POLICY *brief*

Smart Cities Initiative: how to foster a quick transition towards local sustainable energy systems[1]

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Highlights

– The EU is subscribing to the international trend of local governments becoming more involved in climate change policy-making and higher levels of government encouraging this trend. With the Covenant of Mayors, the EU has already been successful in voluntarily committing city authorities to reduce their CO_2 emissions by at least 20% by 2020. The ambition of the Smart Cities Initiative is to speed up the transition towards local sustainable energy systems

– A portfolio of smart cities that represents the population of European cities should be selected, consisting of cities with different energy fundamentals, a different political economy, and different institutional capacities

– The cities in this portfolio need to be given the institutional flexibility (human and financial resources) to conceive and manage the implementation of concepts of city smartness, i.e. to lead by example (first level of city smartness: city as a public actor), to govern the actions by the private urban actors (second level of city smartness: city as a local policy maker), and to promote an integrated approach (third level of city smartness: city as a coordinator)

– To have an impact, the initiative needs to establish a strict performance reporting methodology (currently, city pioneer experiences are difficult to compare or replicate because of a lack of reporting, and pioneers that do report, use very different reporting methodologies), which would allow the creation of a good-practice forum or register

– An EU level legislative initiative to require all cities to report about their progress or lack of progress is also recommended to further improve the impact of the initiative

[1] Topic 2 of the EU's FP7 funded project THINK, project report available at: http://think.eui.eu. Project leader for this report is Eduardo de Oliveira Fernandes; research coordinator: Leonardo Meeus; research team: Vitor Leal, Isabel Azevedo, Erik Delarue, and Jean-Michel Glachant; project advisors: Christian von Hirschhausen and Pantelis Capros.

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Background

Currently, about four out of five Europeans live and work in a city, with the share of energy use in cities being about the same. A global solution for climate change, even if achievable, would rely on the participation of these citizens so that it is essential to have policies at multiple levels, including at city level. Therefore, if the EU is to meet its energy and climate objectives, cities will need to become "smart".

In the urban environment, the opportunities to improve the sustainability of a city as an energy system include:

1 – opportunities within the building stock (such as thermal retrofit of the envelope and the use of solar thermal for domestic hot water);

2 – transport and mobility opportunities (such as the shift from individual to collective modes of transport);

3 – city management opportunities (such as the shift among energy carriers).

In what follows we discuss what makes a city smart and what makes a city initiative smart, respectively.

What makes a city smart?

The term "Smart City" is commonly used, and depending on the sources, the term is associated with friendliness towards the environment, use of information and communication technologies as tools of (smart) management, or sustainable development. With regard to the achievement of the EU energy and climate objectives, cities can be "smart" in three ways (Box 1).

Box 1 - Concepts of city smartness
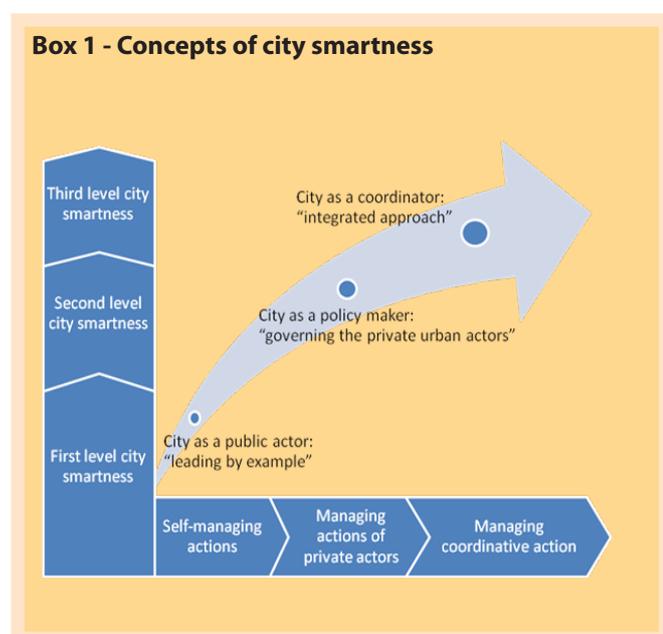
1 – cities are actors themselves that can lead by example, e.g. public buildings and public procurement at the local level.

2 – cities are policy makers that can govern the actions by private actors, e.g. via building codes, city entrance or parking charges, and land-use regulations.

3 – cities are coordinators that can conceive and manage the implementation of an integrated approach.

Thanks to a combination of local circumstances and interventions by higher levels of government increasing the awareness of local governments, enabling action by local governments, or requiring action by local governments, several examples exist of city pioneers that have already implemented the different levels of city smartness (Box 2).

What makes a city initiative smart?

A city initiative is smart if it 1// addresses the institutional disincentives of cities to act; 2// accounts for the heterogeneity of cities in Europe; and 3// harmonizes the reporting methodologies that are currently being used by city pioneers.

1 Cities' institutional disincentives

Cities have institutional disincentives to take action, which can be simplified into "not in my term" and "not my business". And if they do take action, cities are confronted with private urban actors that are reluctant to follow. Considering that most of the initiatives part of the Strategic Energy Technology Plan and the European Economic Recovery Plan are already focusing on addressing the reluctance of actors to research, develop, and demonstrate sustainable measures, the Smart Cities Initiative fills a gap by focusing on city authorities as institutions and support them to become institutions that will accelerate rather than slow down the uptake of sustainable measures in the urban environment.

2 Heterogeneity of European cities

European cities are heterogeneous in their fundamentals that determine the consumption of energy services in a city and the associated emissions (e.g. the urban form, the climatic zone, the availability of local natural resources and the socio economic conditions); their political economy (e.g. presence of a harbor, heavy industry, or car manufacturing industry); and their institutional capacities (i.e. human and financial resources, and legal and regulatory powers), which depend on the size of the city and on the multi-level governance structure the city is subject to.

Box 2: Examples of city pioneers implementing the three levels of city smartness

First level of city smartness: A well-know example is the opportunity cities have to lead by example in refurbishing public buildings such as offices, schools, hospitals and social housing to stimulate local businesses to develop so that it becomes easier for private actors to follow. Note that demand for space heating and cooling in buildings corresponds to 20% of the final energy use in the EU, and 75% of today's building stock will still be around in 2050.

Second level of city smartness: A well-known example is the opportunity cities have to use land-use regulations to improve city compactness. Compact cities have lower emissions from transport because their inhabitants travel smaller distances, but also because compactness is essential to create a critical mass for efficient collective transport systems. Copenhagen is an interesting example where the city authority planned densely developed fingers sticking out of the city with green areas in between to allow for a better development of the public transport system.

Third level of city smartness: A well-known example is the Covenant of Mayors. Cities that sign the Covenant are required to develop a baseline emissions inventory, set targets, list a set of actions to reach the targets, and report progress, with the build environment, the local energy networks, and the urban transport systems integrated in one plan.

It is therefore not enough to support existing pioneers for what they are already doing. The Smart Cities Initiative should encourage existing pioneers to conceive and implement integrated approaches, for instance combining city-scale infrastructure demonstrations that enable a smarter use of energy with actions by city authorities to ensure the use of the associated services (third level of city smartness), while the initiative should also support cities in clusters of groups of European cities where pioneers have not yet emerged.

3 Reporting methodologies

With the Covenant of Mayors, Europe is successful at voluntarily committing cities to follow an integrated approach using a common methodology, but this is only for cities that are willing to move, and the methodology allows cities to maneuver in how they measure and report progress so that it is difficult to compare performance and derive good practices.

It is a known problem that cities use different approaches in defining what sectors to include in their reporting, in establishing the city boundaries, as well as in aggregating data so that it is difficult to compare cities and replicate their achievements.

Recommendations

Despite differences in institutional capacities, local governments currently have in common that they are not yet using their capacities, as they have institutional disincentives to act towards a more sustainable future. While if they do act, they might be confronted with urban actors that are reluctant to follow.

We recommend that a portfolio of smart cities is carefully selected and supported by the Smart Cities Initiative to increase the excellence of the current pioneers, while also giving opportunities to groups or clusters of cities with a promising potential, but where pioneers have not yet emerged.

We also recommend establishing a strict performance reporting methodology, which would allow the creation of a good-practice forum or register. An EU level legislative initiative to require all cities to report about their progress or lack of progress would later improve the impact of the initiative. This would allow cities with a large potential that are not yet moving to be identified.