

# Assessing the maturity of national and regional geospatial infrastructures: providing the evidence to assist economies and improve strategic decision-making.

## Introduction

Location information is fundamental to providing a consistent, authoritative evidence-base for policy development, enhancing decision-making, facilitating implementation and longer-term monitoring as well as for reducing the cost of regional and national government operations.

When assessing, planning, and implementing geospatial infrastructures, governments benefit from a strategic approach that is evidence-based, consistent, repeatable, measurable, and allows comparison with other nations and regions.

The paper will focus upon the changing landscape of geospatial information and its increasing uses to assist regions and nations to improve their decision-making. It will present an evidence-based, proven geospatial maturity model that assesses the existing geospatial landscape which maybe part of a spatial data infrastructure (SDI) within a region or nation, thus providing the evidence base to assist economies and improve decision-making.

## **Geospatial Infrastructures within a changing landscape** *(Slides 1-30 of file called World Bank conference vfinal v1.0.pdf)*

Accurate, reliable, and up-to-date location information now underpins some of the biggest issues facing the globe and governments, as well as some of the largest industries in the world. As 'everything happens somewhere', it is widely understood that measuring and monitoring the Sustainable Development Goals (SDGs), which were agreed by 193 Member States in 2015, will be virtually impossible without the use of accurate, reliable and up-to-date location data.

Today location data comes in many forms as there are many new data

collection devices being used very effectively. These include drones, constellations of small satellites, high altitude platform stations (HAPS) and even the human being a 'passive location beacon'. The increasing use of the automatic correction of the Global Positioning System (GPS) from 10m to 2cm accuracy is developing many new economically important applications. The conflation of multiple data sources from ground, air, high altitude and social media is changing the decision-making landscape for many authorities.

The use of location data is globally recognised as being a key facilitator for reducing the running cost of regional, national and local governments, and improving their decision-making. It is assisting in the streamlining of government services by improving the analysis and conflation of their own data sources. This provides them with a better understanding of their own environment whilst helping them identify and address some of their major priorities. Enhancing productivity, reducing costs and enabling GDP growth in the process are some of the most obvious benefits.

Of course, it could be said that location information is just another data source within a 'Big Data' environment. However, since 'everything happens somewhere', it is in fact increasingly seen as the 'vital glue' to all Big Data environments.

This paper will focus upon the changing landscape of geospatial information, and its increasing use. It will illustrate a four phase approach to assess the maturity of the existing geospatial landscape within a region or nation to provide the evidence base, so that it can assist economies and improve decision-making. The introduction to the geomaturity model can be found in slides 31 – 48 of file called World Bank conference vfinal v1.0.pdf.

The four phase approach will cover:

***Phase 1: The As-Is Analysis*** (Slides 49 – 60 of file called World Bank conference vfinal v1.0.pdf ) – in this phase, key aspects of current geospatial usage and overall maturity levels are assessed using a Geospatial Strategic Components Model that covers the five key elements required for an effective geospatial strategy: organizational components, data components, standards, technology components, and people. The information for the Model is gathered with the region or nation using a rigorous methodology including meetings, workshops, and surveys as well as the thorough testing of existing geospatial data samples.

A detailed assessment of this information is carried out against a defined Capability Maturity Model, which consists of five levels and includes definitions of Maturity for each of the components within the Geospatial Strategic Components Model.

The outcome is an evidence-based assessment of the current maturity level of geospatial data usage within the region or nation.

It is possible, in parallel, for studies to be undertaken to assess the maturity levels of other regions or nations operating in a similar environment as the territory under assessment; this process is called Best Practice Analysis.

Typically using desk-based research and freely available information, the same Components and Maturity Assessment definitions are used to assess the maturity levels of other regions and nations to compare and contrast with the geospatial strategy currently being assessed. It therefore assists in the articulation of what a mature national or regional infrastructure can look like, and how it can be achieved. The region or nation under assessment can then learn from others' successes and failures, understand them and hence avoid facing similar challenges, in addition to leveraging existing initiatives and know-how.

This As-Is Phase concludes with a series of papers and presentations that compares the current situation within the region or nation against all five components; organizational components, data components, standards, technology components and people.

***Phase 2: Strategy Development*** (Slides 61-66 of file called *World Bank conference vfinal v1.0.pdf*) – this phase is characterised by the need for a collaborative approach, involving representatives from multiple stakeholders across the region or nation. With many people and organisations involved, it is essential to use a structured and iterative methodology to ensure their alignment and commitment.

The primary methodology for this phase consists of a series of facilitated workshops. These workshops use the outcomes from the 'As-Is' Phase as a basis and lead to the development of the appropriate and relevant Vision, Mission, Values and Strategic Objectives. During these workshops, establishing a shared commitment to their execution is sought.

Strategic Success Factors also are identified. These are the factors that the geospatial strategy has to fully address if it is to be holistic, focused, deliverable and beneficial to the economy and the decision-making of a region or nation. These documents then provide a strong evidence-based foundation from which the geospatial strategy can evolve, throughout its development and its own maturity.

***Phase 3: National or Regional Geospatial Policy Development*** (Slide 67 of file called *World Bank conference vfinal v1.0.pdf*) – this phase instigates the process of translating the Strategy into actionable work packages. National Geospatial Policy Development translates the Strategy into a set of overarching documents to define the approach towards Implementation Planning. It generally includes; Geospatial data standards to be applied, Geospatial security, Licensing and pricing, International collaboration, Human resource development policy for attracting, developing and retaining suitably skilled staff, Governance and management structure and Data sourcing policies.

***Phase 4: Implementation Planning*** (slide 68-71 of file called *World Bank conference vfinal v1.0.pdf*) – this phase covers the development of a series of specific, costed, timed, resourced and integrated Initiatives with Key Performance Indicators, which when fully implemented will enable the nation or region to achieve its Geospatial goals and reach the desired level of Geospatial Maturity.

## **Conclusion**

This paper will give a strategic understanding of the rapidly changing global geospatial landscape. It will include a tested methodology for assessing the maturity of regional or national geospatial infrastructures currently in place, enabling the establishment of a sustainable geospatial infrastructure strategy that is consistent, repeatable, comparable and measurable, and an associated implementation plan. This paper will show how that process can assist the economy and improve overall strategic decision-making.