

Unified GIS solution reduces pipeline maintenance costs

CONPET S.A. | Romania

For more than 120 years, CONPET S.A. has pioneered oil transportation in Romania. It operates an extensive national network – the National Pipeline Transport System – that includes 3,800 kilometers (approximately 2,361 miles) of pipeline and is instrumental in fueling

refineries with domestic and imported crude oil products. The system integrates a vast infrastructure spanning 24 counties that, in addition to pipeline, includes numerous pumping stations, loading ramps and storage facilities.



Before, CONPET relied on disparate applications and needed a unified geographic information system (GIS) solution to integrate and manage its geospatial data, enable consistency and reliability of that data and comply with international pipeline management standards. There was also a critical need for a system that could offer real-time planning and dispatching of field operations, as well as monitoring the pipeline's integrity. CONPET turned to Hexagon partner Intergraph Computer Services (ICS) Romania, which built a GIS solution using Hexagon's GeoMedia Professional, GeoMedia WebMap and M.App Enterprise technologies.

Disparate systems limited access to accurate and actionable data

Making quick and informed decisions based on real-time data is vital to ensuring CONPET's vast crude oil pipeline network operates at optimal efficiency. This means responding quickly to incidents, managing maintenance activity and costs and planning strategically. However, the organization's reliance on a number of disparate infrastructure management applications limited its ability to perform accurate and timely data analysis.

CONPET needed to move away from siloed systems to a tightly integrated solution that would allow each department to interact with and manage rich sources of geospatial data. The company brought in Hexagon partner ICS Romania, impressed by its track record in pipeline management solutions and experience delivering large-scale projects in the country. An example is Termoficare Oradea, in which its geospatial solution manages the transmission and distribution of the city's heating energy.

The transformation has optimized day-to-day operations but also increased the overall safety and efficiency of the pipeline system.

Geospatial technologies enable real-time monitoring and management

Central to CONPET's new solution are Hexagon's GeoMedia Professional and GeoMedia WebMap technologies. Together, they power a unified system for pipeline data collection, advanced geospatial analysis, dynamic map creation and the distribution of geospatial data via web services. The system also enables online information sharing and ensures regulatory compliance.

Completing the solution is the M.App Enterprise platform, which allows CONPET to model business workflows and integrate its sophisticated management dashboards. The platform provides CONPET with the tools to visualize complex data, monitor real-time operations and manage tasks effectively, elevating overall management efficiency and strategic operational planning.

These Hexagon solutions collectively transformed CONPET's approach to data management and spatial analysis, equipping it with a high-level, integrated and scalable GIS infrastructure.

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Maintenance costs decrease significantly

By providing deeper insights into the infrastructure's behavior over time, the system is reducing operational and maintenance costs. Continuous monitoring of risk zones along the pipeline network allows CONPET to address potential problems before they escalate into actual incidents. By identifying areas with high incident impact, the new system facilitates targeted interventions, which are crucial in minimizing the effects of any disruptions and ensuring rapid response.

When a section of the pipeline shows signs of wear, the system automatically alerts CONPET's maintenance department; its field operators use a mobile app (also developed and integrated by ICS Romania) to access and report real-time data during inspections. It's an approach that not only minimizes downtime, but also extends the lifespan of the pipeline and other critical assets.

Since the Hexagon system went live, CONPET has recorded a significant decrease in its maintenance costs.

Enhanced accountability and regulatory compliance

The adoption of the Pipeline Open Data Standard (PODS) model within ICS Romania's GIS solution is vital to ensuring that data handling and infrastructure management adhere to the highest industry standards. It promotes operational transparency by permitting authorized users within and outside the organization to view the real-time status of the entire infrastructure.

This enhanced accountability is crucial for a company operating within a sector as rigorously scrutinized and regulated as petroleum transportation. With more precise data and improved reporting capabilities, CONPET is also confident of its compliance with environmental and safety regulations.

Meticulous management of the nationwide pipeline network

External stakeholders have also been quick to benefit from CONPET's new Hexagon solution. Improved communication with local government administrators has resulted in a 50% reduction in the time taken to approve and issue construction permits, making it easier to undertake important infrastructure projects and maintenance works with minimal disruption.

The solution designed and implemented by ICS Romania has laid a robust foundation for continuous improvement in monitoring the state of the transportation network. It has solved the operational challenges that previously hampered the efficiency and safety of the national petroleum transport system.

Looking to the future, CONPET plans to integrate more advanced analytics and predictive maintenance capabilities that will increase the lifespan and performance efficiency of the pipeline network, ensuring the company can continue to meet the evolving demands of the market and regulatory environment. This is crucial for maintaining the reliability and efficiency of the energy supply across the country.

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