




URBAN DIGITAL TWINS REFLECT SMART CITIES

Digital twins developed in the manufacturing and aerospace sectors. Now they are becoming a critical tool for urban development in cities around the world. Individual digital twins of buildings and infrastructure are being incorporated into a whole, where users can view their impact on an entire neighborhood or even city.

All of it is fueled by data.



Singapore created a 3D twin of the entire island nation.

From airplanes, mapping teams used laser scanners to capture surface data and digital terrain.

Point cloud data and images were imported with software into one platform.

The 3D digital map is shared with all government agencies for planning and management.

Teams verified data sets to identify and correct mismatched information without further data collection.

On the ground, vehicle-mounted laser scanners captured street-level data to improve details.

Highly detailed images of buildings, infrastructure and terrain combine with details as small as manhole covers.

THIS OFFERS FOUR NEW CAPABILITIES:

VIRTUAL EXPERIMENTATION:

Systems improvements can be tested and verified before being built.

PLANNING:

The platform can be used to analyze items such as vehicular and pedestrian patterns, and develop solutions to bottlenecks.

VIRTUAL TESTING:

The rich volume of data within models of individual pieces can be used to simulate movement of people within and around at various times to provide for optimum or emergency flow.

RESEARCH:

An open-source platform gives researchers and developers access to develop new technologies or leverage the data for business opportunities.