

# Opportunities and challenges in utilising spatial infrastructure and analytics

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The spatial community has been working for past two decades on the concept of harmonised spatial data through a common infrastructure where the data producers, aggregators and end users are able to discover, interact, analyse and develop reports seamlessly, irrespective of varying spatial data quality; heterogeneous data formats; and different data models on any device, anywhere and at any time. The first decade, the spatial community focused its effort on creating frameworks; data licensing models; common data models; interoperability of data; and data transfer standards. The second decade, the spatial community leveraged the power of internet; smart phones; web based data marts / portals; crowd sourcing; and web services. Today Spatial Data Infrastructures focus lies on the provision of geospatial data in the form of distributed spatial web services, the retrieval through catalogues, and visualization in the form of Web Map Services (WMS).

The observation is that the SDI work has been of more interest to the Government and Academic sector compared to the Private sector. Governments have heavily invested in the past two decades to make sure the spatial data which is created by using taxpayer's money is presented in a useful way back to its citizens, recently free access to spatial information through open data policy and open government. The INSPIRE initiative from the European Union, The USSDI in United States and Canterbury SDI in New Zealand are some great examples of Regional SDI, National SDI and Local Government SDI. The advent of Smart Cities by Urban Planners, 3D city models, Building Information Models from construction industry and Architecture community has provided an opportunity for the SDI community to develop the concepts of Indoor SDI recently.

The next generation spatial infrastructures must address multiple contemporaneous issues within the spatial data supply chains.

Anticipated benefits of next generation SDIs:

- Improved efficiency in data curation and provision
- Cost savings through automation
- Broader access of complex spatial data to end users
- Smart data conflation process
- Improved data provisioning to end users
- Ease of geometric data retrieval by novice end users

The SDIs pave way for Open Spatial Analytics to support business decision.

Voluminous spatial data is available through government portals. However, there is a limitation to analyse the information provided through these data portals. Simple spatial analysis tools are only available to the user through the portals and the end users are often constrained to perform complex spatial queries to resolve a business or an end user problem. The next challenge is the ability to perform real time analysis through spatial data portals including the currency of the spatial data available through open data initiatives.

