



GIS in Utilities

Overview

Utilities throughout the world are facing an unprecedented change. New tools and strategies are required for capital-intensive companies to stay competitive in the marketplace. Better use of spatial data is one of the key areas of focus for many electrical, gas, and water utilities.

Improved hardware, software, and networking technology have created opportunities for the utility industry to build and benefit from more comprehensive and sophisticated GIS. The ability to attract new customers or retain the existing ones in a competitive market will depend on efficient operations that deliver high-quality service at reduced costs. The accurate and efficient methodologies for engineering analysis and creative design strategy offered by GIS technology will be key to fulfilling this objective.

GIS in Utilities

GIS software has been empowering the electric utility industry for decades. It provides a robust framework for asset and workforce management as well as tools for planning and analysis. Today, the landscape is filled with desktop solutions like those from ESRI, open-source software like QGIS, but also a host of new-age GIS solutions like IQGeo build on the cloud.

GIS is extensively utilized by electric utilities for:

- **Asset Inventory and Infrastructure Insights** - It's crucial to have an accurate asset inventory with electric poles, transformers, cable lines, substations, and other electric utility assets properly mapped. GIS allows you to manage the asset data a lot easier and enables you to take insight from the infrastructure.
- **Optimizing Field Operations** - Field operations in electric utilities are usually about mapping the infrastructure, performing routine inspections, asset maintenance, or storm restoration. The field operations need effective GIS data to optimize their operational workflow.
- **Project Design** - GIS data is one of the most important components of any project or capital design. The market features may help in designing add-on tools to GIS.

System of Record

Data Management
and Integration



System of Insight

Analytics, Models and
Data Exploration

System of Engagement

Sharing, Collaboration
and dissemination

Many utilities around the country are upgrading their GIS systems as part of ADMS projects or even otherwise to take advantage of new-age GIS with the ability to do automated network analysis, 3D modeling, artificial intelligence, etc. However, many of these GIS upgrades are long, and complex as experienced by many utilities. In addition, many utilities have significant issues with the performance of designer tools that many have reverted to CAD-based tools which are neither accurate nor significantly contribute to data errors within GIS.

GIS-powered insights and decisions enable companies to not only design efficient networks to reach out to customers, but also save considerable costs incurred on engineering, development, and supply chain services.

Spatial Dimensions: What's New in GIS?

Visualization and mapping features give us an overall, connected view of the network in relation to the surrounding infrastructure. GIS software provides a comprehensive framework of functionality for the modeling of utility systems. It allows you to build real-world behavior into the network features you want to model. The utility network is the next-generation way to represent networks, including utility distribution and transmission networks.

Efficient use of GIS technology gives a smart touch to utilities. Being smart means building and acting on business intelligence with minimal user interaction. With the help of GIS, all components in utilities can be summarized in terms of hardware and software which can manage the utility efficiently. GIS allows information collection and processing, real-time alert, forecasting, learning, collective intelligence, and distributed problem-solving aspects, which gives the smart touch to utility operation. GIS gives an exact idea about the location and on-field situation, helping utilities to take proper action with the proper expertise to tackle problems.

Smarter Decisions: How Can LTIMindtree Help?

A large electric utility was facing issues with their geospatial utility designer software, which is heavy, performing slow, and crashing frequently. Current software doesn't have the option for lightweight designer/mobile and needs the expertise to create/update designs that require extensive training and hands-on experience.

LTIMindtree came up with a hybrid solution that addressed most of the issues by altering/automating the current workflows and introduced the offline-online lightweight designer option, along with mobile app support.

- Designed a workflow that integrates seamlessly with other asset and network management systems.
- Automated the manual process/rework/replacing sketches with a field app to update or insert feeds into the workflow manager.

Light Weight Designer for Electric Utility

LTIMindtree's solution avoids the repetition of work and maintained a single GIS system of records, which includes offline and online capabilities for all job types.

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