *Le Cercle d'Outre-Manche* | Deborah **CADMAN OBE** *West Midlands Combined Authority* | Alexandre **CHAVAROT** *Access Corporate Finance* | Greg **CONARY** *Schneider Electric* | Philippe **COQ** *Airbus* | Joanna **DALLY** *BP* | Howard **DAWBER** *Canary Wharf Group* | Julie **de PIMODAN** *Fluicity* | John **DICKIE** *London First* | Eduardo **DOMINGUEZ PUERTA** *Airbus* | Professor Gerhard **FETTWEIS** *TU Dresden* | Stefan **FRANZKE** *Berlin Partner for Business and Technology* | Andrew **FRASER CMG** *Mitsubishi* | Jean-Louis **GERGORIN** *JLG Strategy* | Beate **GINZEL** *City of Leipzig* | Jeremy **GREAVES** *Airbus* | Franz-Reinhard **HABBEL** *DStGB-Innovators Club* | Uwe **HANNECK** *Germany Industry UK* | John **HENDERSON CB** *Staffordshire City Council* | Bruno **HERVET** *SUEZ Group* | Steffen **HOFFMANN** *Robert Bosch UK Holdings Ltd* | Ulrich **HÖRNING** *City of Leipzig* | Mathew **JELLINGS** *Engie UK and Ireland* | Christof **KUTSCHER** *AXA Investment Managers* | Armand **LAFERRÈRRE** *Orano* | François **LE GOFF** *Club of Three* | Christoph **LINDEMANN** *Bergedorf District Office of Hamburg* | Edie **LUSH** *Hub Culture* | Michael **MACLAY** *Club of Three* | Douglas **MCWILLIAMS** *Centre for Economics and Business Research* | Anne-Elisabeth **MOUTET** *Daily and Sunday Telegraph* | Tim **NOPPENEY** *Robert Bosch UK Holdings Ltd* | Wilfrid **PETRIE** *Engie UK and Ireland* | Francis **PISANI** *Le Monde* | Laurel **POWERS-FREELING** *Uber UK* | Katherina **REICHE** *German Association of Public Utilities (VKU)* | Norbert **RÖTTGEN MdB** *Foreign Affairs Committee of the Bundestag* | Bertrand **SERP** *Toulouse Métropole* | Lord Simon **of HIGHBURY** *Club of Three* | Bernard **SPITZ** *French Insurance Federation* | Ben **STILL** *West Yorkshire Combined Authority* | Larissa **SUZUKI** *London Tech Associates* | Professor Tony **TRAVERS** *London School of Economics* | Beate **WEBER-SCHUERHOLZ** *Former Lord Mayor of Heidelberg*

SATURDAY 24 NOVEMBER

SESSION II – MAKING OUR CITIES BETTER, MORE LIVEABLE AND SUSTAINABLE PLACES

Chair: Joanna Dally

Speakers: Wilfrid Petrie | Katherina Reiche | Bruno Hervet

The discussion during the first Saturday morning session focused on Public-Private Partnerships (PPPs) and the role that private companies would play in delivering the smart cities agenda. For years PPPs and Private Finance Initiatives had flourished in the UK, leading to the construction of hundreds of hospitals, schools and other major public sector projects. But this had come to a halt after a series of bankruptcies and liquidations – the latest involving construction firm Carillion – seriously undermined public trust in PPPs. In response, a recent report by the New Local Government Network (NLGN) had called for a new approach based on collaborative and agile partnerships between the public and private sectors.

Companies like ENGIE had refocused their business around the concept of good placemaking and the creation of attractive living spaces better suited to local needs. In November, it had announced that its coal-fired power plant in Rugeley would be turned into a housing park of 2,000 homes powered by renewable energy. About 30% of the site would be set aside for affordable housing and some homes would be specifically designed for the elderly. Part of ENGIE's strategy was to get involved in businesses that were in synch with society's long term aspirations in terms of housing affordability, energy sustainability and mobility. But in order to run successful businesses in the long run, companies would need to learn to cope with three main variables: technology, political leadership

Bottom (left): Wilfrid Petrie (session II)

Right: Katherina Reiche

and changes in public perceptions as shown by the recent rise of populism in Europe.

This shift towards communities and places was in part due to the fact that the energy sector was radically changing. Energy was becoming a local issue, more decentralised and embedded in buildings.

Energy companies were no longer just suppliers of electricity and heating but increasingly also service providers, helping households to better manage their energy consumption and to improve the energy efficiency of their homes.

In Germany, the municipality-run utility sector was a force to be reckoned with. Individually, these local public utilities were no match for the big four (E.ON, RWE, Vattenfall and EnBW) but as a group they represented a sizeable share of the energy market: 65% of heat distribution, 59% of gas consumption and 46% of electricity. In the late 1990s, when Germany liberalised its energy market, many had predicted that these public utilities would not survive because they were too small and would not be able to cope with competition. However, 20 years later most of them were still in business and in good financial shape.

Municipality-run utilities also enjoyed a high level of public trust. In a 2013 referendum, the majority of residents in Hamburg had voted to buy back the city's electricity distribution grid from Vattenfall.

The new grid operator has been tasked to electrify Hamburg's public transport system by 2030. A network of public charging points was going to be built over the next 10-12 years, although there was currently no business model behind this initiative. It was very much a political decision.

It was clear that given the pace of technological change and complexity of smart city projects, municipalities in France, Germany and the UK would find it hard to develop alone the expertise or to mobilise the finance that was necessary to provide better local services. In the UK, joint ventures and shared ownership seemed to be a promising model.

Bottom (left): Beate Ginzel (speaking)

Right: Bruno Hervet (speaking) and session chair Joanna Dally (left)

SATURDAY 24 NOVEMBER

SESSION III – ROLLING OUT SMART INFRASTRUCTURE: CHALLENGES AND OPPORTUNITIES

Chair: Bernard Spitz

Speakers: Eduardo Dominguez Puerta | Laurel Powers-Freeling | Bertrand Serp

Discussions during the final session were dominated by the issue of urban air mobility. Today, there were about 100 companies globally involved in the development of vertical take-off and landing vehicles but the expectation was that most of them would disappear as this market was maturing. Airbus and Uber were among the main players. Uber was going to start with 'alpha cities': São Paulo, Dallas, Los Angeles and Tokyo. Airbus was also concentrating on the American and Asian megacities. Its plan was to focus on passenger transport first and then air cargo which was currently far too expensive. The infrastructure in these big cities, with their helipads at the top of skyscrapers, was almost already in place, at least to operate in a limited service.

Europe would come much later and London would very likely be the first target. But even if urban air mobility was going to develop faster in the Americas and Asia, it was in Europe's strategic interest to create its own market to avoid lagging behind in the development of these technologies. It was encouraging that cities like Toulouse were already planning to invest in this area. In September, the city had announced a step-by-step approach, starting with drones to monitor traffic and air quality, followed by emergency and rapid response services before moving on to a wider use.

In Europe, one of the main hurdles apart from critical market size and infrastructure was public acceptability. In China, the situation was very different. Noise was not

Bottom (left): Bertrand Serp

Right: Eduardo Dominguez Puerta (speaking)

an issue, the focus being on reducing air pollution, and the risk perception associated with the introduction of new technology was much lower. However, companies like Airbus were very clear that the safety standards for urban air mobility would need to be very strict, on a par with commercial aviation rules with a risk of 1x10-9. These safety levels were much higher than for helicopters with a risk of 1x10-7.

The cost of urban air mobility was another key issue when it came to public acceptability. The so-called flying cars were perceived as luxury transportation for an elite of urban dwellers. But although it was true that this service would be aimed at a small group of privileged users to begin with because of its high cost, the assumption was that it would gradually become democratised as costs went down. Uber predicted that a flying car would eventually cost the same as its Uber X service on roads.

For some municipalities the real problem was the negative impact that the growing app-based vehicle hire sector was having on public transport. The success of these services had led to a drop in bus use in many areas and, consequently, cuts to bus services. This was affecting the poorer users who needed them the most.

At the same time, it was noted that public transport was of critical importance to companies like Uber. In London, almost half of Uber journeys either started or ended at an Underground or bus station. And the growth in public transport services in the city had coincided with an increase in the use of Uber, as the introduction of the Underground night service during weekends had shown. It was therefore in the interest of both municipalities and app-based vehicle hire companies to collaborate.

Uber saw itself as being part of a wider hybrid transport system interconnecting various forms of transportation. The only enemy in the long run was private car ownership.

CONCLUSION

Despite their medieval heritage, European cities looked well placed to develop smart solutions in order to improve the quality of life of their citizens. Innovation tended to flourish in busy urban environments where people enjoyed a high level of freedom and cultural tolerance. However, other parts of the world that were less risk-averse, such as China, also had an advantage when it came to developing and testing new technology.

There was no uniform smart city agenda in Europe. Cities were generally pursuing three main missions depending on their government systems, local concerns and politics: digital transformation, digital economy and eGovernment. There were also different approaches to data collection. The so-called data lakes were not an option for London for instance. The city was going to tap into the large amount of data held by its 33 boroughs through close relationships built with them over time.

It was all the more important for cities to quickly adopt to the digital age as the next phase of technological development was already in the making. The tactile internet supported by 5G technology was going to lead to a degree of robotisation much

greater than what was currently anticipated with the digitalisation agenda.

Technology was also radically changing the way some businesses operated and their relationship with local communities, particularly in the energy sector. Energy was becoming a local issue, more decentralised and embedded in buildings which meant that energy firms were increasingly addressing the broader issues of housing and good placemaking.

As far as urban air mobility was concerned, flying cars were not going to take over the European sky any time soon but they were becoming a reality in cities like São Paulo and Los Angeles. It was in Europe's strategic interest to develop a market for them.

Top: Claude Alber (speaking) and Ben Still

Middle: Bernard Spitz wraps up session III

Bottom: Final session, East Wintergarden