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Business Domain

Geospatial Sector

Project Type

Subsurface Utilities Mapping,
3D Visualization, GIS Integration

Transforming Subsurface Utility Management with Comprehensive 3D Visualization

Client

A primary European provider of utility construction services, specializing in installing and maintaining underground utilities across various sectors.

Project

Developing 3D visualization materials for the Client's subsurface utilities, integrating data from various sources, including CAD drawings, GIS databases, and field surveys.

Objective

The Client aimed to improve underground infrastructure management, enhance operational efficiency, and facilitate strategic planning by creating comprehensive 3D models of a subsurface utility networks across multiple locations in the EU region.

Team Reinforcement

A team of three experts in GIS data integration, 3D modeling, and the ESRI environment was assigned to the project. Under the guidance of a dedicated project manager, they efficiently transformed the Client's existing CAD and GIS data into immersive 3D models.

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Challenge

The Client required detailed 3D models of subsurface utilities to account for the specifics of the existing infrastructure. Additionally, the modeling needed to comply with industry standards ISO 13567 and ISO 710-2.

The task required the involvement and coordination of a sufficient number of 3D modelers, which the client lacked. Furthermore, using heterogeneous data necessitated more complex preparation than initially planned.

Quick Facts

- 2,300 km of subsurface utilities (power, telecom, water, sewer) mapped in 3D
- Comprehensive 3D models covering 4 major European locations
- The modeling process integrated heterogeneous data sources, including CAD drawings, GIS databases, and field survey data.
- 95% accuracy in utility type identification and depth representation for Quality C level

Technologies

ArcGIS Pro / AutoCAD / Python

Solution

★ 01

The materials provided were part of a global subsurface utility inventory and development planning project designed to address the needs and challenges of developing territories.

★ 02

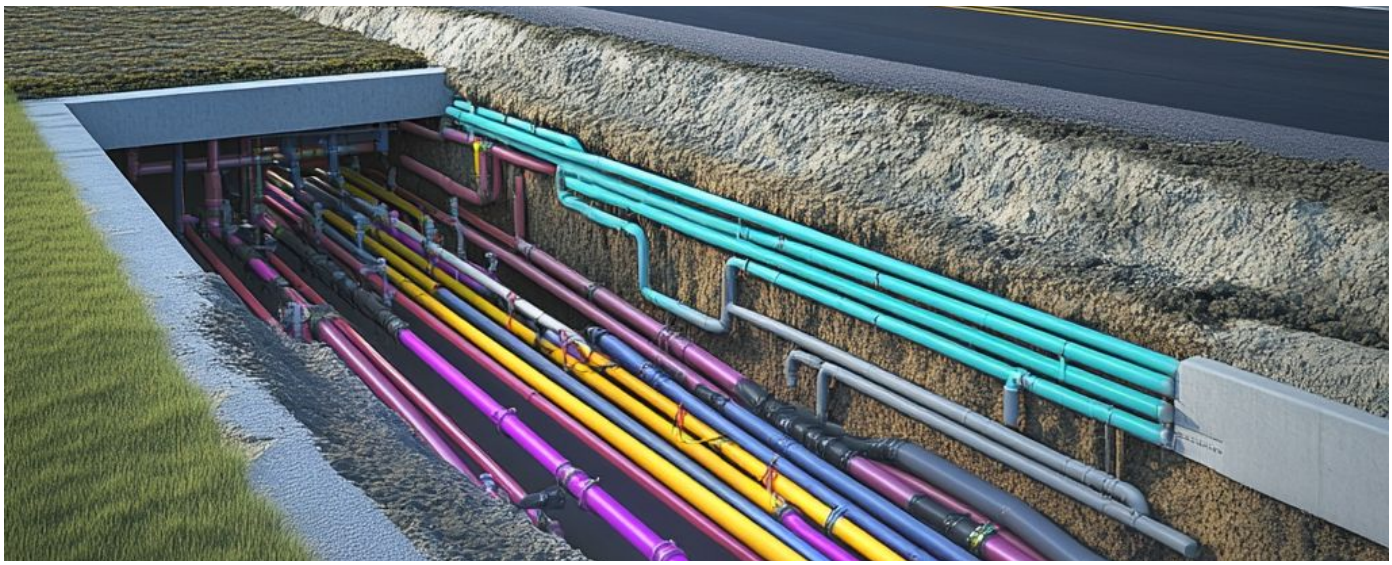
The 3D representation of subsurface utilities facilitated resource management and improved decision-making during emergencies.

★ 03

3D models account for the details of subsurface network organization and nodal elements, making maintenance and modernization easier.

★ 04

Utilized advanced 3D modeling techniques and ESRI Scene capabilities to create a highly detailed and interactive 3D representation of the Client's subsurface utility network.



Client Reference

“Despite tight project deadlines, the Intetics team successfully coordinated source data and developed 3D models that met all project requirements. The modeling was completed 10% ahead of schedule, saving valuable time for the next phase. The project manager, Victoria, provided timely updates on the work's status, ensuring smooth progress without any major issues.

Benefits and Results

- Enhanced 3D visualization facilitated better resource management and strategic planning during emergencies.
- Response times for maintenance and repair activities were reduced by 30% through enhanced visualization and asset location.
- Models adhered to industry standards (ISO 13567 and ISO 710-2), ensuring high-quality deliverables.
- Accurate 3D models guided field crews during excavation and maintenance, minimizing risk and improving safety.

Techstack:

ArcGIS Pro, AutoCAD, Python

Team: 4

Project Manager,
GIS experts

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