

# Powerful multiutility geospatial technology enhances and optimizes digital management of networks at EPM

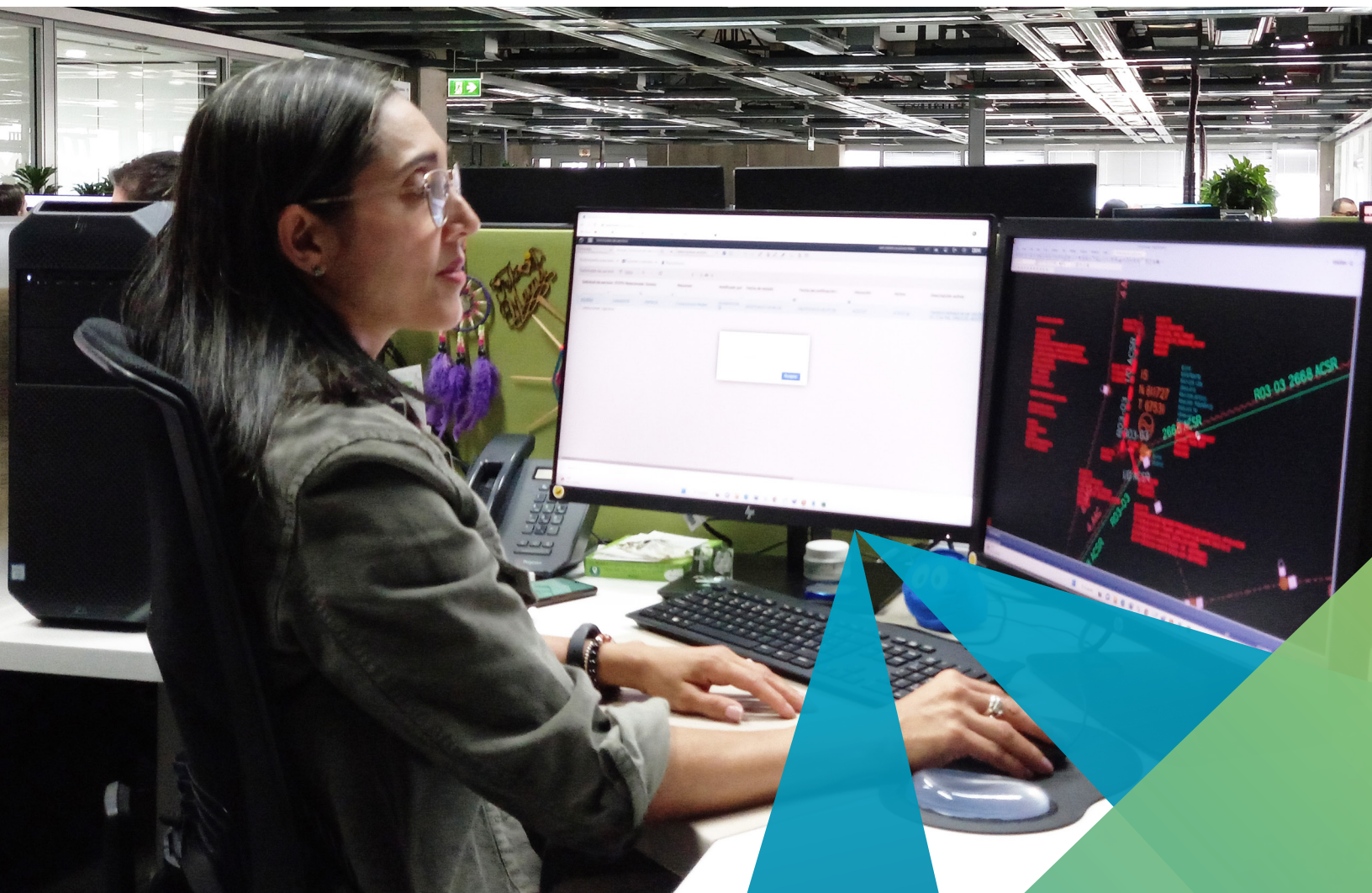
## | Empresas Públicas de Medellín | Colombia

Medellín, capital of the Colombian state of Antioquia, is known as the “City of Eternal Spring” due to its temperate climate. Surrounded by mountains, it is in the central region of the country, and equidistant from Bogotá, Cartagena, Bucaramanga and Cali.

The backbone of a city with 2.6 million residents, Empresas Públicas de Medellín (EPM) is a state-owned industrial and commercial company that supplies electricity, drinking water, sanitation services and gas to Medellín as well as neighboring municipalities. In 1987, the multiutility

company started a feasibility analysis process to digitalize its network; however, it encountered difficulties managing graphical data (CAD files, shapefiles, scanned images), which were not always updated and were housed in different departments, making it difficult to access them.

EPM needed a geolocation-based tool that could provide intelligent information about its network assets and infrastructure and optimize various administrative, technical and operational functions. It also needed to integrate its energy, water, gas and telecommunications



networks with cartographic, digital information from other departments such as customer service and billing. For this purpose, EPM selected Hexagon's advanced utility GIS solutions and geospatial management platform.

## Multiple networks, one trusted system

EPM wanted to automatically generate plans and reports and be more agile in accessing and updating network information. Among the main objectives was to be able to locate damaged parts of its network rapidly and accurately, quickly analyze efficiency and simulate how network changes would affect its customers.

During the process, which involved many phases over a period of several years, EPM created a strategic master plan and found numerous opportunities for improvement through better use of technology to manage its utility networks. For this purpose, EPM acquired hardware, software and basic training to create digital cadastral, geographic and network models, and convert its data into a standard format. Hexagon (formerly Intergraph) was selected to provide the technology needed to upgrade EPM's utility networks. While other vendors offered proprietary solutions, they were controlled by the vendors; Hexagon provided an open and controlled solution.

Hexagon's extensive experience and knowledge in implementing enterprise geospatial solutions was a differentiating factor in being chosen as the solution provider.

## Multiphase deployment

During a pilot phase, models of aqueduct, sanitation, energy and telecommunications networks were designed, and cartographic bases and a cadastral mapping model were created. The data associated with the geographical area covered by the pilot project was converted, basic applications were developed and the results of the pilot were evaluated.

In the refinement phase, the network models built in the pilot phase were reviewed and new complementary functionalities were developed. During this phase, EPM

carried out a massive conversion of all the data on its networks. Between 1998 and 2003, the SIGMA project was put into production for EGAT (energy, gas, water and telecommunications), transforming network plans from paper and printed records into a GIS system (FRAME), which migrated to Intergraph G/Technology (what is now HxGN NetWorks) between 2005 and 2007.

After completing the development of the network models and new functionalities, the different models were put into production sequentially: energy, gas, water and telecommunications. The start-up phase consisted of massive data entry and improving functionalities of all systems.

A longtime customer, EPM received Hexagon's "100% Club" award, which recognized utility companies that digitized 100% of their maps. From that point, network models became the centralized source of network information required for different processes (commercial, customer service, operation, maintenance, asset management, etc.) through integrations with the systems that support them.

## EPM today

Currently, the system is used by several areas through integrations of the systems that support their processes. Areas include the network information management department (in charge of editing and maintaining network databases), commercial department (in charge of analyzing the viability of services and new demands) and inventory department (asset management), as well as the operations management department, which is also responsible for guaranteeing the exchange of information across EPM's business using different file formats provided by the system.

EPM also serves much of the surrounding national territory and is a leader in the adoption and expansion of cutting-edge technologies. Throughout the years, EPM has expanded to other regional markets through acquisitions, which originated the EPM Group.

---

Hexagon is the global leader in digital reality solutions, combining sensor, software and autonomous technologies. We are putting data to work to boost efficiency, productivity, quality and safety across industrial, manufacturing, infrastructure, public sector, and mobility applications. Our technologies are shaping production and people-related ecosystems to become increasingly connected and autonomous – ensuring a scalable, sustainable future.

Hexagon's Safety, Infrastructure & Geospatial division improves the resilience and sustainability of the world's critical services and infrastructure. Our solutions turn complex data about people, places and assets into meaningful information and capabilities for better, faster decision-making in public safety, utilities, defense, transportation and government. Learn more at [hexagon.com](https://www.hexagon.com) and follow us [@HexagonAB](https://twitter.com/HexagonAB).

©2024 Hexagon AB and/or its subsidiaries and affiliates. All rights reserved. Hexagon is a registered trademark. All other trademarks or service marks used herein are property of their respective owners. 2/24