Great Britain

Ordnance Survey enables effective urbanisation with geospatial information

"This programme will promote the value associated with accurate and relevant spatial data. The rapid delivery of a scalable and replicable national digital base map is not only relevant to cities such as Lusaka, but also has far reaching benefits at national and regional scale. The data OS has created will provide the evidence and information to support critical decisions when upgrading existing informal settlements and planning future infrastructure to promote economic prosperity."

Andy Wilson
Africa Region Director, Ordnance Survey, Great Britain

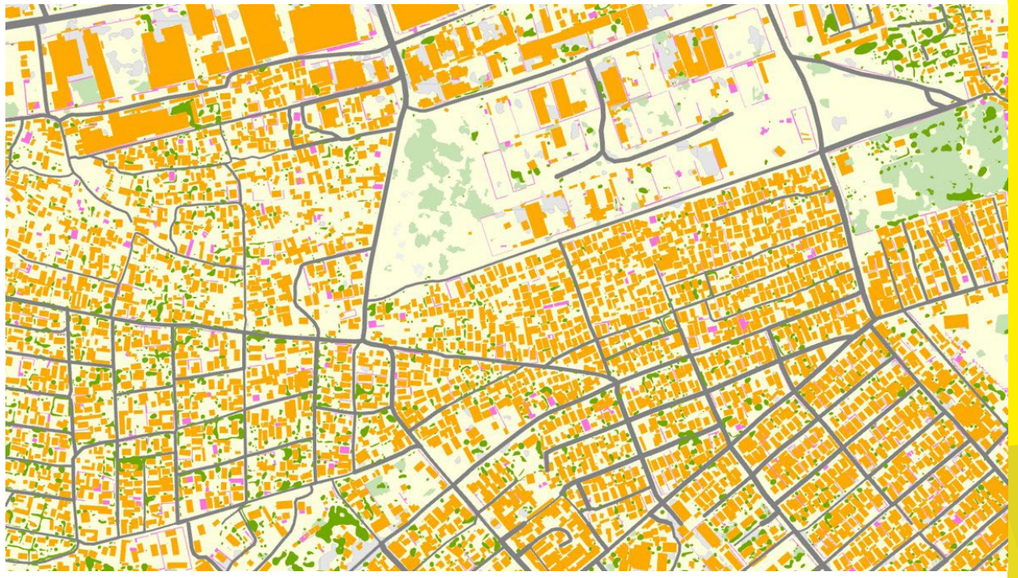
Ordnance Survey (OS) worked with the International Growth Centre (IGC) and the Commonwealth Association of Architects (CAA) to create an automated basemap of informal settlements in Lusaka, Zambia, in response to the challenges associated with urban growth, the availability of accurate and up-to-date data for creating well-planned and managed cities, and improving infrastructure at low cost.

Using aerial imagery provided by the Zambia Survey Department in the Ministry of Lands and Natural Resources and artificial intelligence (AI), OS used its advanced automated process to generate a new base map across 420km^2 of Lusaka.

Using Machine Learning techniques, computers were taught what to look for, to label data and trace features such as buildings, roads and water in images using training data; this algorithm classified the various features and the technology then automatically created mapping quickly and accurately.

This innovative technique, using AI, is a rapid, accurate and cost-effective way to generate a detailed digital map that has a multitude of use cases, including the design and management of critical infrastructure services, land use and transport planning, land tenure, ownership and administration, and integration of future census data.

The project won the
AI Innovation of the Year award at the Digital Leaders 100 Awards



Benefits

- Saves time and resources: The automated process took 10% of the time it would have taken to produce the detailed basemap manually.
- Improves quality of life for citizens by providing a robust foundation for the integration of future census data, as well as identifying informal settlements, population and density, the location of transport infrastructure surrounding the informal neighbourhoods, and access to electricity, sanitation facilities and clean water.
- Enables the Ministry to better target investment in critical infrastructure and services, such as roads and public spaces, in informal settlements.
- Assists government decision-making and planning for urban expansion, enabling predictions of informal settlement growth and their potential capacity to reduce the cost of infrastructure investment, and enable resilient and sustainable urban futures.
- Enables integration of further datasets to give government agencies more information and clarity to improve decision-making, for example as a foundation for street addressing for land management and taxation, and planning and managing disaster response.
- Provides a fast, efficient and economic way to create detailed current base mapping, enabling countries to start building an Integrated Geospatial Information Framework to support their strategic objectives and underpin geospatial business.