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Hans-Martin Neumann: The EERA Joint Program Smart Cities started its activities in 2011. At that time, Smart Cities

was a brand-new, and thus not yet well-defined topic. Since then, the EERA Joint Program Smart Cities made its contribution to the European Research arena in shaping the topic, and helped making it one of the most successful pillars in the energy work program in Horizon 2020.

What is new in Smart City research?

Research on urban development is not a new topic.

Urban design established itself as branch in architectural studies in the late nineteenth century and early twentieth century, and urban planning became an independent academic discipline during the 1960ies and 1970ies. The years after the United Nations Conference on Environment and Development of 1992, the so-called Rio de Janeiro Earth Summit saw a huge interest of researchers in sustainable urban development.

So, what are the new aspects addressed by Smart City research?

Firstly, Smart City puts more emphasis on the technology than previous discourses on urban development. This is a consequence of two major trends: decarbonisation and digitization. Due to global warming, the member states of the European Union have committed themselves to build a low carbon economy. Low carbon cities are a key component of this strategy, because cities are responsible for the lion's share of the greenhouse gas emissions in Europe. Low carbon cities require major technological innovation, especially in the energy sector. This applies to energy generation, where renewable energy technology is replacing technology running on fossil and nuclear fuels, to energy efficiency as well as to energy distribution and storage. Also, digitization is rapidly changing the life of the Europeans. This can be observed in the private realm, where smart phones and other smart devices are spreading rapidly, but also in the public realm: urban infrastructures, like street networks, public transport systems, electrical and thermal grids are increasingly managed by ICT technology. This does not only increase the efficiency of operations, but it also creates huge data volumes, often stored in urban data platforms. Data from these platforms and other data available in the public administration become open data and create new business opportunities for start-up ecosystems.

Secondly, Smart City research is co-creative and stakeholder-oriented. Our world is not only becoming low carbon and digitized, but also more diverse. Therefore, involvement of the users in the planning in their neighborhood, but increasingly also in the design of technological solutions, is of utmost solution for the acceptance and thus for the implementation of the solutions and their success in the market.

Thirdly, Smart Cities is focused on impact. Traditional research has often been criticized for having a rather limited impact in the outside world. Smart City research has the explicit ambition to achieve a measurable impact and to improve the life in cities. Therefore, Smart Cities research has a strong focus on piloting innovative technologies and processes in living labs, monitoring and evaluating the results of the pilots to improve the tested solutions, and finally to prepare and support the upscaling and replication of the solutions. This includes aspects of urban governance as well as innovative funding and financing mechanisms and the development and testing of new business models

Finally: Smart City research does not only require deep understanding of urban technologies, but also an interdisciplinary approach with a strong linkage to social science, as cities are complex and multidimensional phenomena.

Annemie Wyckmans: my point of view

«The research questions involved in transforming cities into Smart Cities are highly complex and

can only be solved by taking an interdisciplinary, transnational approach. The European Energy Research Alliance (EERA) provides an ideal framework for this joint effort by pooling high-level energy research expertise and infrastructure across Europe» (www.eera-sc.eu, Preface).

Since its initiation, the EERA JP on Smart Cities has hosted meetings, facilitated workshops and generated discussions regarding research and innovation needs and priorities in terms of smart cities. As new Coordinator, it is my ambition to help develop the new strategic framework of the EERA Joint Programme on Smart Cities, and help the programme to become an independent, robust partner organisation with a clear mandate to promote and strengthen the role of cities and districts as urban energy ecosystems, developing better interaction between technology, design and people, and better integration between the digital and physical urban environment.

With 23 full participants (thereof 2 umbrella organisations) and 59 associated participants (including 4 industry partners) from 20 countries contributing around 220 person years per year, as well as a City Advisory Community with members from all full participant countries, the EERA JP on Smart Cities will play a defining role in the European Research and Innovation landscape on smart cities in the years to come.

EERA Joint Programmes are expected to play an advisory role towards the European Commission, implement and develop the SET-Plan, coordinate the scientific community towards excellent research and transfer these to industry, and make all of these

actions visible to increase their impact. As an answer to these expectations, the EERA JP on Smart Cities has created the Marketplace, the Campfire and the Academy which are currently embedded in its Work Plan and will be further strengthened during the next years.

A first goal for the next years, is to develop a joint R&I Agenda for the EERA JP on Smart Cities, based on partner interests and expectations, as basis for coordination, cooperation and co-creation of activities within the JP and with other organisations. The R&I Agenda will define the aggregated knowledge and experience of the EERA JP on Smart Cities partners in terms of the research needed in order for Europe to create and scale up smart cities, and the type of cooperation instruments required between cities, industry and research in order to develop successful pilot projects on the ground. The R&I Agenda will firmly establish EERA JP on Smart Cities as a systemic solution provide, and will be used in a meaningful and efficient manner to build the interdisciplinary, transnational approach the European Commission expects. With strong anchoring in the expectations and interests of its partners, the R&I Agenda will serve as a red thread for all joint activities in the EERA JP on Smart Cities, for internal cooperation within the EERA JP on Smart Cities, for co-creation of new projects and programmes, and for communication towards external stakeholders and organisations.

A second goal is to develop a clear identity and role for the EERA JP on Smart Cities in the European research and innovation landscape on smart cities, in alignment with organisations such as EIP SCC European Innovation Partnership on Smart Cities and Communities and UERA Urban Europe Research Alliance. The EERA JP on Smart Cities is expected to fulfil different roles in the European research and innovation landscape, as advisor towards the European Commission, as ambassador of the Strategic Energy Technology Plan, as coordinator of European research and innovation, and as support for creating competitive industries. In all of these roles, the EERA JP on Smart Cities needs to communicate in a convincing, attractive manner, building bridges within its own organisation and towards others. We aim to be a pro-active, defining presence in the European research and innovation landscape.