SHARPER SHAPE

One flight many apps

The web platform for managing drone created data

Niko Vuokko
Chief of Data
niko.vuokko@sharpershape.com

The Company

Founded in 2013 - Palo Alto CA, Grand Forks ND and Espoo, Finland

The world's only UAV-based automatic asset inspection solution

Sharper Inspection® cloud SaaS platform

- Data storage, analysis, organization

SHARPER SHAPE DISRUPTIVE TECHNOLOGIES

- High Accuracy, drone-based LiDAR
- Automatic detection of critical asset conditions
- Automated & optimized inspections

FIRST TO MARKET FOR DRONE FLIGHT REGULATORY APPROVALS

Maintenance of infrastructure assets

Right of way industries

- Power distribution and transmission

- Transportation

- Oil and gas

Continuity of supply and regulations

- Efficiency and cost of inspection

- Detection, prioritization and budgeting of risks

- Management of maintenance data

Sharper Solution

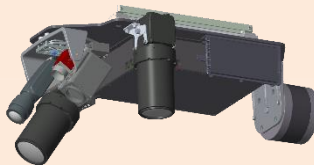**AERIAL PLATFORM**
SHARPER A6 with SHARPER 4x4 telemetry

MULTI SENSOR ACQUISITION

ASSETS TO INSPECT

SHARPERSCOPE 5.0 SENSORS

- LiDAR
- Front & Nadir camera
- Thermal camera
- UAV detector
- GNSS & IMU
- Onboard computer

Cloud

ENVIRONMENT 3D MODELING

DATA MANAGEMENT, SPATIAL AND TEMPORAL

Sharper Drones

What makes drones different?

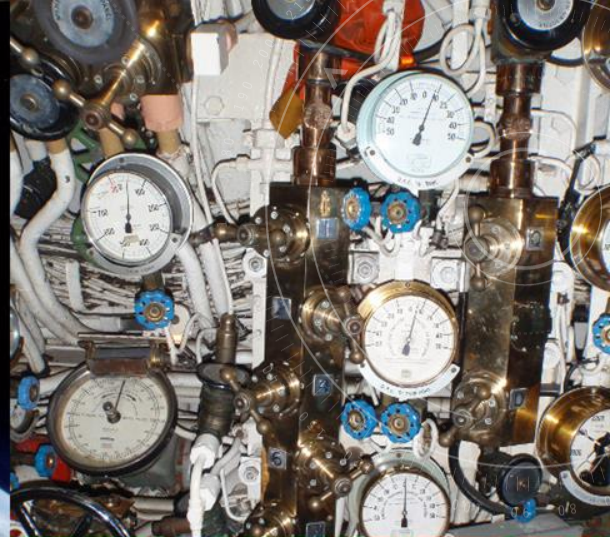They go where it's

Too much hassle

Too difficult

Too dangerous

Too imprecise

Too intrusive

Too expensive

Too slow

4K
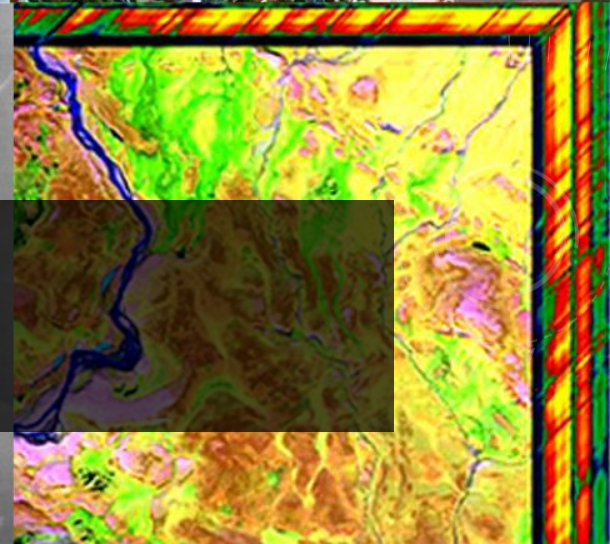
Modeling data

LiDAR modeling

Collected and analyzed over 1 trillion LiDAR points

Latest research in

- Computer vision

- Deep learning

- Geosciences and LiDAR analysis

- GPGPU computing

- Data mining and spectral methods

Proprietary algorithms in

- Pattern recognition

- Computer vision

LiDAR modeling

Target: Detect each individual

- Pylon

- Conductor

- Building

- Tree

  … and do it fast!

Result: Full object model

- Centimeter precision

- Allows practically any analysis

- Perfect basis for optimization

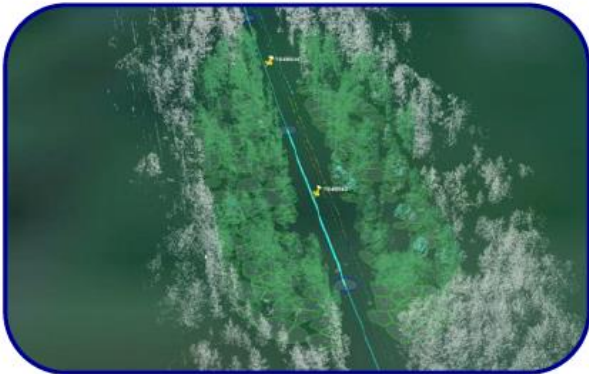# What do we do with the results?

Sharper Powerline Inspector

Rapid super-high quality zooming

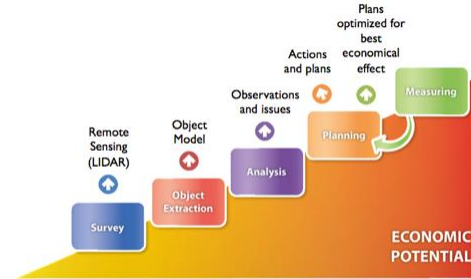# Sharper Clearance Analyzer

1 Detection

Fully parallel processing analysis
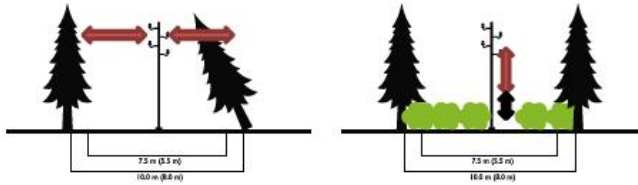
Automatic detection of critical conditions
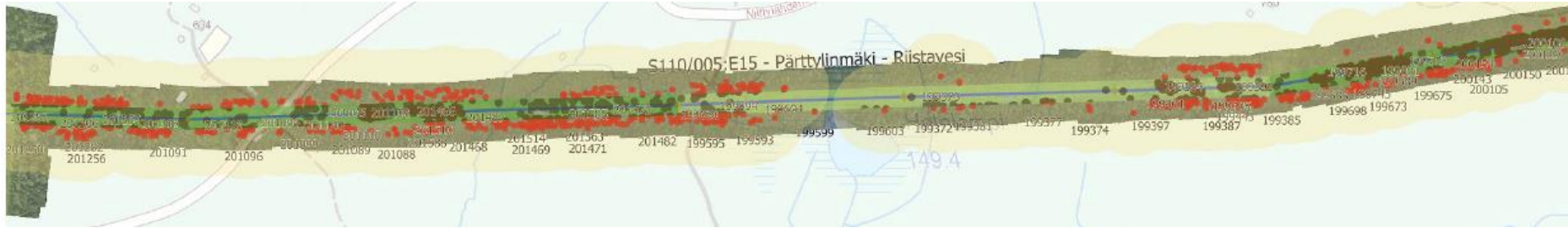
2 Processing

3 Reporting

- Over 20 tree and forest issue types

- Buildings, roads, waterways

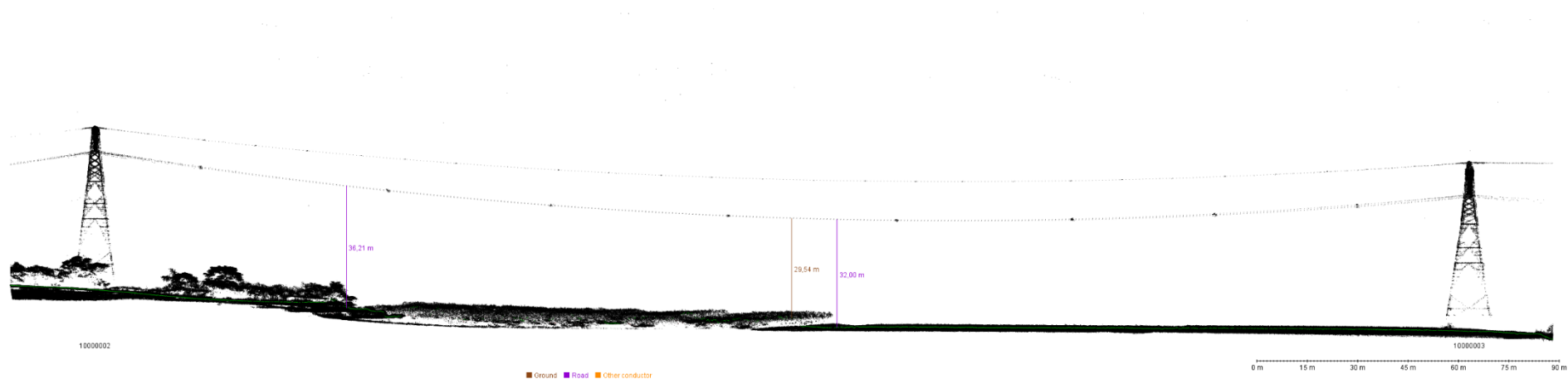- Future issue detection with individual tree growth predictions
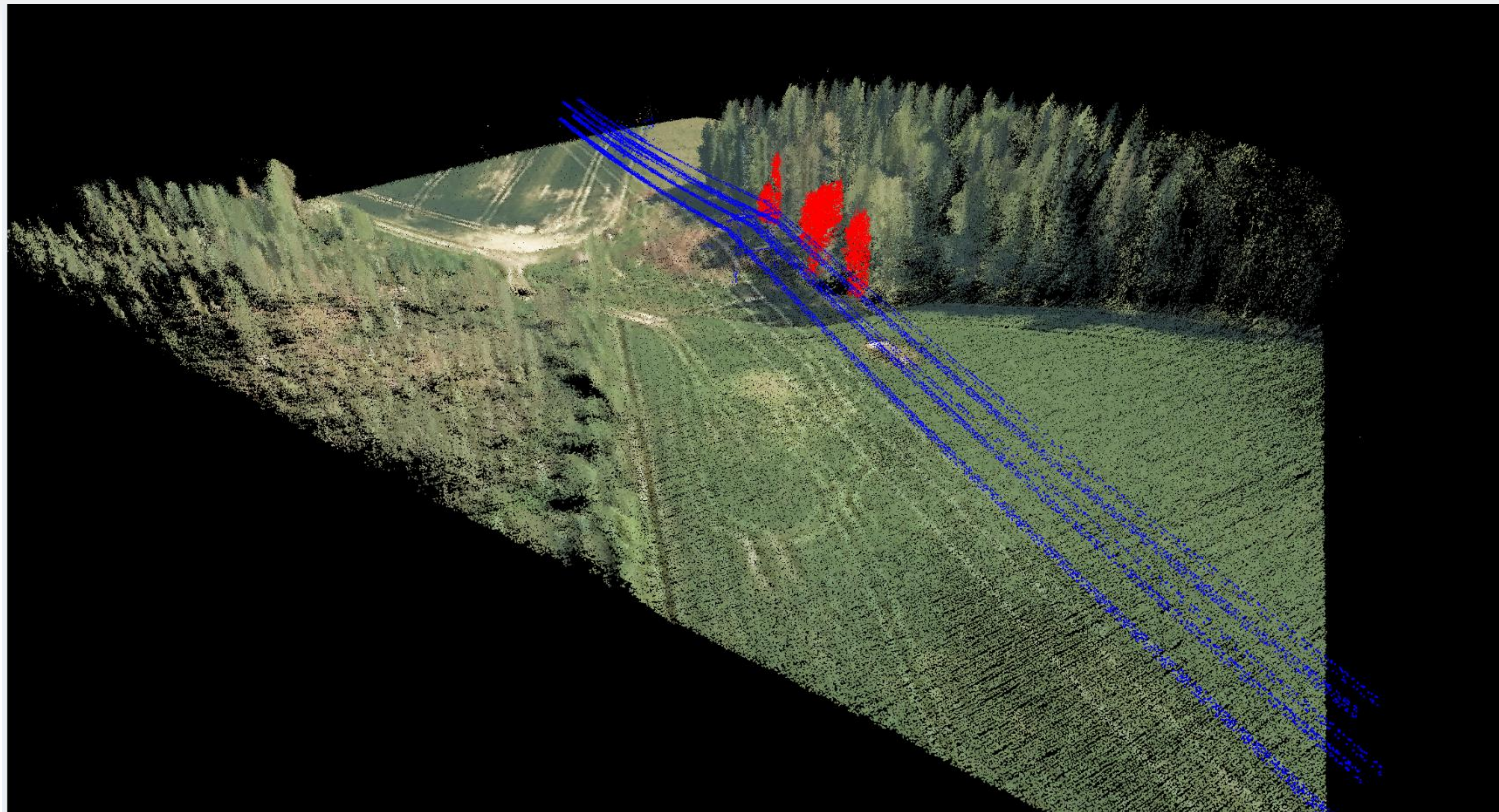
Clearance Analyzer results

Legend

- Risk tree, located outside RoW

- Tree too close, located inside RoW
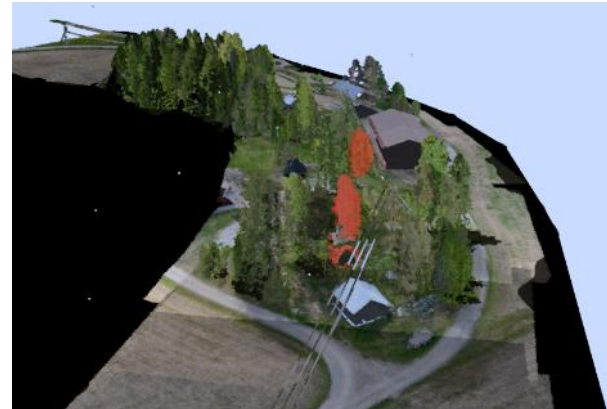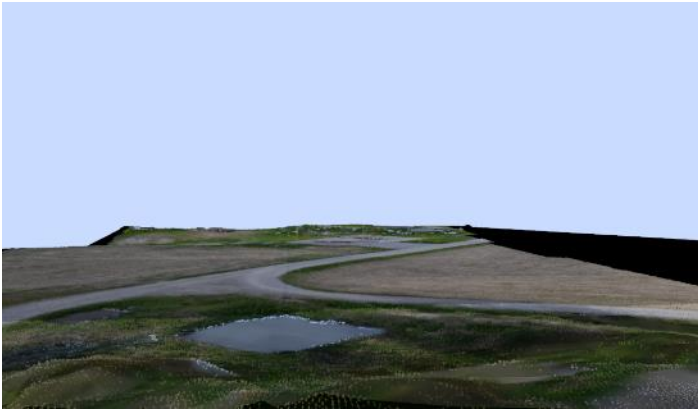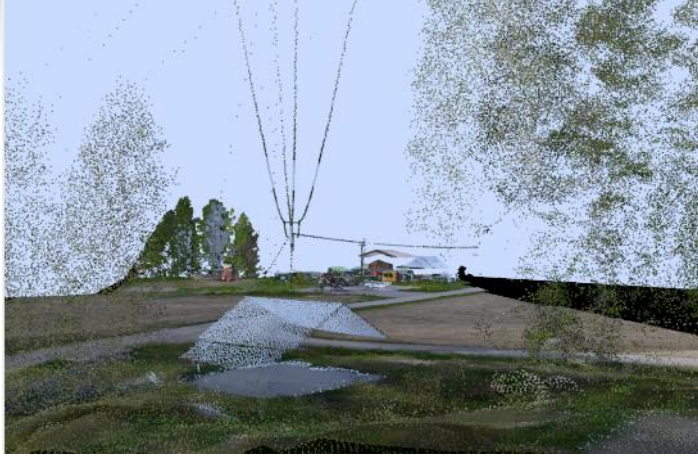
- Too high undergrowth, located inside RoW

Clearance Analyzer profile view

LiDAR in Sharper Viewer

LiDAR in Sharper Viewer

It's not only LiDAR we use

Automatic pole detection

Automatic corrosion detection

Automatic broken insulator detection

Thank you!

Any tough questions?