# Future-proof solutions to accelerate the digitalization of power grids

## Digital Asset and Vegetation Intelligence

gridspertise
accelerating your electric future

# WHO
# we are

We accelerate the digital transformation of electricity distribution networks worldwide to deliver a new era of sustainable and reliable smart grids through innovative, flexible and customer-driven solutions that are circular by design.

We partner with Distribution System Operators (DSOs) all over the world to help them advance their power distribution networks, delivering integrated, cutting edge and sustainable smart grid solutions to make energy infrastructure fit to meet the evolving needs of grid users and electricity end customers.

## The partner of choice for DSOs worldwide

## Our solutions provide benefits for the entire ecosystem

### For DSOs

They increase service quality, reduce operating costs, optimize investments in new infrastructure and enhance safety, productivity and sustainability of field operations.

### For grid users

They provide a platform to integrate distributed energy resources and facilitate the development of the energy service market, including flexibility and electrification of end uses.

### For end customers

They increase the reliability of the electricity supply, facilitate electrification, foster energy efficiency and make it easier for end customers to become prosumers by taking part in energy markets.

# WHAT
## we do

## Future-proof sustainable solutions for the digitalization of your grids

We offer end to end Cloud-Edge Platform solutions and services to accelerate the digital transformation of distribution grids.
Our portfolio is designed as an open ecosystem, easy to integrate with legacy systems, combining grid intelligent devices with ready-to-use modular applications, running at central level as well as on the edge.

| METERSPERTISE | NETWORKSPERTISE | FIELDSPERTISE |
|---|---|---|
| **Metering and grid edge digitalization** | **Network infrastructure digitalization** | **Field operations digitalization** |
| Our smart meters, HES and MDM systems allow DSOs to effectively manage electricity demand through real-time data monitoring and enable grid reliability. They improve billing and revenue protection with fraud detection functions. The solutions also increase customer awareness on energy consumption, allowing more sustainable habits. | Our portfolio boosts power grid intelligence up to the edge, allowing remote control and automation to effectively tackle power interruptions and outages, hence increasing service reliability and quality. It also empowers DSOs to operate the network of the future, through solutions for flexibility and distributed energy resources management. | Our solutions streamline field operations and workforce management. From augmented and virtual reality to allow training of employees, up to machine learning and computer vision for vegetation intelligence and asset inspection. They enable DSOs to reduce response time, enhance service quality, and increase field workers' safety and efficiency. |

# Digital Asset and Vegetation Intelligence

## THE CHALLENGE

Monitoring **vegetation** growth and the **interference** of **other elements** with power networks is essential to **guarantee reliable and continuous power to end customers**.

Moreover, detecting any failures on critical assets and components in advance is crucial to reduce costly emergency repairs and risk of outages.

# Streamilining your operations

## Vegetation inspection

- **Provide an automated centralized 3D cartography** of the vegetation, with precise accuracy and updated data base
- **Optimize the annual budget** allocation assigned to the real needs detected
- **Decrease costs** due to prioritization of the trimming plans targeting critical areas
- **Allow aerial audit** for creating a complete modelling of the line that can be used as a proof in case of an incident

Saving up to
### 26%
Percentage estimated after a test executed in Spain for 3 years trimming cycle in a range of 124 Miles of HV line at 110kV. 20% saved trimming only where needed and 6% saved for automatic image inspection and trimming plan.

## Maintenance

- Remote inspection of the digital twin of the asset, allowing savings on patrol inspections and increasing safety for field workers
- Predictive maintenance through anomalies recognition. Savings from avoiding emergency reparations and future outages.
- Inventory and classification of components

Saving up to
### 15%
Percentage estimated considering the reduction of pedestrian inspections, corrective maintenance prevention through anomalies recognition and faults prediction, inventory and classification of components. Data from pilots in Spain, Italy, Brazil and Colombia.

## Engineering

- Virtual site visits to support measurement and auditing operations, digitalizing engineering activities
- Support data-based decisions
- Design or re-design projects taking advantage of the data extracted from the point cloud

Saving up to
### 50%
Percentage estimation related to the process digitalization, support data based decisions and field inspections. Data from pilots in Spain, Italy, Brazil and Colombia.

"
**O&M Field Engineer (Brazil)**

The greatest benefit of the solution is the possibility to anticipate failures due to vegetation constraints, alerting our team to inspect with urgency the areas with high risk of interferences

"
**Head of Network Maintenance (Iberia)**

The possibility of virtually inspect the planimetric profile of the area for redesign purposes provides relevant savings in topography services
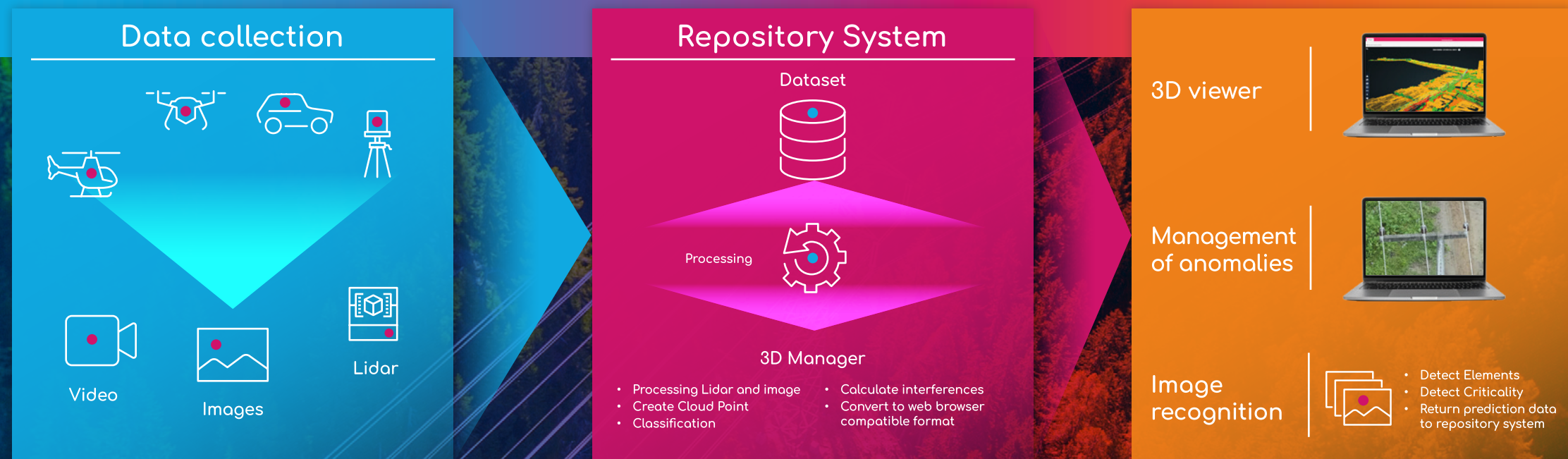
# THE SOLUTION

The Digital Asset
and Vegetation
Intelligence
is based on a
**Network Digital Twin®**

which creates a virtual replica
of the electricity grid and the
surrounding environment,
by acquiring and processing
structured datasets provided by
**laser**, **scanner**, **photography**, **videos**, etc.
It enables the identification of critical
distances and classification of the
point cloud, facilitating vegetation
inspection and predictive maintenance
through asset detection and anomaly
recognition thanks to AI.

## How it works

### Data collection

Video

Images

Lidar

### Repository System

Dataset

Processing

3D Manager

- Processing Lidar and image
- Create Cloud Point
- Classification
- Calculate interferences
- Convert to web browser compatible format

### 3D viewer

### Management of anomalies

### Image recognition

- Detect Elements
- Detect Criticality
- Return prediction data to repository system

# Our Offer

## Standard package

### DATA ACQUISITION & STORAGE

OPTIONAL*

Dataset of images, LIDAR, videos acquired through:
- Helicopters Mobile mapping, Laser scanner, Drones, Smartphones etc.

### DATA PROCESSING
- Process LIDAR and images
- Create Cloud Points
- Calculate interferences
- Enable visualization and modification of maintenance limit alerts

### 3D VIEWER
- Display 2D/3D
- Enable visualization of Cloud Points
- Classify data
- Virtual Inspection

* This activity can be managed directly by the DSO or by Gridspertise.

## Computer vision

### ALTIMETRIC PROFILE AND DISTANCES
- Generate altimetric profile
- Extract electrical elements from LAS
- Calculate distance violation from non-electrical elements

### IMAGE RECOGNITION & LABELING
- Asset recognition from photos
- Anomalies detection
- Points cloud automatic classification
- Automatic retraining ML models

For information about ours products scan the QR code

NOTE

Are you ready for the electric future?

**www.gridspertise.com**

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