5.5 Smart cities

Why should regions invest in smart cities?

There is a strong interrelation between smart cities and the regional and urban development as well as between smart villages and regional and rural development. Cities are microcosms which condense many regional policy priorities and have some specificities to be addressed, as some urban areas today face many difficulties including significant levels of poverty. Smart cities aim at improving liveability and sustainability of cities, by ensuring scaling up and replicating smart city solutions, which will help reaching the 20/20/20 energy and climate goals in cities.

Given increasing urbanisation trends, transformations towards knowledge-intensive economies, cultural trends and growing shares of resource consumption and emissions, cities become even more of a focal point for achieving economic growth, social inclusion and environmental sustainability. All this puts cities under great pressure, especially in times of very tight public budgets. Transforming European cities toward more sustainable objectives requires considerable investment and effort, especially for those cities which have obsolete infrastructures, or are not technologically ready. In addition, facing those huge investments may be almost impossible for cities and regions, because the debt crisis has hit many municipal budgets severely. The decarbonisation efforts of cities risk being delayed by falling tax revenues and austerity measures. This will also negatively affect industries in the low-carbon sector, employment and ultimately adversely hit the economy, as energy, transport and ICT are core economic sectors.

In this picture, the Commission published a Communication on Smart Cities and Communities 103 in July 2012. The goal of the Smart Cities and Communities Innovation Partnership (EIP SCC) aims at tackling some common challenges affecting cities. Its goal is to exploit the untapped innovation potential and to catalyse commercial deployment of smart city solutions in the key economic (and most risky) areas of energy, transport and mobility and ICT. The EIP will act on two fronts, on the demand and supply side:

- The demand side measures include the identification and validation of new business models, new approaches to public procurement and identifying and converging on regulatory measures and standards.

- On the supply side, the EIP will implement a limited number of large scale projects (the Lighthouse projects), at the intersection of transport, energy and ICT, targeting large-scale demonstration of SCC concepts in city contexts, where existing or very near-to-market technologies will be integrated in innovative ways. Yet, commercial roll-out in city environments is also within scope inasmuch as the projects are to prepare the ground for it.

Given the complexity, size and socio-economic and environmental impact of the projects, strict conditions, and synergies with other actors and funds are essential to achieve your goals. In this context, ESIF are fundamental co-instruments to achieve innovation, sustainability and smart cities goals. As already announced in the Communication, the large scale projects foreseen in the implementation phase of the EIP could be funded from a number of sources: EU funding including H2020, ERDF and Cohesion Fund, national and regional funding, and private investments. EU cohesion policy can provide support for research and innovation in these areas. The EU rural development policy (EAFRD) can further support investments and innovation in smart villages in rural areas, multiplying in this way the effects achieved by smart cities’ developments and bringing up additional synergies between the various ESI Funds and making the rural-urban linkages even stronger. The participation of the ESI Funds to the implementation of smart projects can contribute to achieve smart growth in all regions, cities and rural areas.

European Local ENergy Assistance (ELENA) 104 is an instrument that facilitates the mobilisation of funds for investments in sustainable energy development at local level. ELENA is a technical assistance facility offering support for the preparation of quality projects in the fields of energy efficiency and renewable energy sources in urban areas. The ELENA Facility aims at developing investment programmes that can be then replicated in other cities or regions. The similarity of the ELENA instrument with the LHP is that one of its objectives is to increase the capacity of local authorities to develop sound investment programmes of a certain size, normally above EUR 30 million.

Barriers & challenges

The transformation toward a smart city is not an easy task. Each city varies greatly because of the historical, geographical and climate characteristics, the socio-economic fabric, the institutional organisation, the cultural heritage and the retrofitting, etc.; but at the same time, there are several common and recognizable challenges, which can be tackled putting together the most relevant actors, from the private and the public side, to maximise their impact.

There are a number of barriers and challenges of a cultural, economic, and regulatory nature:

- Cultural and governance: Switching to smart cities means primarily a change of behaviour, at citizen level, for public

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administration rules and processes, and concerning the industry mind-setting. Governance in cities needs to overcome thinking in administrative silos; long-term and holistic policies and initiatives are needed, more citizen-centred. Citizens need to be provided with the right kind of incentives towards behavioural change, as well as with adequate information through several communication channels, to clearly understand what is at stake, why they should participate in decision-making process for their cities and communities, and what the benefits are in the short-, medium- and long-term, not only in economic terms, but also in terms of more comfort and better quality of life. Technology vendors should accompany this cultural change and foster greater citizen engagement.

- **Economic**: switching to ‘smart city’ requires huge investment, both to create/renovate the physical and technological infrastructure and to invest in digital solutions. Different sets of funding schemes are necessary to implement smart cities investment, at both national and European level. In addition, new integrated and sustainable business models are necessary to take into account the incorporation of innovation into the business models used. A real modernisation of public procurement is necessary to speed up the process.

- **Regulatory**: each city is unique and each country/region has its own institutional setting. Before carrying out any investment, a careful analysis of the specific institutional and regulatory framework must be carried out, to spot also the specific regulatory barriers, preventing innovation and the switch to smart cities.

In addition to this, other horizontal issues must be taken into account: (a) Smart cities solutions require huge amounts of data, which are a valuable tool for developing applications. It is important to ensure that data are accessible and trustworthy.

(b) Smart cities mean interconnection of different sectors, such as energy and transport. Systems need to communicate with each other. Therefore inter- and intra-system interoperability must be a condition for smart cities.

(c) Smart cities cannot afford to think in an ‘old-fashioned’ manner regarding their strategic thinking. They must use modern, innovative tools in decision-making processes and for urban planning, based inter-alia on ICT solutions.

(d) Finally, data needs to be comparable across cities. Key performance indicators need to be developed and agreed.

### How to act?

Regions wishing to invest in smart cities should consider the following steps:

1. **Analysis**: (a) Carefully analyse the institutional, regulatory and financial setting of the specific city/region. (b) Spot the specific bottlenecks and barriers. (c) Estimate the cost of investment to switch to smart cities solutions and draw the new sustainable business models necessary to switch to smart cities. (d) Determine the available skills and necessary resources.

2. **Governance/stakeholder involvement**: Public regional and local authorities are the active and passive actors of the process. They are stakeholders and final users at the same time. Public administration should engage with:

   - European Innovation Partnership EIP SCC governance;
   - Stakeholders’ Platform, a network of 7,000 stakeholders advising and providing feedback to the EIP Board;

3. **Priority setting**: (a) in October the Commission published the Strategic Implementation Plan with operational targets by 2015. Regions/cities, based on the Communication goals and on the Strategic implementation plan, can position their level of ambition vis-à-vis these two strategic documents and they can set their indicative targets by 2015 (b) In order to carry out the investments needed for smart cities solutions, it is important to establish a specific roadmap to reach the defined goals, based on the analysis previously done.

4. **Policy mix**: Smart cities will be implemented by all the actors concerned, at different levels. In addition the objective of the EIP is to act at demand and supply side. On the demand side, regulatory bottlenecks, new and sustainable business models, the modernisation of the public procurements will be mostly tackled. Regions are encouraged to take part and to seek synergies at national and EU level.

On the supply side, a series of large scale projects will be implemented during the next programming period. The objective is to explore all the different possibilities to co-finance these projects under H2020, ESIF, banking institutions, risk facilities, European Investments Back etc. Regions are encouraged to seek synergies with other possible sources of financing. Also, public administrations should consider replicating existing innovative solutions (e.g. intelligent buildings, lighting, transport and mobility) which have been tested, demonstrated and verified in other locations and can be easily implemented at low cost.

### Further reading & forthcoming events

http://s3platform.jrc.ec.europa.eu/smart-cities

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