INFOASSETS

Project presentation

Infoassets is yet another example of E-REDES' constant search for innovative and disruptive solutions for its business challenges

E-REDES manages about 125 thousand kilometers of low voltage (LV) networks, of which about 80% are overhead networks. The cadastral data of these networks, such as the type of conductors, geolocation of supports, control equipment, or public lighting, have historically been undervalued.

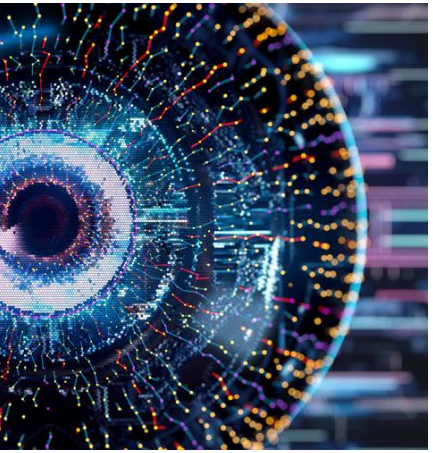
The low quality and availability of these records contrast with the growing importance of LV networks for the energy transition. The penetration of distributed resources at this voltage level increases management complexity. Therefore, a reliable registry becomes extremely important in various aspects.

In the past, the survey of LV cadastral data was supported almost exclusively by field operations. The Infoassets project was born with the aim of seeking a high-tech alternative for these operations, which are expected to be **more efficient and sustainable, and bring greater speed and accuracy**.

This project sought a high-tech alternative to obtain the LV network cadastral data, instead of relying solely on field teams, with several advantages

OPERATIONAL EFFICIENCY / COST REDUCTION

Conduct cadastral surveys at lower costs and shorter execution times, but with similar or superior quality to that achieved with specialized field teams.



SUSTAINABILITY AND BUSINESS CONTINUITY

Enhance the release of scarce human resources, from the company or external service providers, for other core activities of the company. Minimize CO2 emissions from this activity.

ENHANCE LV NETWORKS FOR THE ENERGY TRANSITION

Accelerate response to network connection requests from new customers and distributed generation. Improve knowledge of LV networks and simulation capabilities.

NEW ANALYTICS AND AI CAPABILITIES OF THE COMPANY

The images and know-how collected are driving new developments, such as assessing the health of LV networks by detecting corrosion, damage to supports and conductors, or other visual anomalies.

The methodology developed makes E-REDES a pioneer in the application of AI on satellite images and ground-collected images for obtaining LV network cadastral data

Solution

Use Cases

Identification of LV network assets
Location of network sections not yet registered

Geolocation
djust location and layout of LV conductors

Asset Registration
Identify and register specific assets, such as poles, luminaires, transformers

Complete cadastral data /Digital Twin of the network
Complete cadastral data available on a web platform and integrable into the company's systems and processes

Custom Artificial Intelligence platform for E-REDES

AI models focused on interpreting various sources of images and existing cadastral data (E-REDES GIS)

Creation of a digital twin delivered on a web platform with a user-friendly environment and GIS integration

1

Satellite Images

Multiband Satelite

High-resolution 3D multiband satellite images

2

Street View Images

Ground-level images

Images captured with cameras mounted on vehicles

3

Other data sources

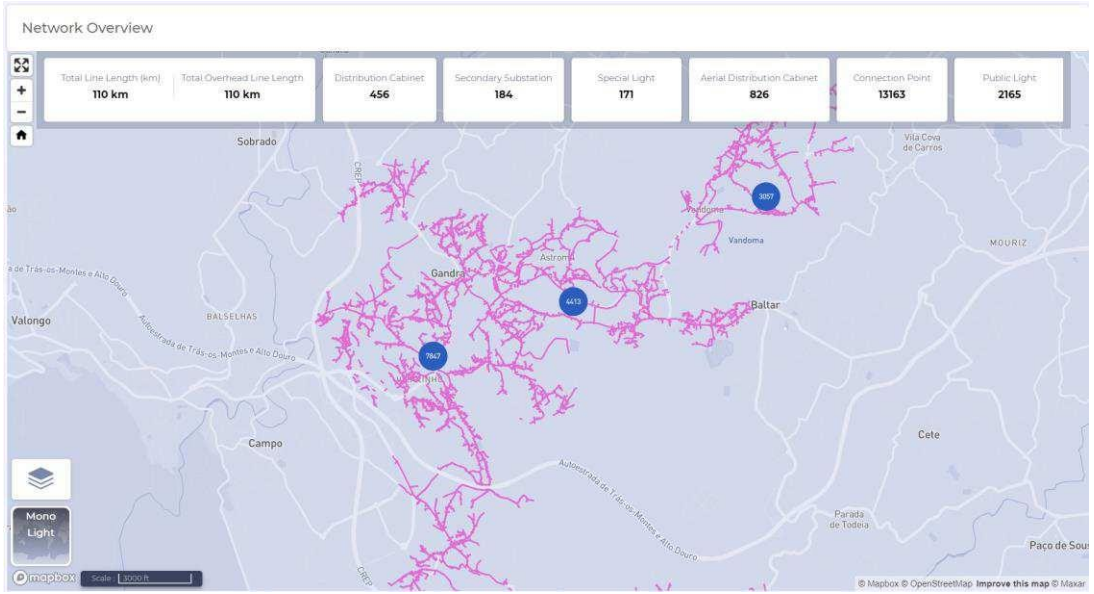
- Geospatial Files (GIS)
- Current network maps and cadastral data Layouts of secondary and main roads

...

The result of this innovative approach can be consulted in the company's systems or on its own platform, which is flexible, mobile, and business-oriented

VISUALIZATION IN A GEOGRAPHIC ENVIRONMENT

The designed networks is not only integrated into the company's geographic environment (GIS) for mass consumption in other systems, but also has its own platform that makes consultation more flexible, lightweight, and mobile.



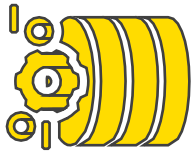
DETAILED CONSULTATION

It allows for the consultation of specific network locations, with information on the present assets and photographs. This functionality is an important support for some business processes, such as new customer connections, where the detail of the location is fundamental.

This project thus fulfilled its initial objective of identifying the LV network in a reliable, efficient, and scalable manner

Reliable

High reliability and accuracy of the algorithm, >97%. Current limitations are well identified, indicating a likely increase in reliability in the future.



Efficient

Fully automated and digital process, significantly reducing the need for specialized labor.

Scalable

Ability to process thousands of kilometers of networks per month, depending essentially on the pace of image collection on-site and by satellite.

This project thus fulfilled its initial objective of identifying the LV network in a reliable, efficient, and scalable manner

From 100% field operations

125k Km of LV network

80% overhead network

~ 40 thousand Km of survey per year starting from 2025

...until the complete digitization of this activity

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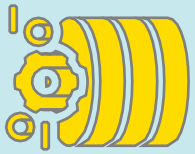
High reliability and accuracy of the algorithm, >97%. Current limitations are well identified, indicating a likely increase in reliability in the future.



Efficient

Fully automated and digital process, reducing the need for specialized labor.

Scalable

Processing capacity of thousands of kilometers of networks per month, depending essentially on the pace of image collection on-site and by satellite.

This project delivers several important benefits for E-REDES

OPERATIONAL EFFICIENCY – Shorter times for cadastral surveys, greater scalability, less subjectivity, and fewer errors

HR OPTIMIZATION – Release of highly specialized resources for other important company activities

Infoassets

ECONOMIC – Lower costs compared to traditional cadastral survey approaches

SUSTAINABILITY – Lower CO2 emissions by avoiding thousands of kilometers of travel by field teams

Some Results

1200 Km surveyed with AI in 2024

~ 40 thousand Km surveyed per year starting from 2025

Ricardo Santos
Gestão de Inovação

“This project places E-REDES at the forefront of AI utilization and enables the timely acquisition of cadastral data, supporting the transformations required by the energy transition.”

Davide Raposo
Gestão de Inovação

“In a time of scarcity of field operatives, it is essential to invest in AI to make these cadastral survey processes more efficient.”

Nina Clemente
Planeamento de Rede

“InfoAssets was an experience in team management, transformational evolution, and innovation.”

Roberto Ribeiro
Área de Serviço Ativos

“This project mobilized a large part of the organization and led to profound changes in the way the LV cadastral process is thought and executed.”

Manuel Luiz
BCG

“The evolution of mapping accuracy since the first field visit has been impressive.”

Francisco Coelho
BCG

“The technological challenge behind InfoAssets was one of the best and most stimulating challenges I had the opportunity to participate in.”