Smart multifunctional tower

Smart solution 5
Smart lighting, lampposts and traffic posts as hubs for communication

Measured impacts

55GB
data per month

2.200
users per month

9
deployed sites

Barcelona

Technical partners

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What is it?

'Smart Towers' exploit city infrastructure to provide enhanced wireless access networks, in order to support the growing demand of mobile connectivity in the city for broadband mobile connections and IoT services. The solution is based on transforming urban furniture like street lighting poles into new small urban telecom sites, which are called Smart Towers. The multifunctional Smart Towers are able to provide connectivity and can be supplemented with different types of sensors.

What did GrowSmarter do?

In Barcelona, the Smart Tower solution converts the traditional lamppost into a new telecommunication micro-site that integrates wireless communication devices and sensors. In addition, Smart Towers are connected to the Fiber Optic Backbone Network and thus offer hyper-connected areas to resolve the growing demand for connectivity in the city.

Smart Towers offer new services that enhance daily life of citizens. For example, hyper-connected spaces resolve the wireless connectivity demand; while environmental sensors hosted into Smart Towers provides real time information about the status of the city, helping city managers to take the most suitable decision.

Lessons learnt

Use the opportunity of adapting existing lighting infrastructure to develop new services for citizens. When installing smart technology as part of lighting infrastructure, it is essential not only to make good use of the implemented infrastructure (connecting to Fiber Optic networks) but also to analyse the data collected. Connectivity, positioning and electricity need to be available to support the implementation of new, smart solutions in lampposts. The Smart Towers should be connected to backbone networks, in order to grant the provision of advanced communication access services.

An added benefit of the solution could be to use the Wi-Fi data to monitor connectivities in any given area. Connected users tend to be pedestrians and an increase or decrease in users connecting could be used to monitor crowded areas.

Upscaling & replication potential

The Smart Tower solution can be easily replicated in other European cities. The add-on option chosen by Barcelona Municipality can be fitted in any other lamppost around the world. The solution can be easily adapted to include the required IoT devices and wireless access points. If Smart Towers are connected to the backbone network, then the offer of wide-broadband wireless connectivity services is improved.
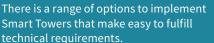
Smart Towers rationalize the use of the public space and organize the deployment of access points for wireless communications and IoT devices in the city.

How did the measure work?

Technical feasibility ● ● ○

There is a range of options to implement Smart Towers that make easy to fulfill technical requirements.

Economic feasibility ● ● ○

Transformation of urban furniture allows Neutral Host Operators to offer Infrastructure as a Services to support the growing demand of advanced wireless connectivity in cities.

Replication potential ● ● ○

The solution can be easily adapted to any other city in order to provide wireless connectivity services, as well as to position sensors.