

"ICT for Energy Efficiency" (ICT4EE) - Brussels, 23-24 February 2010

Report on the session "Smart Sustainable Cities"

Introduction

The parallel session on smart sustainable cities took place on 23 February 2010, from 11.00-17.30h. The session underlined the role of cities in achieving Europe-wide energy and climate change mitigation targets, maximizing the potential for cities to influence the development of "green" ICTs, and to use ICTs to improve energy efficiency and reduce carbon emissions across other sectors. The EURO CITIES Green Digital Charter, now signed by 21 cities¹, formed the starting point for discussion (11.00 – 12.30h). The Charter commits cities to work together to deliver on the EU energy and climate objectives using digital technologies. This first part of the session was chaired by Pekka Sauri, Vice-Mayor of Helsinki responsible for public works and environmental affairs.

The second part of the session, chaired by Dave Carter, head of Manchester's Digital Development Agency, (14.00-15.30h) gave further examples of city projects based on a concept of a smart&sustainable city and put ongoing activities in context of national government efforts. The third part-session (16.00-17.30h), again chaired by Dave Carter, provided space for reflection and engaged speakers, attendees and followers via webstream in a vivid discussion around further activities and the implementation of smart & sustainable cities initiatives.

Overall, the session involved a variety of speakers from city government (Helsinki, Rijeka, Nice Côte d'Azur, Bristol), municipal energy agencies (Nuremberg, Helsinki), research&innovation clusters (Advancity, Ile-de-France) and national governments (German Ministry of Economics and Technology). The session also involved a number of city politicians who signed the Green Digital Charter earlier on during the day, namely from Helsinki, Rijeka, Nice Côte d'Azur and Malaga.

This session report does not summarise the presentations made but rather aims at synthesising the issues discussed, main messages, questions raised and orientations that were brought forward. All presentations can be found on the conference website at:

http://ec.europa.eu/information_society/events/ict4ee/2010/index_en.htm

Thematic discussions

ICT is an enabler across sectors. Sectors where cities have a direct influence/impact include land use and land planning, energy generation, distribution & consumption, transport/mobility, buildings, education, health, waste and urban sprawl. Through pioneering integrated approaches they function as massive and replicable test-beds.

ICT is in particular key to integrate data, e.g. registries of buildings and their energy use, or collecting and collating measurable and comparable emission & energy data across all parts and organisations in the city.

For many cities the smart city agenda also provides a massive opportunity for economic restructuring and recovery, from large-scale industrial production sites to urban centres of green tech and knowledge, as highlighted by Rijeka and Nice Côte d'Azur.

¹ Ghent, Birmingham, Manchester, Genoa, Reykjavik, Vienna, Murcia, Nantes Métropole, The Hague, Zaragoza, Lisbon, Tallinn, Stockholm, Bristol, Amsterdam, Bologna, Helsinki, Malaga, Nice Côte d'Azur, Porto and Rijeka.

Local leadership and building partnerships

During the session, participants in particular underlined the local leadership potential of cities. Helsinki stressed that smart cities can provide integrated planning and coordination of Climate action across sectors and across stakeholders in a given territory. The session showcased a variety of partners who need to be involved in realising the smart & sustainable cities agenda:

- city leaders (political level “guidance”, executive city officials)
- energy agencies (publicly-owned/ private/public-private)
- incumbent industries (energy, construction, transport sector)
- local businesses (in particular SMEs and relevant clusters)
- universities & local research expertise
- citizen (via community/neighbourhood organisations or individually)

Typically, actions on ICT is built in or linked to broader strategic partnerships on Climate Change mitigation, e.g. activities under the EU’s Covenant of Mayors² or local climate change mitigation partnerships. Some cities, like Amsterdam, are linking the major renovation of their broadband infrastructure to the city’s sustainability plan and thus provide innovative linkages of otherwise disconnected activities. Initiatives like the Green Digital Charter, committing city leaders to the ICT & Energy Efficiency agenda, typically also raise awareness across different departments in a city administration and thus facilitate internal coordination. National governments can support in particular high-cost projects and create economies of scale, like the E-energy initiative³ in Germany.

Participants furthermore underlined that partnering with local communities of citizens and businesses can serve as a strong enabling element. Often at the very local level it is easiest to engage such communities in energy efficiency efforts, making the whole city more energy and emission-conscious, driving a “behavioural change”. Bristol with their GreenAddict⁴ and Carbon Makeover⁵ projects are attempting to put this community potential at the heart of their activities. Other cities are engaging with local health and social care groups to reach out to socially deprived parts of the population and address emerging issues around energy poverty. In many examples the city partnered with local business partnership to attract green investments and build on the economic growth potential of the smart city agenda.

Furthermore, international networks to exchange knowledge on good and bad practices were considered crucial. EUROCIITIES⁶ and the European network of Living Labs⁷ were specifically mentioned.

Enabling behavioural change

There is little evidence on how behavioural change is sustained beyond closed-environment and piloting projects like DEHEMS⁸. However, ICT is widely perceived as a good tool to take ownership of one’s personal energy and emission balance sheet. It was however also recalled that systems focusing on end-user interaction are not always the most efficient solution, and automation of processes & persuasive systems might add a lot to the bigger picture.

² www.eumayors.eu

³ www.e-energy.de

⁴ www.greenaddict.eu/ - Bristol’s community engagement website on Green IT

⁵ www.carbonmakeover.org.uk - Carbon Makeover is a Knowle West Media Centre project that has been running since October 2007. The overarching aim has been to engender behavioural change around carbon reduction, with people who have not previously been engaged with environmental agendas.

⁶ www.eurocities.eu

⁷ www.openlivinglabs.eu

⁸ www.dehems.eu

Participants agreed that citizens are more receptive now than they have been a couple of years ago. Still, scenarios to deploy solutions that empower the end-user have to be designed properly. The Malaga Smartcity project⁹ rolls-out in an area with a high density of new buildings and predominantly young residents with secondary or tertiary education. This contrasted with other projects which emphasised work on the existing building stock and greyfield regeneration. To sustain efforts towards energy-efficient behaviour by all parts of a city, participants suggested strongly that the individual economic benefits must be underlined and demonstrated to local “agents”, ie. citizens/customers, local businesses or multipliers like trade business associations and neighbourhood groups. Economic benefits need to be clearly assessed for all new technologies and be made public as far as possible.

Award schemes to select the best local initiative, fiscal rewards or fiscal deterrence should be considered concrete options to incentivise changes on the ground. Participants however also recalled that more comfort and lower end-user prices can lead to overall higher consumption. Given the complexity of a city as a system of systems, management of “trade-off” effects and progress towards a sustained behavioural change are a central success factor for city projects.

Green IT, public procurement and green compliance

Many cities are investing in Green IT and serve as demonstrator of good practice: virtualisation technology, City Smart Cards, Green Data Centre, intelligent data centre cooling and the dematerialisation of services and processes (eGovernment) were amongst the solutions presented. Helsinki’s energy agency has created a new service portfolio around eco-efficient cooling of data centres, to react to growing demand for energy-efficient data centres.

Green compliance schemes across city infrastructure and public services can have positive spillover effect, but are not in place everywhere just yet. The purchasing power of local & regional government is considerable, hence green public procurement is considered a strong enabler as well, as was shown by Rijeka, which invested 5 million Euro in energy-efficient street lighting.

Coordinating or partnering in deploying new networks

Also, deploying smart grids, testing smart meters and “smart” energy applications with customers on site is a main area of activity for cities. For instance, Amsterdam plans to invest 200 million Euro in a smart grid, particularly investing in the network mid-level. Decentralised energy generation is only possible with intense management, regulation of demand and supply through ICT. Nürnberg’s CO2 reduction strategy has decentralisation and ICT at its heart. As well as more traditional activities around demand management and CHP, Nürnberg is working on trigeneration¹⁰ to use district heating for cooling purposes, with higher profitability and lower carbon emissions the result.

Many cities still lack behind on district heating/cooling. ICT provides tool to plan and manage district heating/cooling more efficiently. Helsinki presented the integrated management of their systems, which flexible adopts to seasons, scent, temperatures and usage purpose (homes, data centres, or others). This also presents a strong business case for energy providers (public or private), as energy that is recaptured or kept within the network can be resold.

⁹ www.smartcitymalaga.com

¹⁰ Trigeneration is the simultaneous production of mechanical power (often converted to electricity), heat and cooling from a single heat source such as fuel or solar energy. As with cogeneration, the “waste heat” byproduct that results from power generation is harnessed, thus increasing the overall efficiency of the system.

Open data

Another line of discussion was the availability, comparability and quality of emission and energy data. Helsinki understands itself as an “open city”, open for ideas and grassroots innovation. Helsinki’s Forum Virium is a multi-partner platform using the Living Labs methodology to develop sustainable services together with citizens. Making public data available in a usable format will gain growing importance given that the most innovative services and products are offered by a mix of private, public and third sector organisations.

Participants from Bristol stressed that a definition of open data with concrete specifications might be needed. Participants agreed that cities hold a huge catalyst potential here when acting as open data provider and will create win/win situations. London’s Data Store is a good example of this.¹¹

For a city administration itself, a higher quality of available emissions and energy data (e.g. inventories of the energy-efficiency of buildings, spatial plans or utilities infrastructure in a given borough) will enable more informed urban planning, including digital simulation & testing of future developments. Furthermore, it will enable a more participatory way of making planning decisions, as data can be fed into community engagement projects.

Concretising concept & business models

Some participants questioned the business models behind the presented smart city initiatives. A need to further concretise the concept with impact assessments and cost/benefits analyses, looking in particular at the expected changes in energy end-user price and at the acquisition and maintenance costs of new technologies, was underlined.

A number of speakers responded to this. Malaga emphasised that its current activities are rather aiming to research scenarios for the future and creating economies of scale. Starting from a strategic planning viewpoint, ICT is being used to integrate the implementation of different policies such as the city’s energy plan, sustainability plan, the urban development strategy and the mobility & public transport strategy. The German E-Energy initiative¹² on the contrary focuses on creating concrete efficiencies for end-users and businesses. Bristol is assessing in detail at what emissions come from equipment and services within their public administration and thus provides a factual basis for actions on Green IT.

Creating benchmarks

The EUROCITIES Green Digital Charter commits signatory cities to reduce ICT’s direct carbon footprint by 30% by 2020. This target is based on consultations with a city working group and a European Commission advisory group on the restructuring potential of ICT. Signatory cities present during the session stressed that the Charter is not just a gesture but a concrete commitment based on prior assessments of potential roles for city governments. Apart from this, participants stressed that the further implementation process of the Charter is not intended as beauty contest. Sharing what doesn’t work is crucial for mutual learning.

During the debate it was concluded that there is a lack of smart city benchmarks and transnational efforts need to be made to compare city efforts on a common basis. A strong role for European funding could be to support the development of such benchmarks, for instance in the context of the EUROCITIES Green Digital Charter or the European Commission’s Covenant of Mayors. A

¹¹ data.london.gov.uk

¹² www.e-energy.de

possible starting point for this work could be the methodology developed by Bristol to assess the ICT's carbon footprint across the city administration. Bristol stressed that the methodology is ready to be shared with other cities, adding to it or redesigning it.

Furthermore, benchmarking is expected to drive competition amongst cities, if the progress against a common benchmark is assessed in the context of a European award scheme or similar. This would speed up overall actions towards achieving 20/20/20 targets.

Orientations for the future

During the session a number of possible actions points were identified to be tackled at the European level. This would ideally feed into to the further design of a European policy framework to widely recognise and exploit the energy-saving potential of ICT, following recent Commission Communications and a Recommendation to Member States, adopted in May 2008, March 2009 and October 2009 respectively¹³. In addition, points below should also be taken into account in the design of future EU funding and co-financing programmes.

- The European Commission should support further coordination & cooperation efforts around city initiatives like the Green Digital Charter, to identify good and bad practices on smart&sustainable cities.
- The European Commission should support the development of European benchmark(s) for smart&sustainable cities.
- The European Commission should support the development of a common measurement framework on the energy and efficiency performance of public sector ICT, drawing on work of the ICT4EE forum, the city of Bristol and relevant international initiatives.
- The European Commission should incentivise competition between cities through e.g. a European green digital city award.
- The European Commission should facilitate the use of public-private partnerships and budget-neutral energy performance contracts within Structural Funds measures.
- European policy should incentivise the reuse of public sector information and encourage open data principles for public administrations at all government levels, to enable the openness and reusability of emissions and energy data.
- Further EU funding should be made available in particular to enable:
 - Digital urban planning, including visualisation, modelling and simulation tools, to better understand and avoid bounce-back effects and enable more community engagement.
 - Research on sustained behavioural change on large scale in mid- or long-term scenarios.
 - Transferable Green IT showcases in the public sector.
 - Refurbishment and renovation of existing housing stock, in particular social housing
 - Applications for intermodal mobility and optimisation of urban transport management.
- The European Commission should further work closely with cities to identify the potential for large-scale pilots in the areas mentioned above, to create economies of scale.
- Further to this, the European Commission & Member States should look into putting in place measures to encourage the dematerialisation of services and products in the public sector through public procurement and green compliance, taking account of the sector's considerable purchasing power.
- Coordination between city stakeholders and industry must be structured on a European level. The ICT4EE Forum and the Green Digital Charter signatories are two transnational stakeholder groups to allow this.

¹³ See http://ec.europa.eu/information_society/activities/sustainable_growth/energy_efficiency/policy/index_en.htm

ANNEX – List of speakers

Pekka Sauri, Deputy Mayor of Helsinki, Finland

Vojko Obersnel, Mayor of Rijeka, Croatia

Florence Barale, City Counsellor, Nice Côte d'Azur, France

Dirk van der Woude, Advisor on ICT and Energy Efficiency, City of Amsterdam, Netherlands

Erich Maurer, CEO, ENERGIERegion GmbH, Nuremberg, Germany

Jaime Briales Guerrero, Malaga Energy Agency, Spain

Juha Sipila, Helsingin Energia, Finland

Vincent Cousin, Advancity – Le pôle de compétitivité des écotechnologies et de la Ville Durable, France

Lorraine Hudson and Stephen Hilton, Connecting Bristol, United Kingdom

Jens Brinckmann, Federal Ministry of Economics and Technology, Germany

Jan Franke, Policy Officer Knowledge Society, EUROCITIES, Belgium

Chair of the session: Dave Carter, Manchester Digital Development Agency, United Kingdom