



Planetsoft Group Capabilities Presentation



Partnership for the Future!

About Us

- Established in Adriatic, expanded to the EU
- Over 120 employees
- Dedicated to becoming Your's trusted partner for digital transformation.
- Core focus on delivering superior outcomes and enriched experiences for both customers and employees.
- Helping Your efforts in creating a secure and decarbonized digital world.



Why are we your trusted partner

Regional Leader

- ▶ Expanding across the region by securing and winning new projects, delivering excellent and high-quality services to the clients
- ▶ Partnering with leading universities and schools in creating **Scientific & Expert communities**
- ▶ Supporting start-ups through various programs aimed at faster MVP to market

Uniquely positioned

- ▶ Uniquely positioned to manage the **whole value chain of data** – end-to-end
- ▶ Proven **industry-specific solutions & services portfolio**
- ▶ **World-renowned partnerships** with Amazon, Exoscale, SAP, Microsoft, Oracle, UiPath, Aviat and others.

Helping you go net zero

- ▶ Digitize
- ▶ Automate
- ▶ Secure

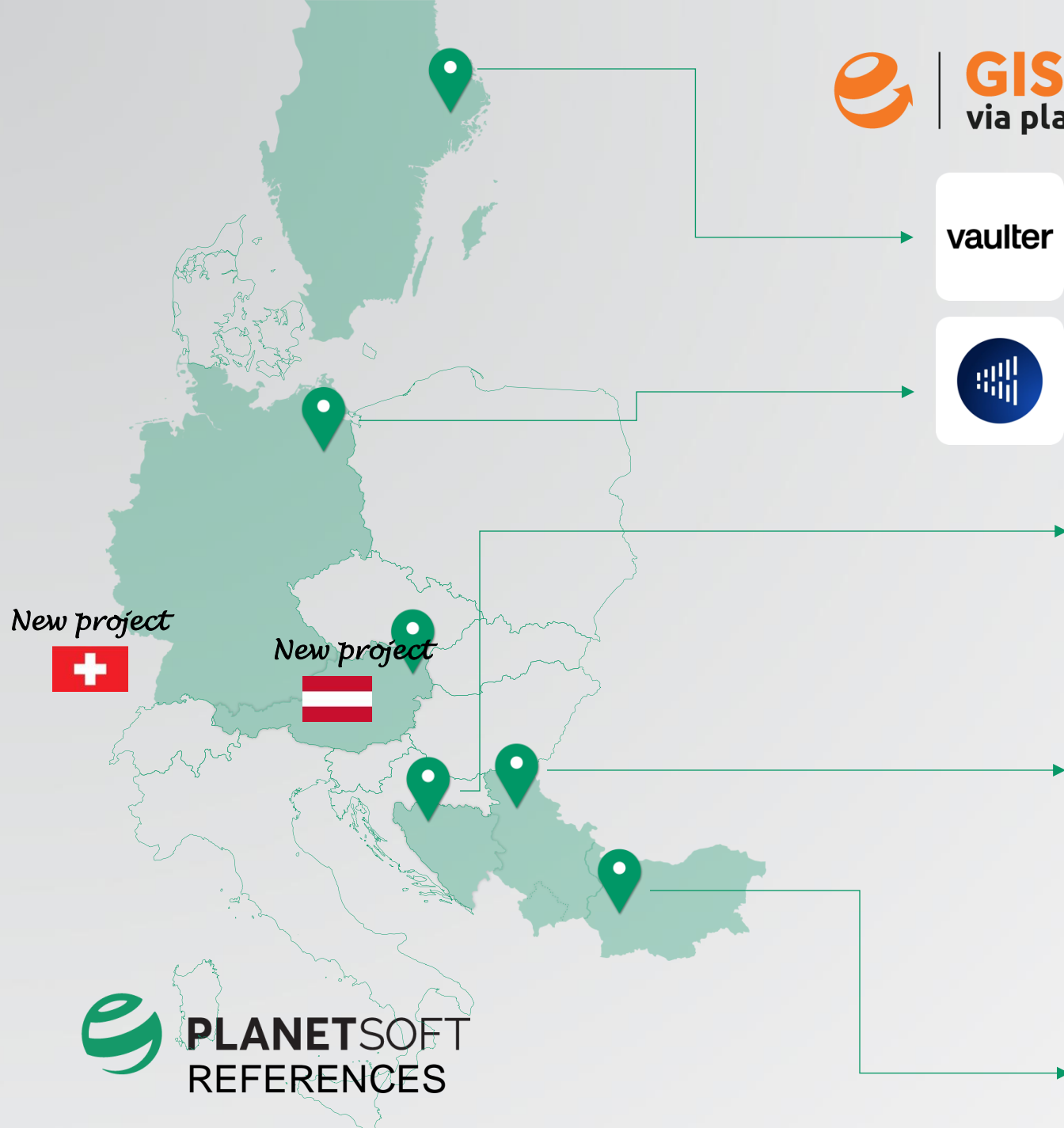
Time Zone
Convenience

Compliance and
Data Protection

Reduced Travel
Costs and Time

Language
Proficiency

Cultural
Understanding



 **GIS**
via planet

 **ITS**
via planet

vaulter



A collection of logos including: PC, m:tel, ЈП ПУТЕВИ БРЧКО, ЈП ПУТЕВИ БРЧКО, ЈАВНО ПРЕДУЗЕЊЕ "ПУТЕВИ РЕПУБЛИКЕ СРПСКЕ" БАНА ЛУКА, ПУТЕВИ ЕКОЛОШКИ ИСТИК, WIENER OSIGURANJE VIENNA INSURANCE GROUP, АГЕНЦИЈА ЗА ПУТЕВЕ КАНТОНА САРЈЕВО, bh, EPC, АС, and Monet broker.

A collection of logos including: HejDev, Atos, Олимпијски постојећности, ЈАВНО ПРЕДУЗЕЊЕ ПУТЕВИ СРБИЈЕ, NITES, ETC, Српскашумске, AutoČačak, СРБИЈА ВОЗ, and Beogradske elektrane.

 **VIVACOM**

UiPath™

SAP

aws

salesforce



Atos

Canon

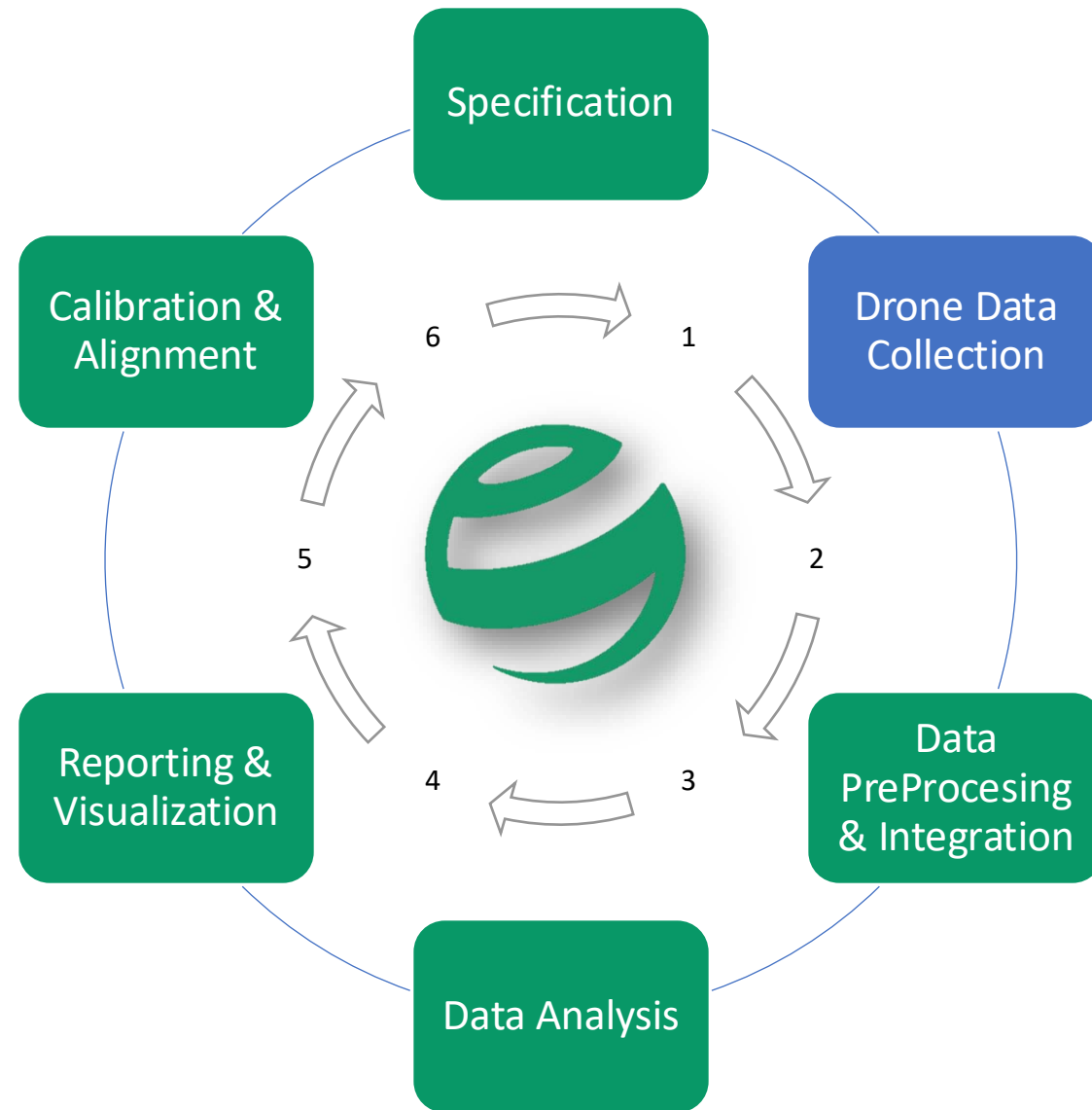
Aviat NETWORKS

TRUSTED MEMBER OF THE **AMPLIFYRE HUB**

 **PLANETSOFT REFERENCES**

Cycle of Autonomous PowerGrid Inspection

Proprietary software solution based on ML and AI for identification of assets condition based on airborne data used sensors such as: LiDAR, Thermal Imaging and RGB images. System eliminates or significantly reduces needs for manual inspection. Especially effective in areas with no easy access to assets.



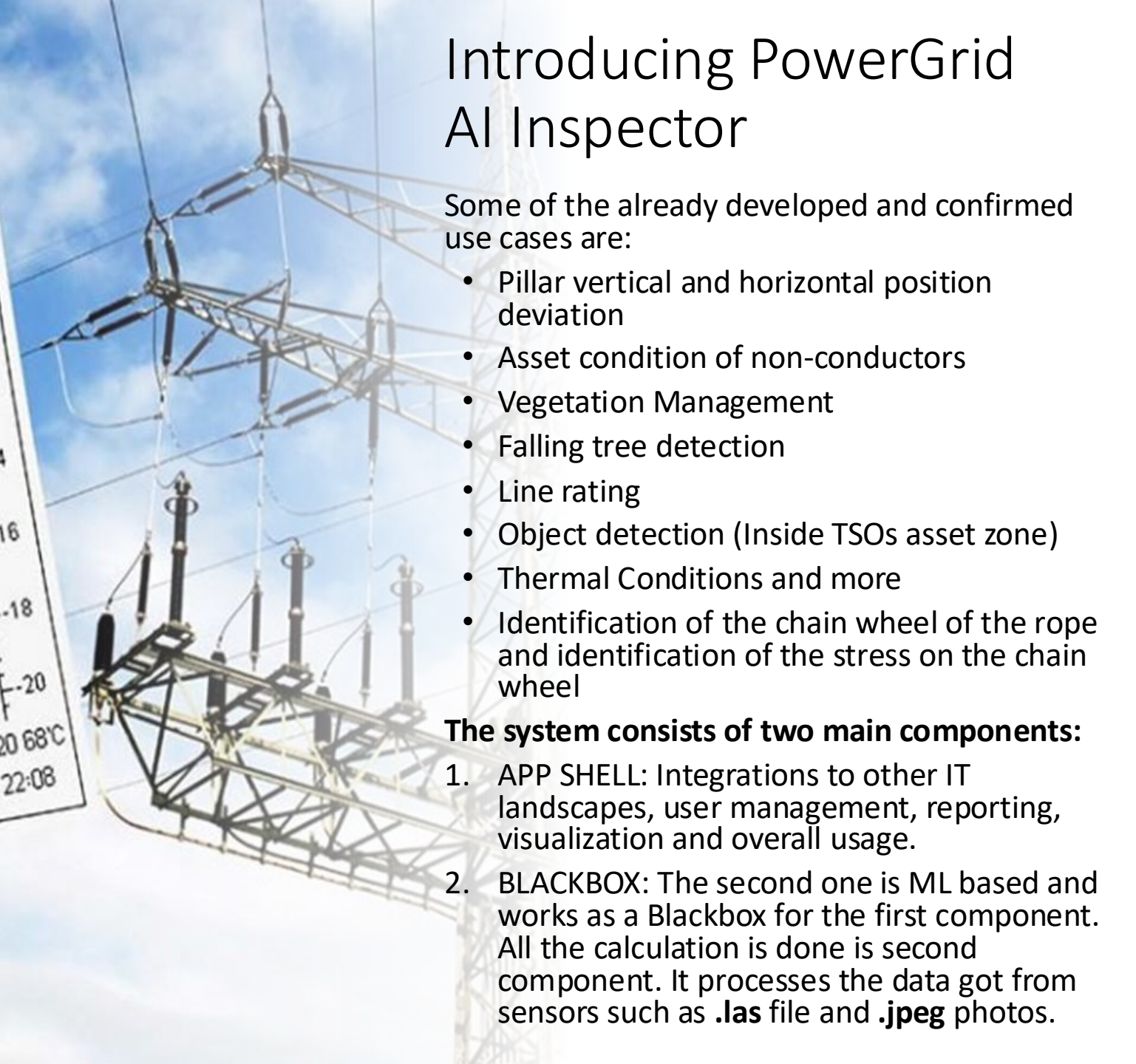
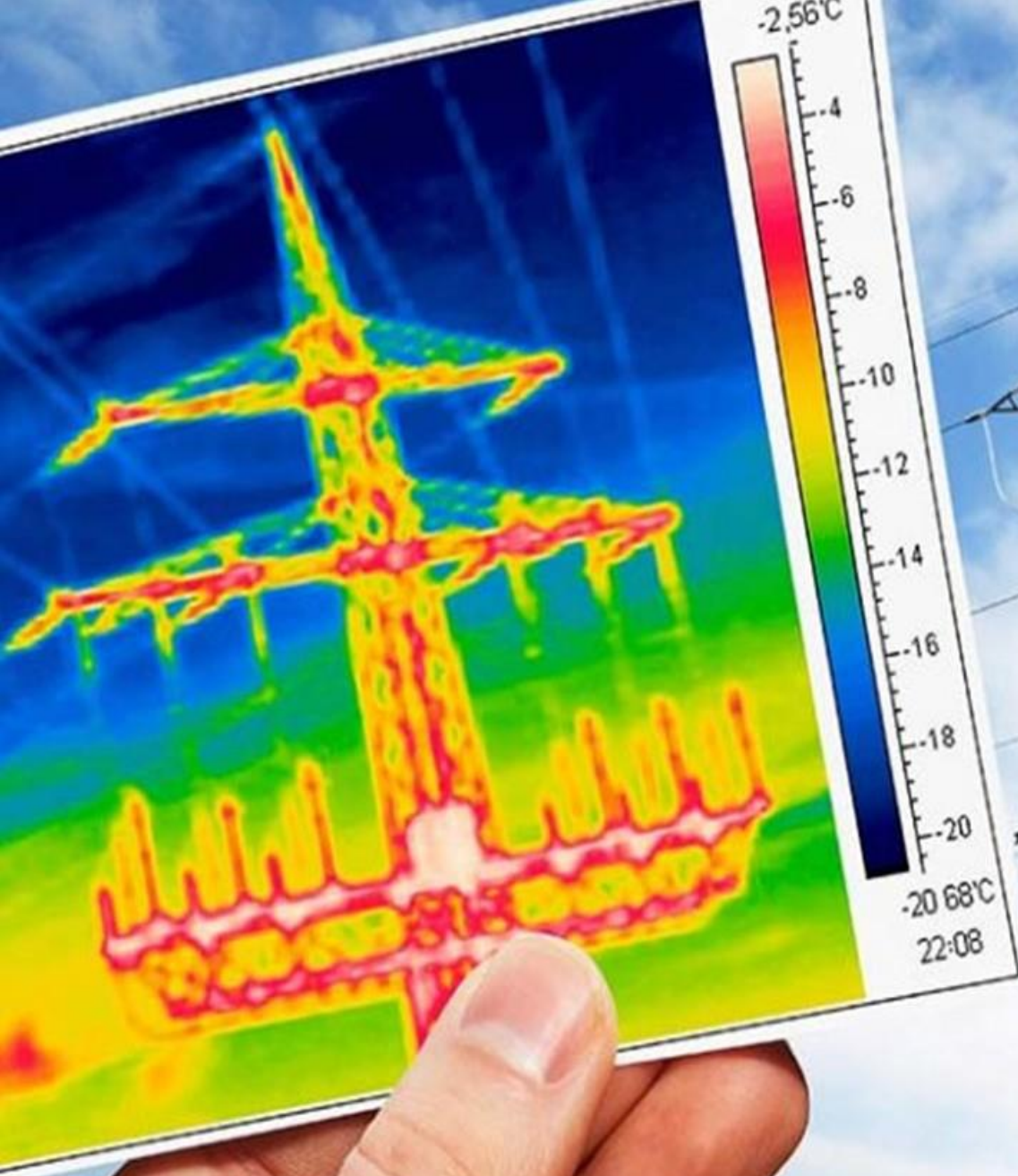
Introducing PowerGrid AI Inspector

Some of the already developed and confirmed use cases are:

- Pillar vertical and horizontal position deviation
- Asset condition of non-conductors
- Vegetation Management
- Falling tree detection
- Line rating
- Object detection (Inside TSOs asset zone)
- Thermal Conditions and more
- Identification of the chain wheel of the rope and identification of the stress on the chain wheel

The system consists of two main components:

1. APP SHELL: Integrations to other IT landscapes, user management, reporting, visualization and overall usage.
2. BLACKBOX: The second one is ML based and works as a Blackbox for the first component. All the calculation is done in second component. It processes the data got from sensors such as **.las** file and **.jpeg** photos.



Data Collection*

Drones, also known as Unmanned Aerial Vehicles (UAVs), offer a versatile and efficient solution for inspecting and monitoring power grids. Their ability to access hard-to-reach areas, combined with the integration of advanced sensors, makes them invaluable for collecting high-quality data in a safe and timely manner.

*our software is hardware vendor agnostic.



Data Sensors

LiDAR Technology

LiDAR (Light Detection and Ranging) technology uses laser pulses to create detailed, three-dimensional maps of the environment. In power grid inspections, LiDAR can:

Generate Precise 3D Models: Capture accurate topographical data of power lines, towers, and surrounding vegetation.

Identify Obstructions: Detect potential hazards such as overgrown trees that may interfere with power lines.

Assess Structural Integrity: Provide detailed measurements to evaluate the condition of infrastructure components.

Thermal Cameras

Thermal imaging cameras detect infrared radiation, allowing them to capture heat signatures of objects. For power grid networks, thermal cameras can:

Spot Overheating Components: Identify transformers, conductors, and connectors that are operating at unusually high temperatures, indicating potential faults.

Improve Preventive Maintenance: Detect issues before they lead to failures, reducing downtime and maintenance costs.

Enhance Safety: Identify hot spots that could pose a risk to personnel and equipment.

Photo Cameras

High-resolution photo cameras provide clear, detailed images of power grid components. These cameras are essential for:

Visual Inspections: Documenting the condition of power lines, insulators, and other infrastructure.

Damage Assessment: Quickly identifying and assessing damage caused by storms, accidents, or vandalism.

Regulatory Compliance: Ensuring that inspections meet regulatory standards and providing evidence for audits.

Use Case Matrix by Sensor Data

Sensors / Use Cases	Ident of the vertical position of the tower/pole	Ident of the conductor catenary and conductor tension	Vegetation management	Risk of falling trees	Visual analysis of the condition of the equipment related to the power line	Thermal analysis of the power line equipment (hot point detection)	Line rating analysis (EXTERNAL such as SCADA input...)	Detection of objects in the power line zone and safety clearances violation under predefined conditions
Lidar	X	X	X	X	-	-	X	X
Thermal	-	-	-	-	-	X	X	-
RGB	-	-	-	-	X	X	X	X

Data Pre-processing & Integration with Power of AI

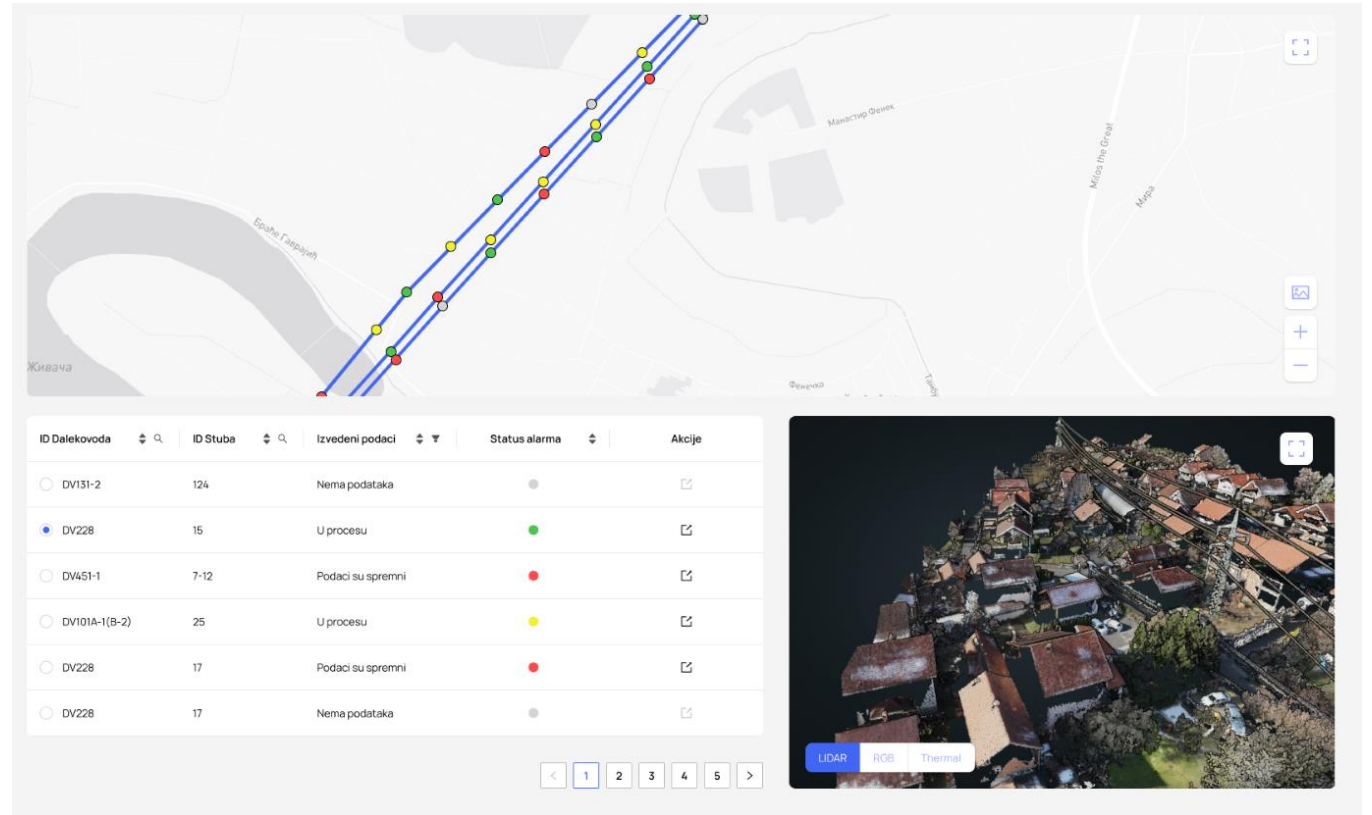
Integration and Data Fusion

The true power of drone-based data acquisition lies in the integration and fusion of data from multiple sensors. By combining LiDAR, thermal, and photographic data, operators can:

Conduct Comprehensive Analysis: Gain a holistic view of the power grid's condition, identifying issues that may be missed by a single type of sensor.

Improve Decision-Making: Make informed decisions based on accurate, up-to-date information.

Optimize Maintenance: Prioritize maintenance activities based on a thorough understanding of asset health. Drones, also known as Unmanned Aerial Vehicles (UAVs), offer a versatile and efficient solution for inspecting and monitoring power grids. Their ability to access hard-to-reach areas, combined with the integration of advanced sensors, makes them invaluable for collecting high-quality data in a safe and timely manner.



Data Analysis with the Power of AI

Automated 3D Modeling:

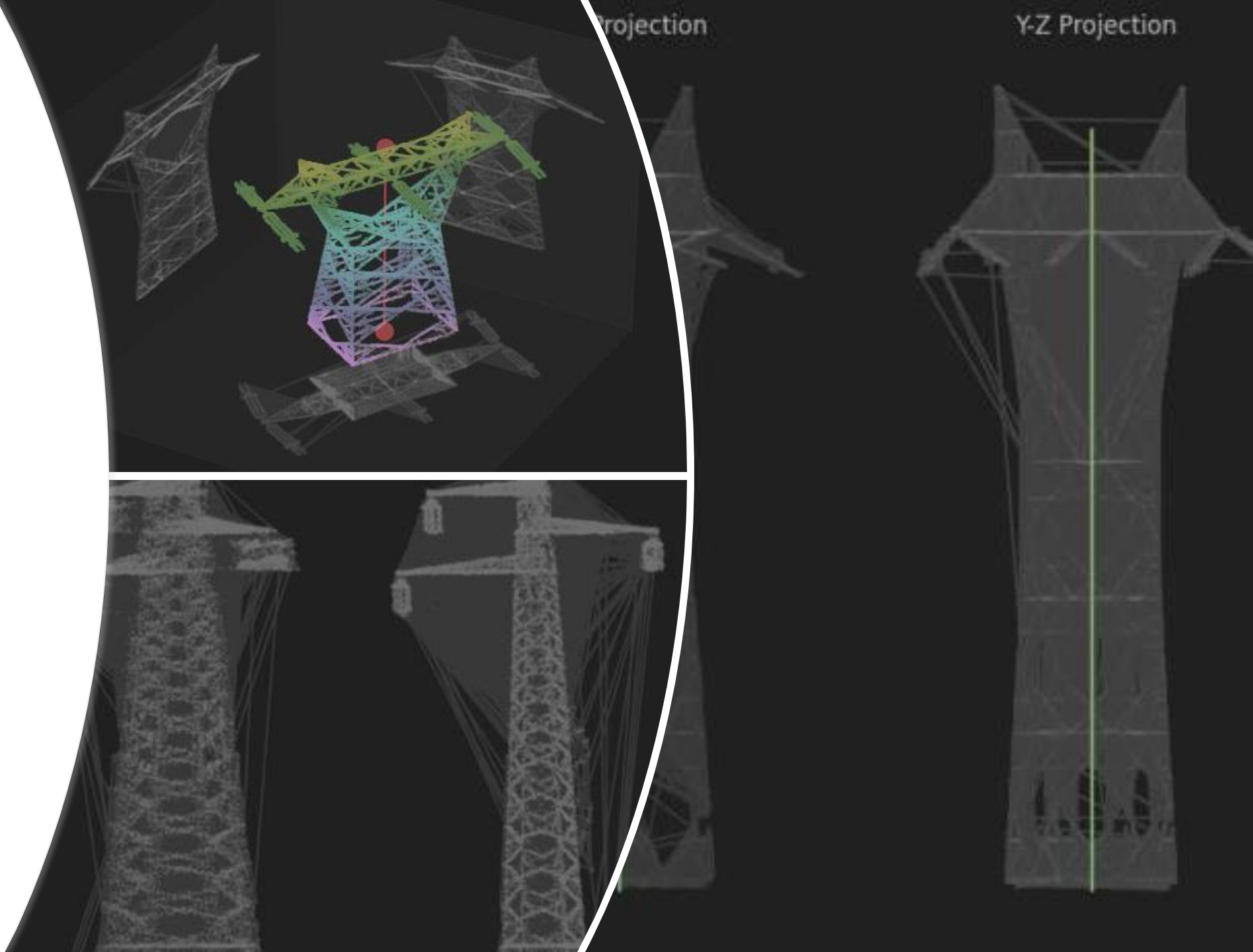
AI generates accurate 3D models from LiDAR data, identifying potential hazards and structural issues with minimal human intervention.

Thermal Analysis:

AI analyzes thermal images to detect overheating components, predict potential faults, and prioritize areas for maintenance.

Visual Inspection:

AI processes high-resolution photos to identify damages, wear and tear, and categorize the severity of each issue.



Reporting & Visualization

ET

Početna

Podaci o elementima

ID Dalekovoda	ID Stuba	Status podataka	Akcije
DV131-2	124	Potvrđeni	Prikaži na mapi Rezultati analize Očitaj
DV131-2	124	Potvrđeni	
DV131-2	124	Odbijeni	
DV131-2	124	Potvrđeni	
DV131-2	124	Odbijeni	
DV131-2	124	Potvrđeni	

Podaci o stubovima

200

- Potvrđeni
- Odbijeni
- Ukupno obrađenih

Detalji

Temperatura opreme

- Iznad dozvoljene
- Blizu prekoračenja
- Ispod dozvoljene
- Nije snimljeno

Sigurnosni razmaci

- Iznad dozvoljenog
- Blizu prekoračenja
- Ispod dozvoljenog
- Nije snimljeno

Stanje konstrukcije

- Oštećena konstr.
- Kritično stanje
- Uredna konstr.
- Nije snimljeno

Operativno ograničenje

- Label
- Label
- Label
- Label

ET

Izveštaji

Izveži više

Identifikacija vertikalnog položaja stuba

Identifikacija lančaniće užadi i identifikacija napreznja lančaniće

Upravljanje vegetacijom

Opasnost od pada stabala

Analiza stanja opreme vezane za dalekovod

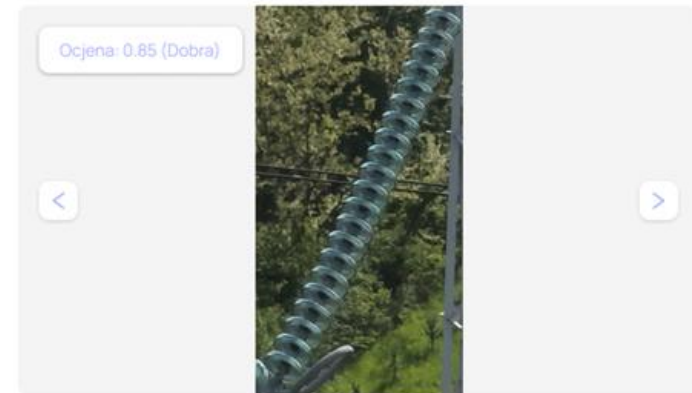
Termička analiza stanja opreme

Line rating analiza

Detekcija objekata u zoni dalekovoda

ID Stuba	Putanja do snimka	Status	Akcije
ID	C:\User\Folde	• Lorem ipsum dolor sit amet consectetur. laculis cras a facilisis tortor	
ID	C:\User\Folde	• Lorem ipsum dolor sit amet consectetur. laculis cras a facilisis tortor	Prikaži Detalji
ID	C:\User\Folde	• Lorem ipsum dolor sit amet consectetur. laculis cras a facilisis tortor	LDAR Thermal ROB
ID	C:\User\Folde	• Lorem ipsum dolor sit amet consectetur. laculis cras a facilisis tortor	
ID	C:\User\Folde	• Lorem ipsum dolor sit amet consectetur. laculis cras a facilisis tortor	

10 / stranici

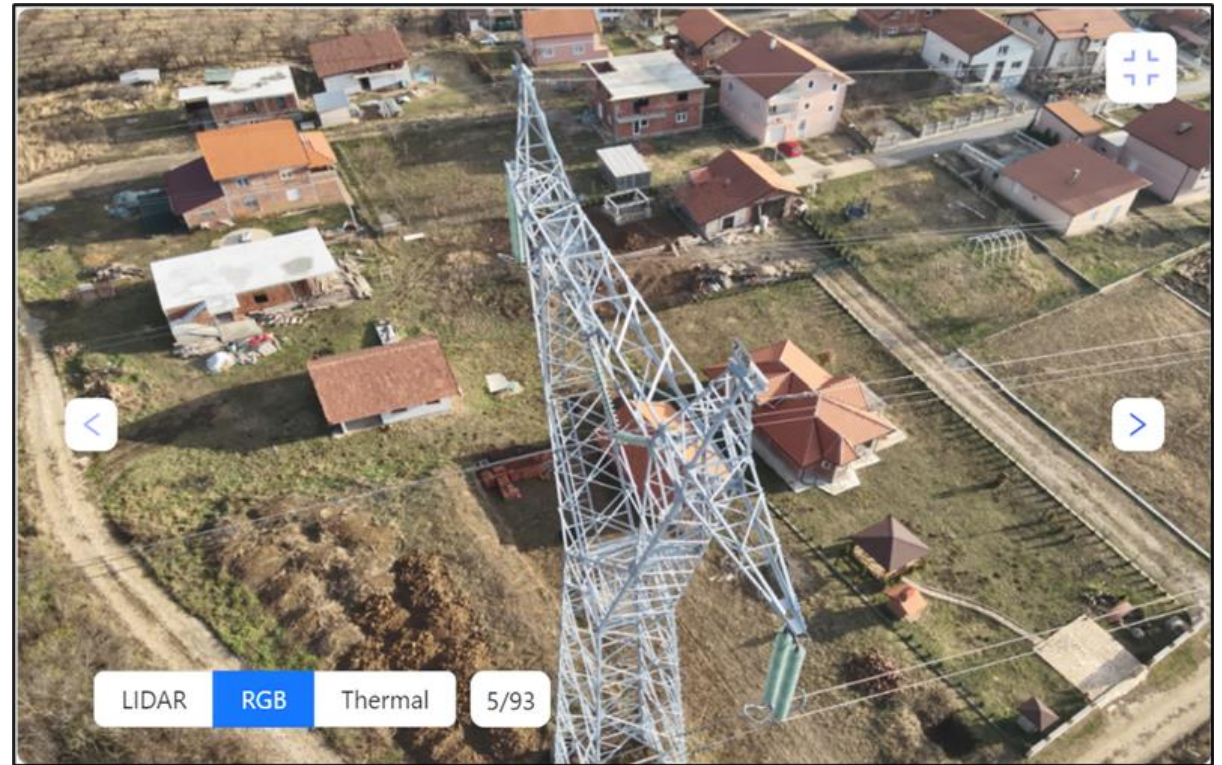


Our Competitive Edge

Experience	Domain knowledge	AI Experts
<p>Current projects: One of the few companies with actual experience on the market</p> <p>Already analyzing:</p> <ul style="list-style-type: none">• 10,000 kilometres of transmission network scanned• 30,000 power towers examined <p>Validated technology:</p> <ul style="list-style-type: none">• 99% accuracy	<p>Industry Expertise Working with experts in charge of designing power transmission networks</p> <p>Power Grid Infrastructure: Knowledge of the components of power grids, such as transmission lines, transformers, substations, and distribution networks.</p> <p>Defect Detection: Understanding common defects in power grid components, such as corrosion, cracks, vegetation overgrowth, and structural damage, and how to detect them using AI and image recognition technologies.</p>	<p>Working with top minds of AI world:</p> <ul style="list-style-type: none">• Institute of Artificial Intelligence, Serbia• Dr. Dubravko Culibrk, Nvidia Ambassador• Data Analysis: Proficiency in analyzing inspection data, including image processing, machine learning, and deep learning techniques to identify and classify defects accurately.

References

Elektromreza Srbije is a **Serbian TSO (transmission system operator)** responsible for design, construction, and maintenance of transmission network. They provide a range of services including the construction of overhead and underground power lines and substations. The company plays a crucial role in ensuring the reliable transmission of electricity across Serbia.



Next Steps

To demonstrate the effectiveness of our technology and approach, we always recommend that clients take advantage of our free trial.

Let's try and use some of your existing data and see how effective AI Inspector could be.



Thank you.

Q & A



PLANETSOFT

IT SOFTWARE AND SOLUTIONS



Svetozara Markovića 5, ulaz 11, sprat III, Banja Luka
Omladinskih brigada 90b, VI sprat, Airport City office park, Belgrade
Kärntner Ring 5-7, Regus office park, Wien



+387 51 327 110
+381 11 424 0936
+43 664 917 1627



info@planetsoft.ba
info@planetsoft.rs
info@planetsoft.eu



www.planetsoft.eu