



Bayernwerk Improves Network Management with Unified System

Bayernwerk Germany

How long is Bayernwerk's electricity network? If laid end to end, it would circle the Earth five times. Bayernwerk is the largest electric and gas distribution network operator in Bavaria, and one of the largest in Germany. It serves more than 2 million customers with an electric network of 188,000 kilometers and a gas network of 6,000 kilometers.

Bayernwerk formed from the merger of five regional utility companies. With different companies came different systems. In Bayernwerk's case, the predecessor companies operated six different geographic information systems (GIS) of mixed data quality.

To ensure efficient network management and support various technical workflows, the company needed to provide standardized access to a unified database. This required importing data from the legacy systems and improving data quality by converting it to vector format.

Consolidating & Improving Data

One of the five regional utility companies was a customer of Hexagon's Safety & Infrastructure division for nearly a decade. Bayernwerk decided to standardize on Hexagon's network model management software as the platform to migrate and consolidate the legacy data and create a unified network model. The solution's open architecture facilitated the seamless import and export of data into a central database.

"Six systems were migrated independently of their respective data quality," said Peter Obermaier, head of geospatial information systems, Bayernwerk. "This means raster data, CAD data, or data in vector format. The migration tools for this project and the built-in quality improvement tools were provided by Hexagon, and they also carried out the migration."

Three of the legacy systems had intelligent vector data (with attributes and connectivity), while the others consisted of scanned raster data. Bayernwerk undertook a data capture project to gather intelligent data from all areas, including those where only raster data was available.

"The initial data capturing project, with 120,000 kilometers of lines, was one of the largest in the utility industry in Germany," said Obermaier. "The standardization of the data allowed us to have a uniform support process and, of course, uniform data processing and evaluation, which is absolutely necessary due to internal and external requirements."

To ensure high-quality data for this initial project and subsequent efforts, contractors used Hexagon's software instead of a computer-aided design system, which ensured data consistency across the company. Users can view the data in real time digitally, ensure elements don't overlap, and confirm parallel network

components are properly displayed. An automatic quality-control process verifies data accuracy and enables contractors or Bayernwerk employees to detect errors and conduct tests for specific areas. For example, a user can verify that a house power line connects to the correct cable in the right street. In addition, the company can import new individual data records in a few seconds without interrupting workflows. This process ensured the scheduled five-year time frame for digital data capture remained on track without restricting productivity.

Supporting Planning & Operations

Today, 1,400 employees working from the company's 19 regional centers use the Hexagon system to input changes and obtain network information. Hexagon's solutions are at the heart of Bayernwerk's activities, supporting planning and analysis, design and construction, maintenance, fault management, and network calculation. These capabilities help streamline data access, improve decision support companywide, and reduce operating costs.

"Hexagon's software offers two great advantages: the storage and administration of large amounts of data and its distribution to a large number of users with different roles, including mobile employees in the field," said Obermaier.

Nearly 600 mobile service technicians store their regional GIS data on mobile computers, which enables them to perform analysis, switching measures, and other tasks in

the field, and also supports capabilities such as routing to an incident location.

"We have few outages," said Dr. Egon Leo Westphal, member of the management board, Bayernwerk. "We have been awarded a bonus by the Federal Network Agency in Germany, and we can rightly say: our entire system is working, and a central part of that is the geographic information system."

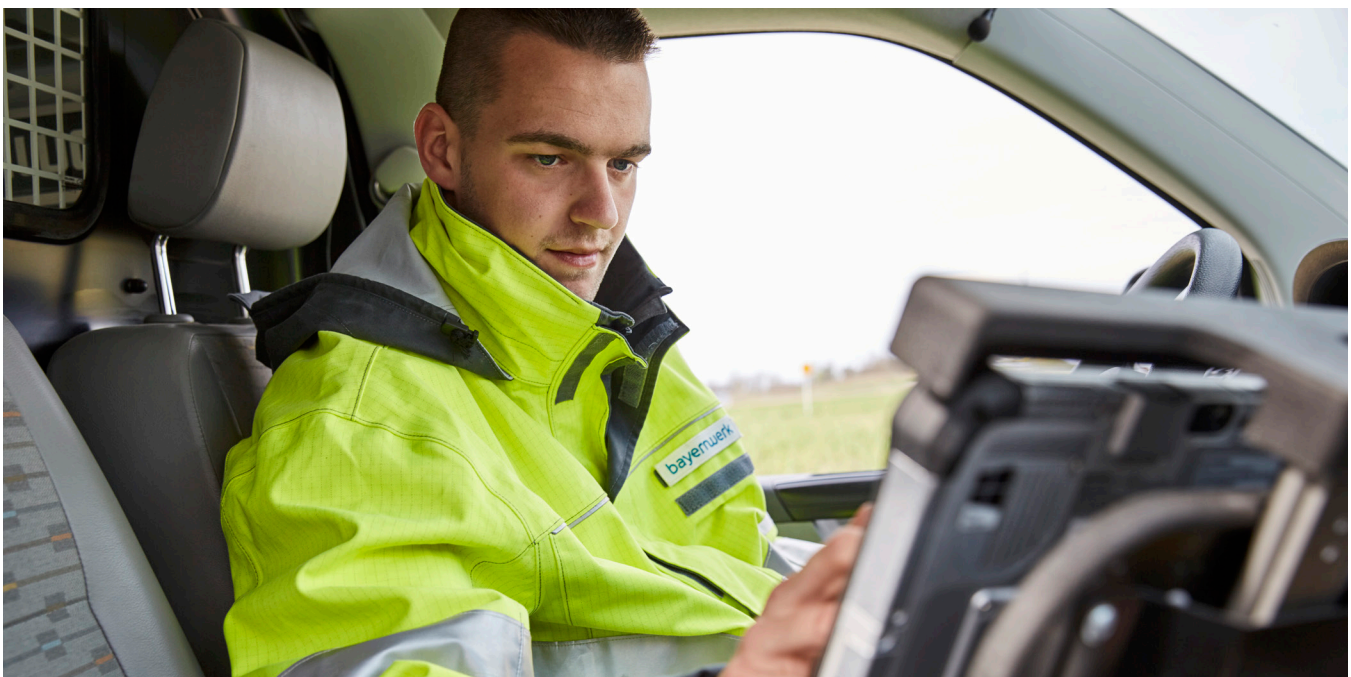


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Managing the Energy Transformation

With this solid foundation in place, Bayernwerk can effectively meet new requirements. For example, when the German Technical and Scientific Association for Gas



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and Water introduced a new rule that requires gas distribution operators to begin restoration work no later than 30 minutes after receiving notification of an incident, Bayernwerk worked with Hexagon to deploy a GPS-based gas fault management system.

Hexagon's solutions also help Bayernwerk manage the transition to renewable energy. The company's territory contains more installed photovoltaic capacity than the entire United States. About 265,000 renewable energy systems feed into the grid, and the data and feed-in requests from those systems are stored in Hexagon's solution. Since the system is the basis and data source for network calculation, this renewable energy data is also fed into the planning for new networks.

"The entire network infrastructure is faced with new challenges, which means that operation and supply take place simultaneously in the same region," said Westphal. "Districts that have previously only consumed are now essentially generators when the sun is shining. We have to tailor the network planning and network operation, and this is based on the geographic information system."

It's a system that will grow with Bayernwerk as it continues to deliver reliable electric and gas service to customers.

"The system is continually being further developed for new challenges," said Obermaier. "Our long-term partnership and collaboration with Hexagon naturally contributes to that."

Hexagon is a global leader in sensor, software and autonomous solutions. We are putting data to work to boost efficiency, productivity and quality across industrial, manufacturing, infrastructure, safety and mobility applications. Our technologies are shaping urban and production ecosystems to become increasingly connected and autonomous — ensuring a scalable, sustainable future.

Hexagon's Safety & Infrastructure division provides software for smart and safe cities, improving the performance, efficiency and resilience of vital services.

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