

# Smart Cities Need a Single Source of Geo Data



Ordnance Survey's head of smart cities, Miranda Sharp, explains why a single source of accurate location intelligence and data is crucial for Smart, and how Ordnance Survey International is helping governments around the world develop their own smart cities.

For many years Ordnance Survey's work and the accurate maps it produced, were viewed by much of the world as something of a British curiosity. Quaint and ever-so eccentric. Why would anyone go through urban areas noting down their every feature and measurement in such detail? More so, why would anyone go to the most remote and barren stretches of landscape to do the same? And just who bought these maps, these colourful, but odd, yet strangely alluring and fascinating hand-drawn bird's eye views of reality? Why did British people need to know there was nothing in the middle of nowhere?

The answers to these questions gradually revealed themselves as the teaching of local and world geography became more common in classrooms around the world. Out of this education suddenly grew, for the first time in human history, a collective desire on a world level to better understand our planet, our environment and the resources contained within it, and so the global opinion of OS, in recognition of the innovative ways it recorded and helped popularise geography, changed.

These days, with its role as Britain's mapping agency and a list that includes government, local government, education, emergency services, utilities, small and big business and financial institutions amongst those accessing and using its geographic information, opinion is that Ordnance Survey has world class data.

With the emergence of Smart thinking, Smart Cities and Smart nations, the value in Britain of having a single trusted source for location intelligence and data on which to plan, build and maintain has increased further.

## Global Standard

With continued innovation and the ability to record and present geographic information, making over 10,000 changes each day to its database, much of the world now views Ordnance Survey as the standard to emulate. This is why in 2012, after numerous years of being approached by governments and countries from all over the world wanting to work with and learn from Ordnance Survey, Ordnance Survey International (OSI) was launched.

Carsten Rönendorf, OSI's head of advisory services, explains: "Britain is very special, because there is one single agency responsible for all its base mapping, and the ease of availability of this consistent true data to all those who use it has been a catalyst for greater efficiency and improved services. We were approached by governments in Africa, South America and Asia experiencing rapid development; all wanting to keep costs down by improving their planning and efficiency. OS is seen as a role model for providing national coverage and geographic data, which is critical for effective government decision making, economic growth and sustainability. It therefore made sense for OS to create an international consultancy body to meet these needs and to advocate the value of high quality geographic information to governments and economies around the globe."

Carsten was born with a passion for geography in Germany, where he studied geodesy and surveying at Bonn University. Twelve years ago he joined Ordnance Survey after working for a GIS software consulting house, and in 2012 he started his role with OSI. He began by relocating to the Middle East to help establish OSI's first office outside of Britain, and to project manage one of its first projects, the delivery of a National Spatial Data Model for the Kingdom of Bahrain.

## Bringing the Parties Together

Working closely over a nine-month period with the kingdom's Survey and Land Registration Bureau (SLRB) and a number of their government stakeholders, Carsten and a team of 15 specialists created a model that would allow all parties to bring data together and use it more effectively and in a variety of new ways. The entire model is 3D enabled and allows for the integration of existing 2D datasets, and is modelled on the Open Geospatial Consortium's (OGC) CityGML standard.

Similar to Ordnance Survey, Bahrain's SLRB provides its government with base mapping; and their ability to survey and capture data is good. It was, however, what they did with the data where help was needed. The first question asked of Carsten and his team was how could they modernise and improve the way data was managed, and then to harmonise this with what other agencies were doing in the country. What followed was an intensive analysis of what the SLRB and the other agencies were doing, the data they produced and how they produced it, and what all parties wanted to achieve through pooling their data.

One of the major problems the OSI team discovered with this analysis was that some of Bahrain's agencies were replicating work, which

was causing errors and inconsistencies in the data, a common problem all over the world. The issue was solved through consolidation of the data and by flagging up the duplications and helping the agencies develop new ways to work smarter with each other. New technologies were introduced to better process and serve up the mix of data the agencies produced for a trial area, instantly giving all parties a wider and more coherent view of that part of their country.

## Standards = Share & Use

The Ordnance Survey International team called upon the freely available international standards from ISO and OGC, whose standards are recognised as a foundation to carry out the work, and which, according to Carsten, played an important role in the successful delivery of this project. “Standards are really important if you want to integrate information and make it accessible and easy for all parties to share and use. In the case of Bahrain, one of the first benefits that resulted in implementing universal standards was for the agencies to get together and uncover how they were able to better use their resources by eliminating the duplication of work. Unlike Britain, which is almost fully developed, Bahrain, like so many other countries around the world, is experiencing phenomenally fast development, which is why it is essential it has a National Spatial Data Model to monitor and plan this transformation effectively.”

OSI is currently utilising its in-depth expertise in the geospatial data lifecycle to help other organisations in South America, Africa, the Middle East and Asia to develop strategies, policies and change programmes to optimise the production and utilisation of geospatial data. This work is aimed at increasing the value of geospatial data and technologies to all aspects of government as well as stimulating economic growth by more widespread use of geospatial information by citizens and the private sector.

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