Hexagon Detection

Stream DP | EsT Technology

Brad Keane

* 8 April 2025

HEXAGON

Detect and Map Underground Utility

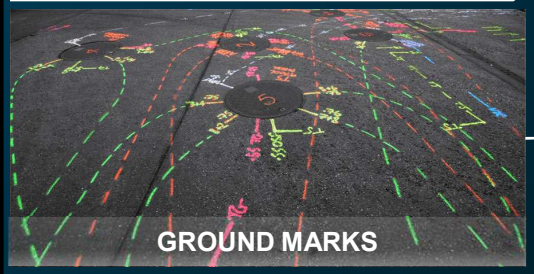
Traditional method vs Digital Future

HEXAGON

TRADITIONAL METHOD

CABLE LOCATOR

SINGLE ANTENNA GPR



NO DIGITALIZATION

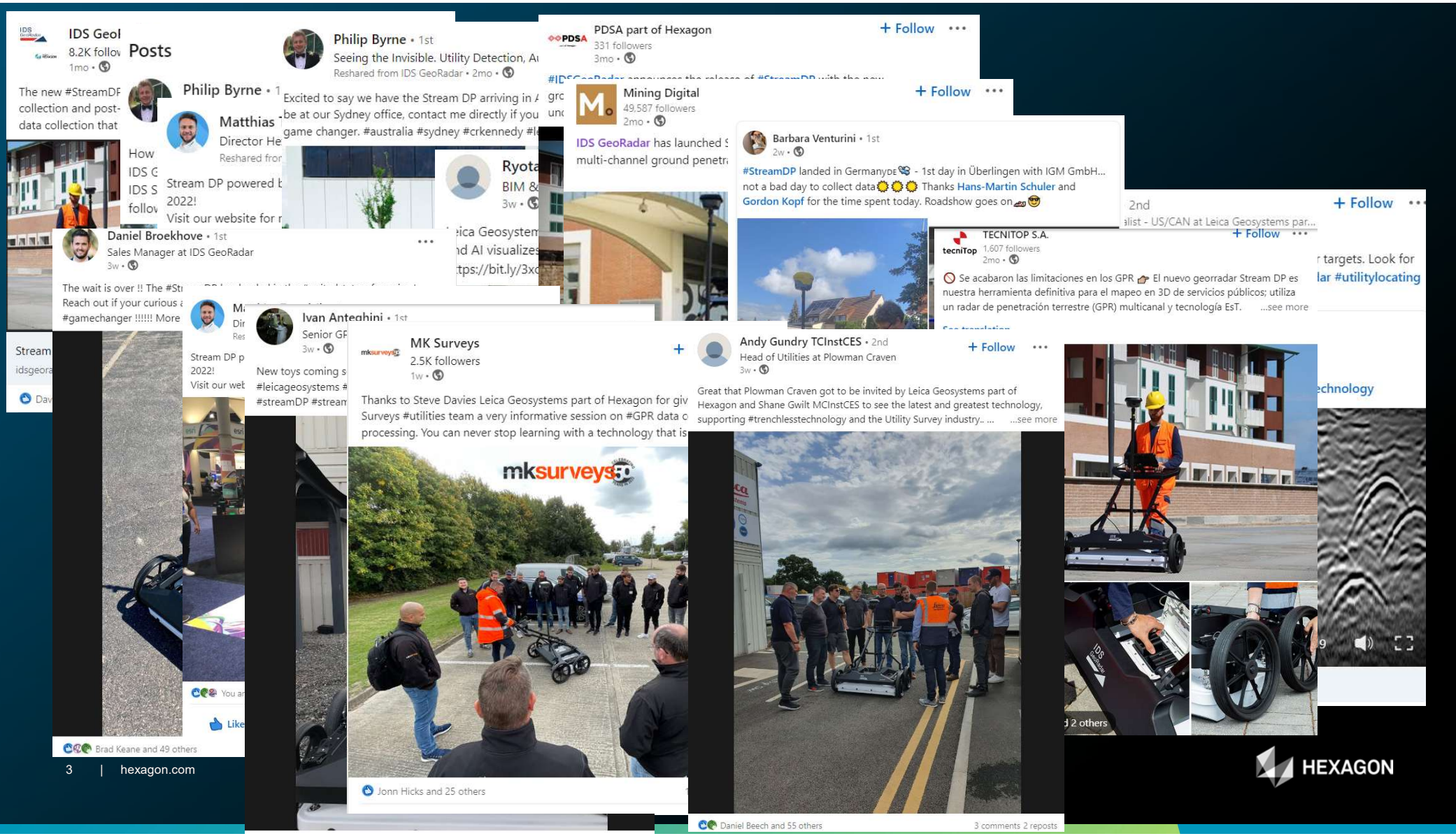
SMART LOCATOR

MASSIVE ARRAY GPR

DIGITAL REALITY PLATFORM

DIGITAL FUTURE

HxDR DIGITAL REALITY


IDS GeoRadar
8.2K follow
Posts
1mo •
The new #StreamDP
collection and post-
data collection that
Philip Byrne • 1st
Seeing the Invisible. Utility Detection, A
Reshared from IDS GeoRadar • 2mo •
Philip Byrne • 1
Matthias
Director He
Reshared fror
Excited to say we have the Stream DP arriving in A
be at our Sydney office, contact me directly if you
game changer. #australia #sydney #crkennedy #l
How
IDS G
IDS S
follov
Stream DP powered b
2022!
Visit our website for r
Ryota
BIM &
3w •
Daniel Broekhove • 1st
Sales Manager at IDS GeoRadar
3w •
The wait is over !! The #St
Reach out if your curious a
#gamechanger !!!!!! More
Ivan Anteghini • 1st
Senior GP
3w •
New toys coming s
#leicageosystems #
#streamDP #stream
Stream DP p
2022!
Visit our web
Brad Keane and 49 others
PDSA part of Hexagon
331 followers
3mo •
+ Follow
Mining Digital
49,587 followers
2mo •
+ Follow
IDS GeoRadar has launched S
multi-channel ground penetra
Barbara Venturini • 1st
2w •
#StreamDP landed in Germanyᴅᴇ - 1st day in Überlingen with IGM GmbH...
not a bad day to collect data Thanks Hans-Martin Schuler and
Gordon Kopf for the time spent today. Roadshow goes on
2nd
+ Follow
alist - US/CAN at Leica Geosystems par...
TECNITOP S.A.
1,607 followers
2mo •
+ Follow
Se acabaron las limitaciones en los GPR El nuevo georradar Stream DP es
nuestra herramienta definitiva para el mapeo en 3D de servicios públicos; utiliza
un radar de penetración terrestre (GPR) multicanal y tecnología EsT.
...see more
targets. Look for
lar #utilitylocating
chnology
MK Surveys
2.5K followers
1w •
Thanks to Steve Davies Leica Geosystems part of Hexagon for giv
Surveys #utilities team a very informative session on #GPR data c
processing. You can never stop learning with a technology that is
mksurveys
Jonn Hicks and 25 others
Andy Gundry TCInstCES • 2nd
Head of Utilities at Plowman Craven
3w •
+ Follow
Great that Plowman Craven got to be invited by Leica Geosystems part of
Hexagon and Shane Gwilt MCInstCES to see the latest and greatest technology,
supporting #trenchlesstechnology and the Utility Survey industry.. ...
...see more
Daniel Beech and 55 others
3 comments 2 reposts
2 others
HEXAGON

Sean McConnel • 2nd
Senior Project Manager at Bigman Geophysical, LLC
1mo

I love seeing a company that listens to its customers. That device takes the Stream C, which is a wonder in its own right, and tweaks it to exactly what all us field radar jockeys really want.

I REALLY want one.

Gordon Kopf • 2nd
SUBTERRA - uncover your underground - Wir digitalisieren ihren Unterg...
2w

Hi Ivan, I was also able to test the IDS Stream DP today and I am thrilled. What are your experiences?

Craig Piper • 2nd
Director at Dando Utilities Ltd

Can't wait to get my hands on this Shane Gwilt MCInstCES

Neil Gregory MCInstCES
Client Engagement Manager -

Can't wait to have a go ar

Daniel Broekhove Author
Sales Manager at IDS GeoRadar
1w

Fantastic Clarity and DEPTH out of the #EST antennas and control units! 600MHz clarity AND 200MHz depth out of ONE antenna.....fantastic!

Like · 1 | Reply

Sean McConnel • 2nd
Senior Project Manager at Bigman Geophysical, LLC
3w

WANT

Daniel Broekhove • 1st
Sales Manager at IDS GeoRadar
3mo

This is going to be great!

Like · 2 | Reply · 1 Reply

Yannick CHEDRI • 2nd
Project manager - #GPR surveyor - Humanist - Own Made Self
3mo

Can't wait!!!!😉

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Stream DP | EsT Technology

EsT – Increasing target resolution and effective detgection depth

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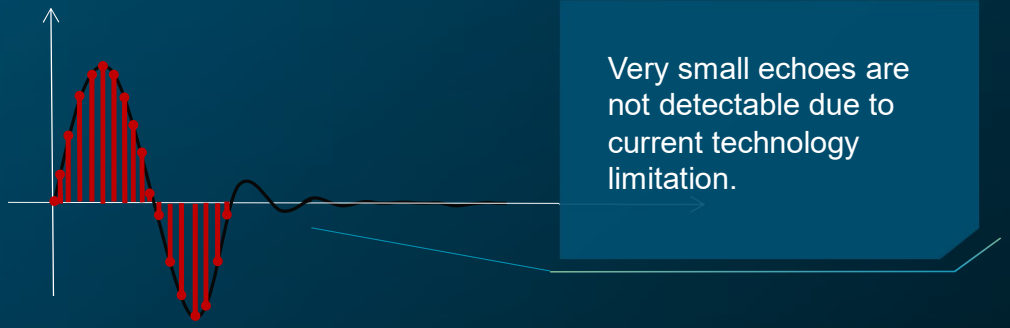
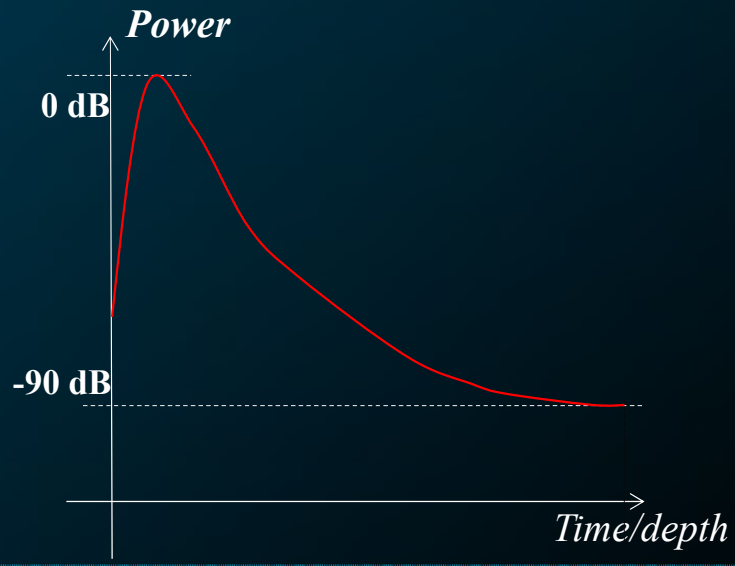
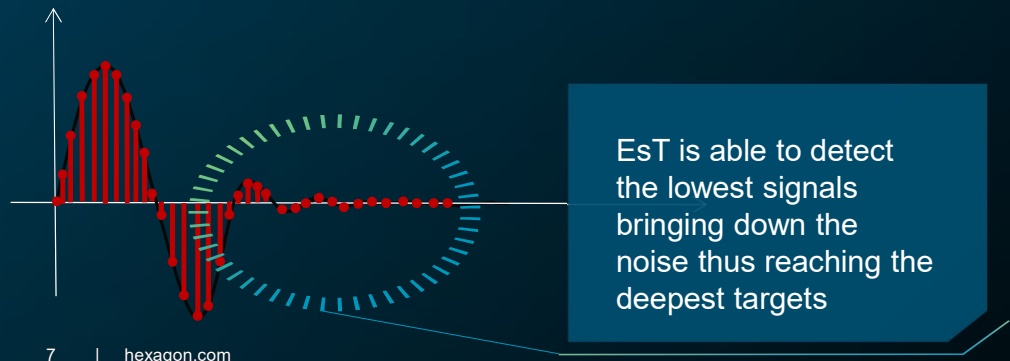
Current Technology



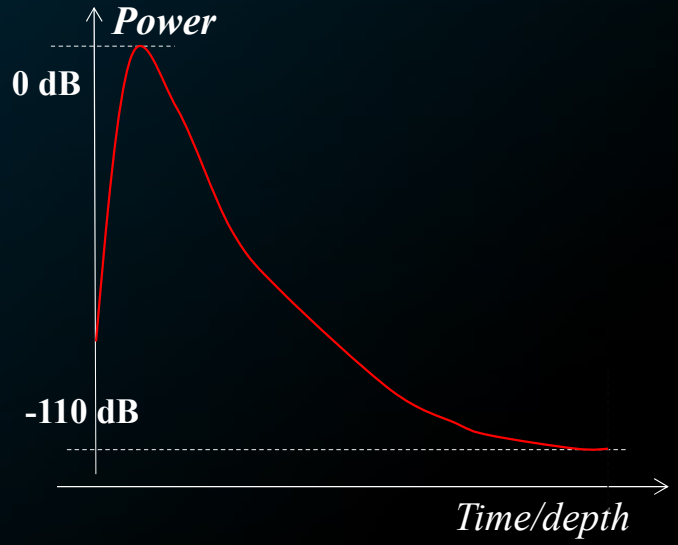
Very small echoes are not detectable due to current technology limitation.



EsT



EsT is able to detect the lowest signals bringing down the noise thus reaching the deepest targets



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Current Georadar technologies vs EsT

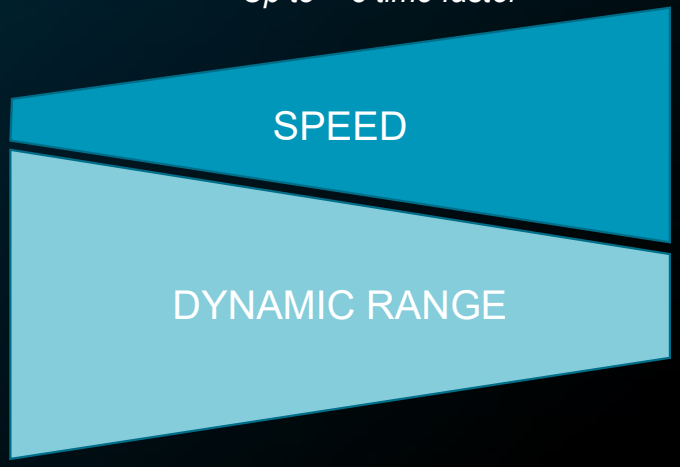
Current Tech.

Architecture limitation

Needing to reduce the acquisition speed to increase the dynamic range

EsT

Up to ~ 8 time faster

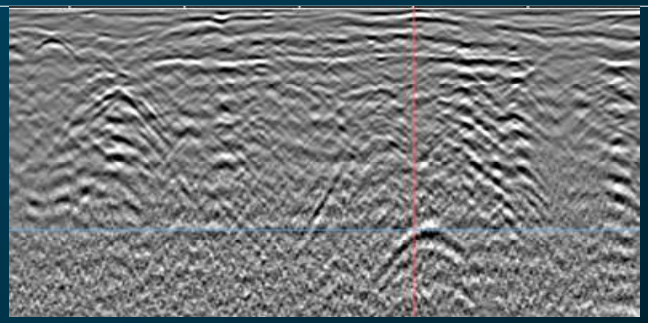


With equal speed, EsT technology enlarges the dynamic range by about 20dB

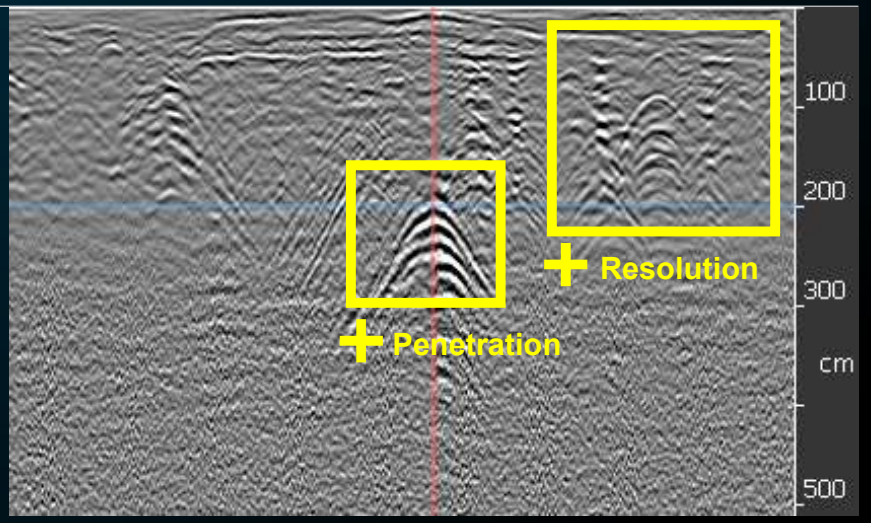
HEXAGON

Current Georadar technologies vs EsT

Current Tech.



EsT



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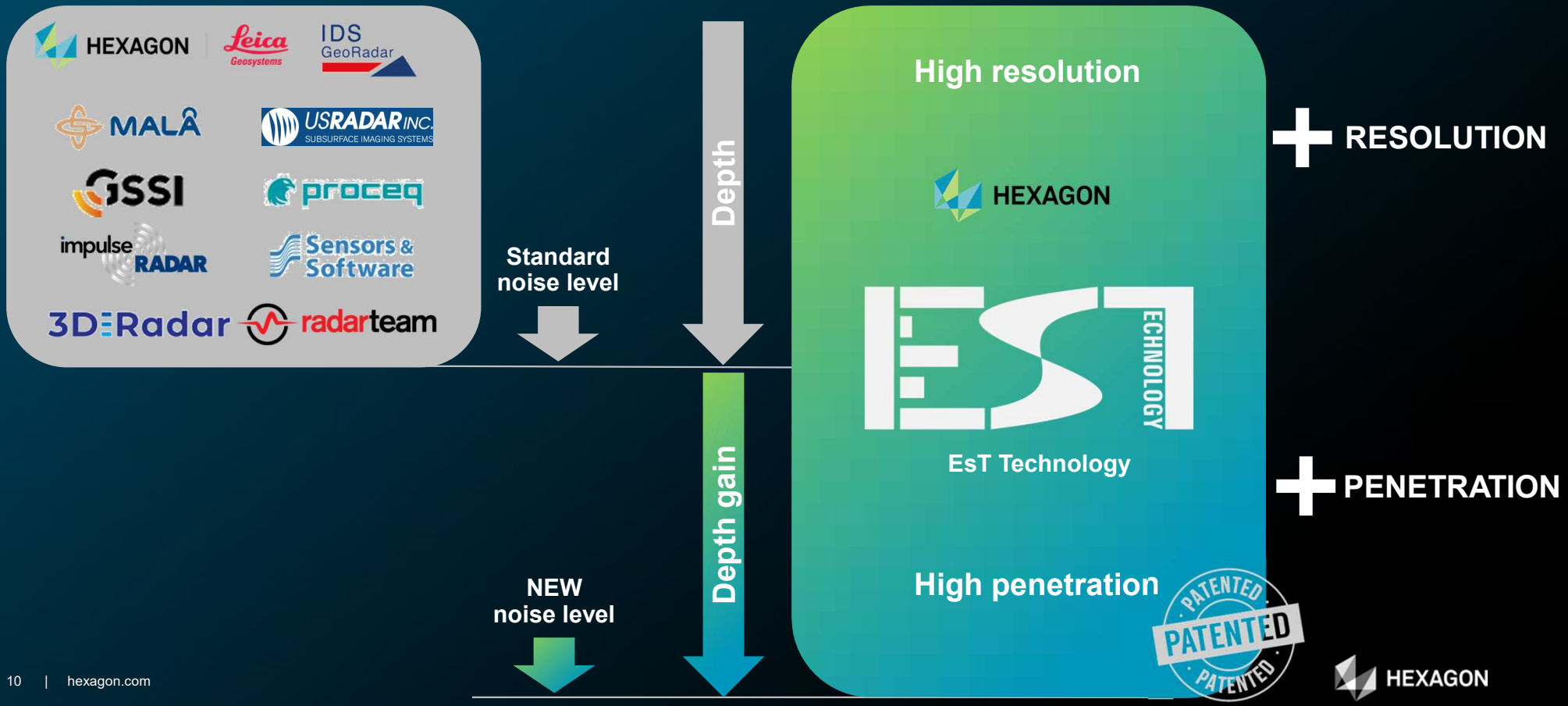
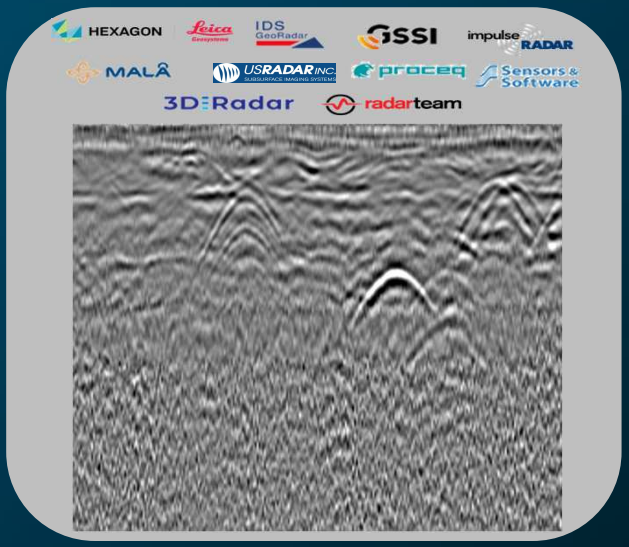
Hexagon Detection | EsT Technology

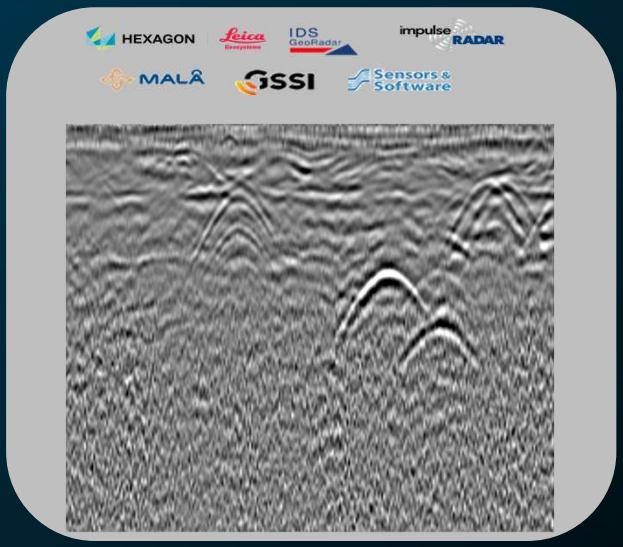


Hexagon Detection | EsT Technology

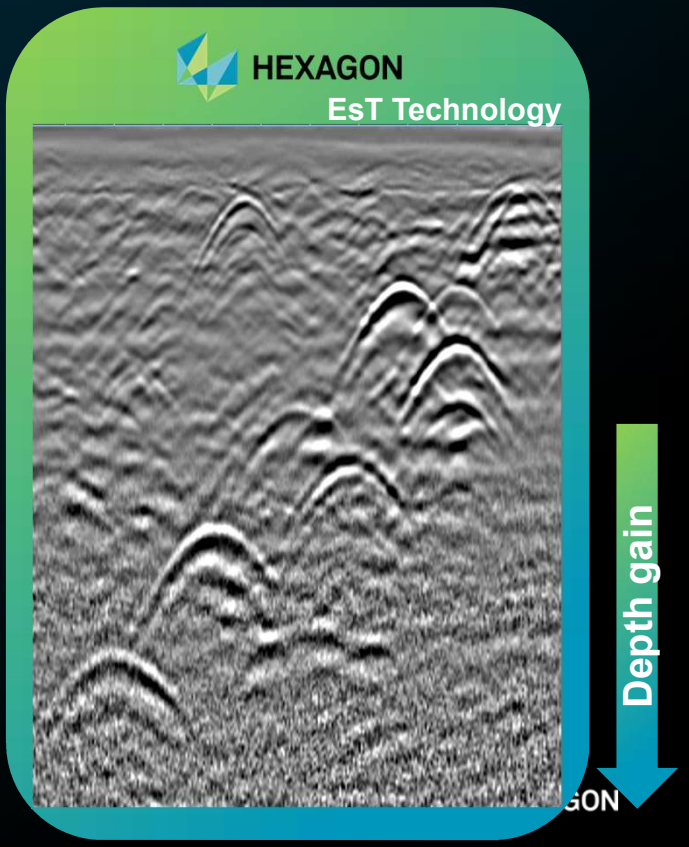
Current Technology



Stacking approach



Disruptive Technology



Selling Points

A new depth in underground detection

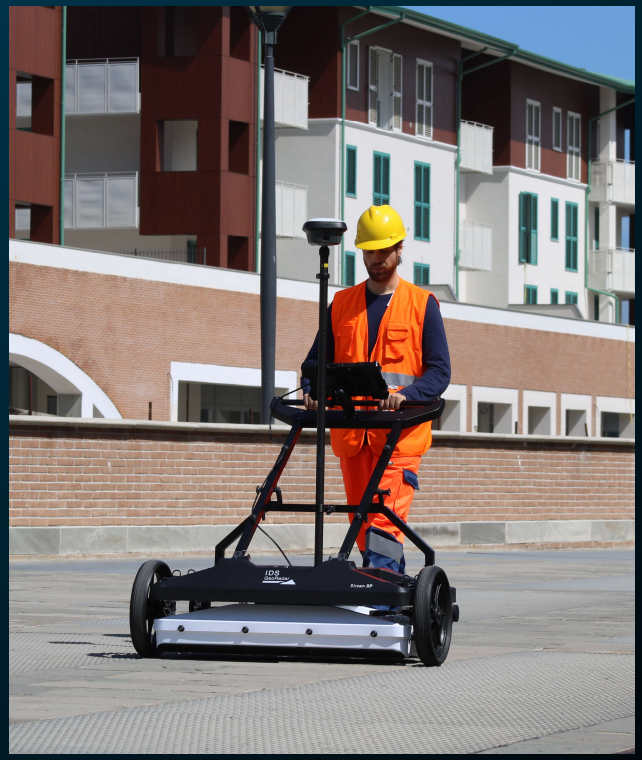
High Productivity

Design & Versatility

HEXAGON

Selling Points

A new depth in underground detection



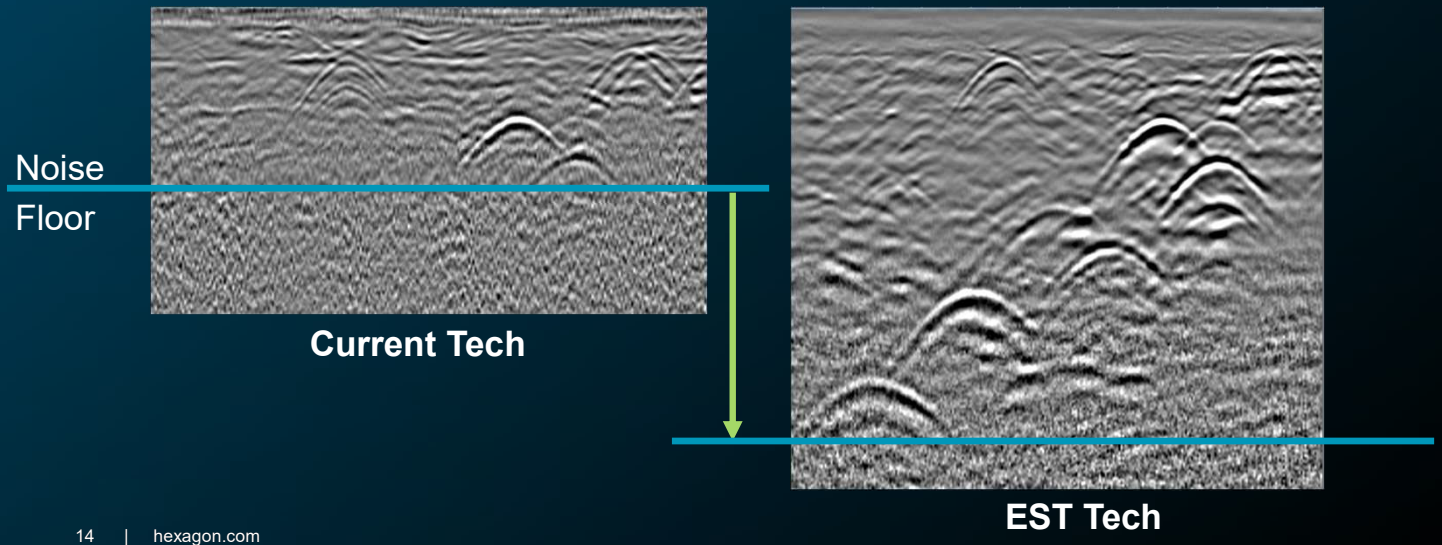
Stream DP is the first IDS GeoRadar array system integrating the new radical **E**qualized **s**crambled **T**echnology (EsT)

HEXAGON

Selling Points

A new depth in underground detection

EsT is a ***patented*** groundbreaking technology bringing GPR performance to the next level, the deepest one. EsT offers full and unparalleled control of the GPR signal, performing the best noise rejection and capturing both the lower and higher frequencies for an ***extended depth range*** and ***high resolution***.



With ***EsT*** the shallow and deep reflections are equalized with an optimal multi-gain boost and the resulting dynamic range is incredibly extended offering the ***highest sensing capability ever***.

HEXAGON

Selling Points

High Productivity - HW

Maximize detection

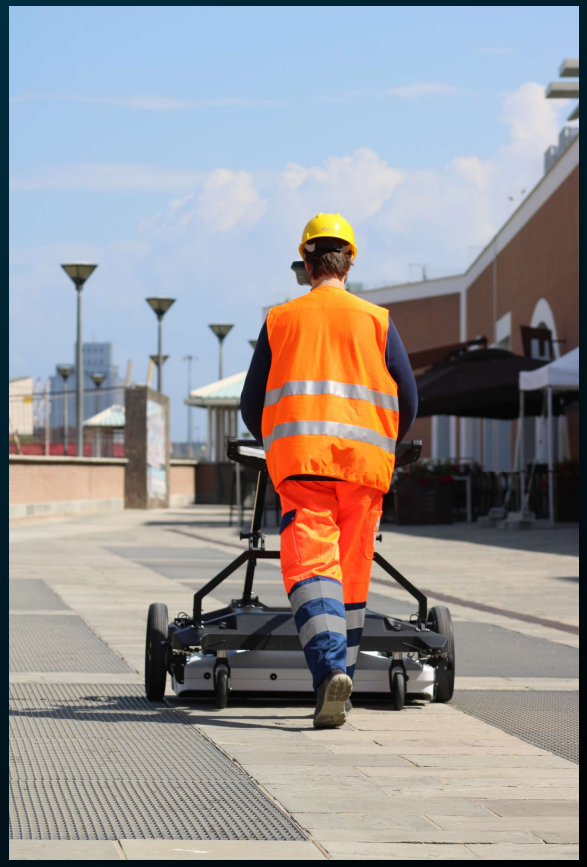
Stream DP, in ***double polarization***, offers an unparalleled GPR performance maximizing assets' detection in a deeper range compared to any other solution.

One Operator

Stream DP can be ***assembled in less than 5 minutes*** by only ***one operator*** directly on the field.

Non-stop data collection

Hot swap technology allows to replace the batteries with no limit to data collection.



Stream DP meets the challenge of a non-stop surveying performance.

HEXAGON

Selling Points

Design & Versatility - HW

Multi-environment config

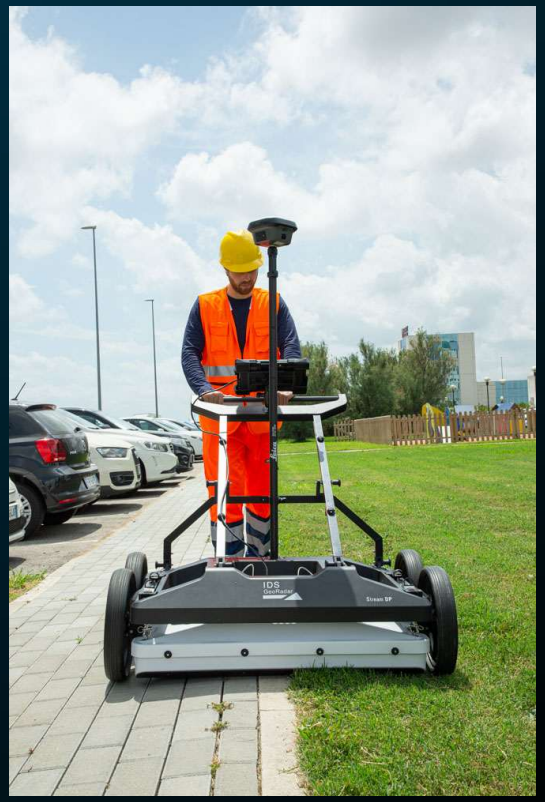
Two ***different hardware configuration switchable in less than 2 minutes*** for the best maneuverability both on asphalt and rugged terrain.

Compact & light-weight

Designed for easy handling and transportation, a single user can transport it and fit it on standard vehicle

PPS integrated

The ***PPS*** is ***integrated*** into the antenna to have the best positioning data accuracy for excellent data alignment.



Stream DP has been designed to work at the best in all scenarios.

HEXAGON

Selling Points

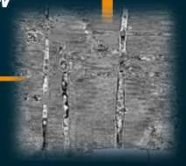
Design & Versatility - SW

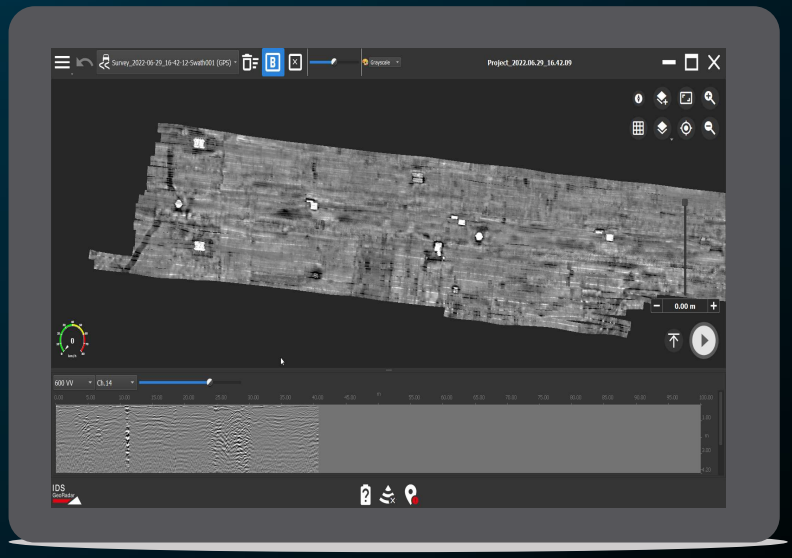
Project multi-surveys

Data collected using different positioning solutions can be collected in the same project to obtain a full and clear coverage.

Realtime Data view

Channels data view in real time during data collection and ***tomography view***





Stream DP has been designed to work at the best in any condition providing in real time diagnostic info and visualizing processed data.

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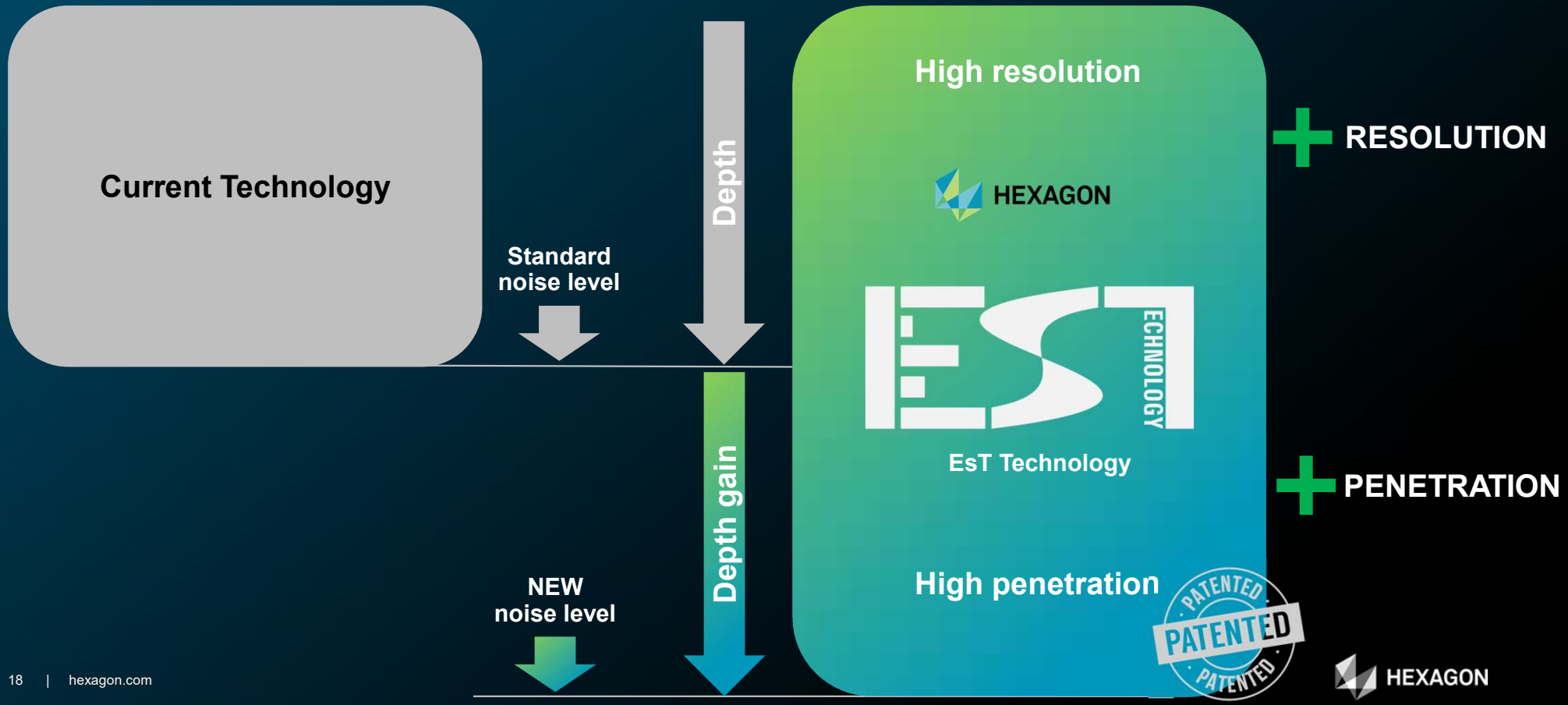
Hexagon Detection | EsT



Selling Points

High Productivity - SW

uMap

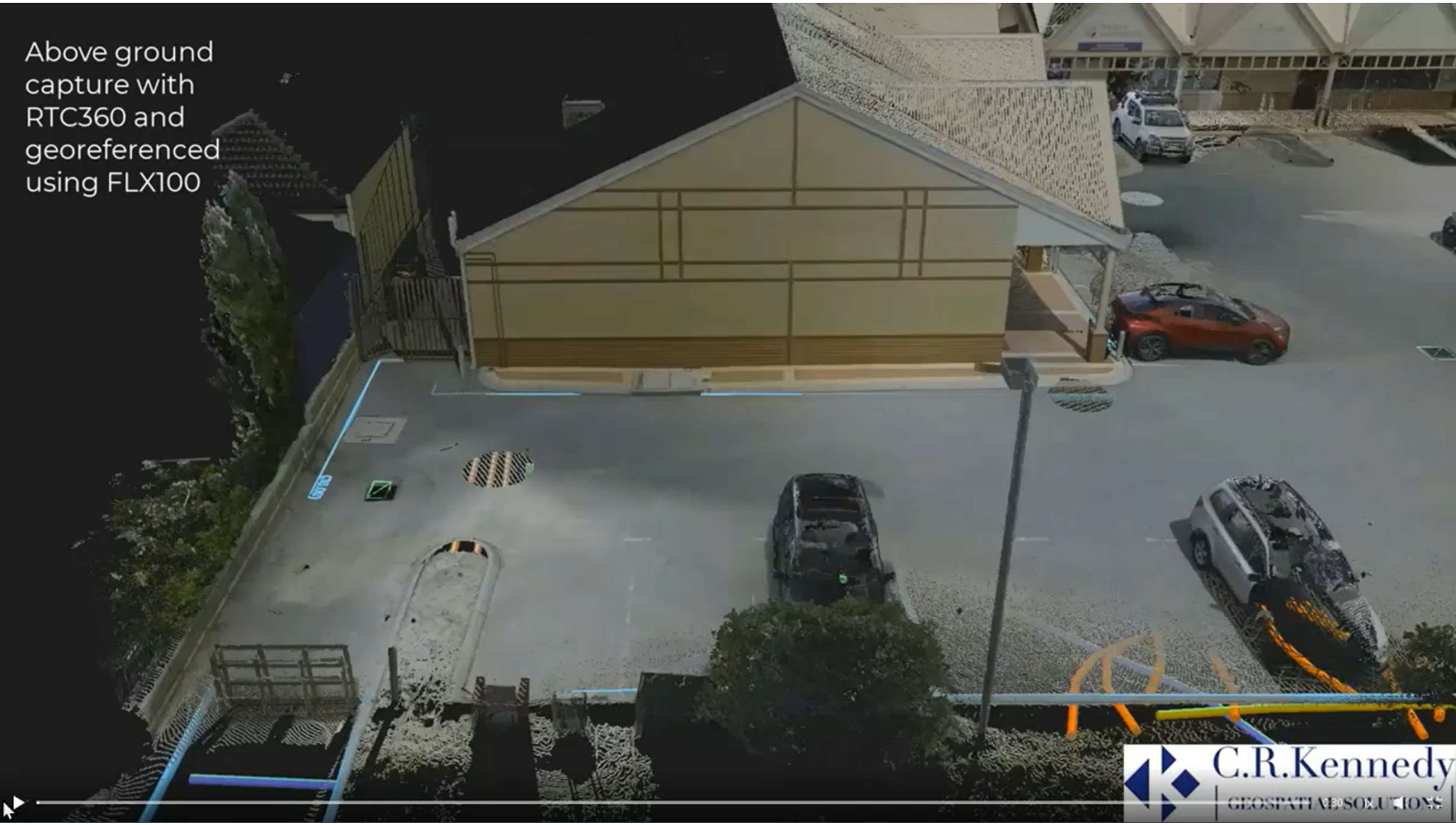
On-field software is very easy ***making radar data collection faster*** *whilst at the same time* providing real time diagnostic status.

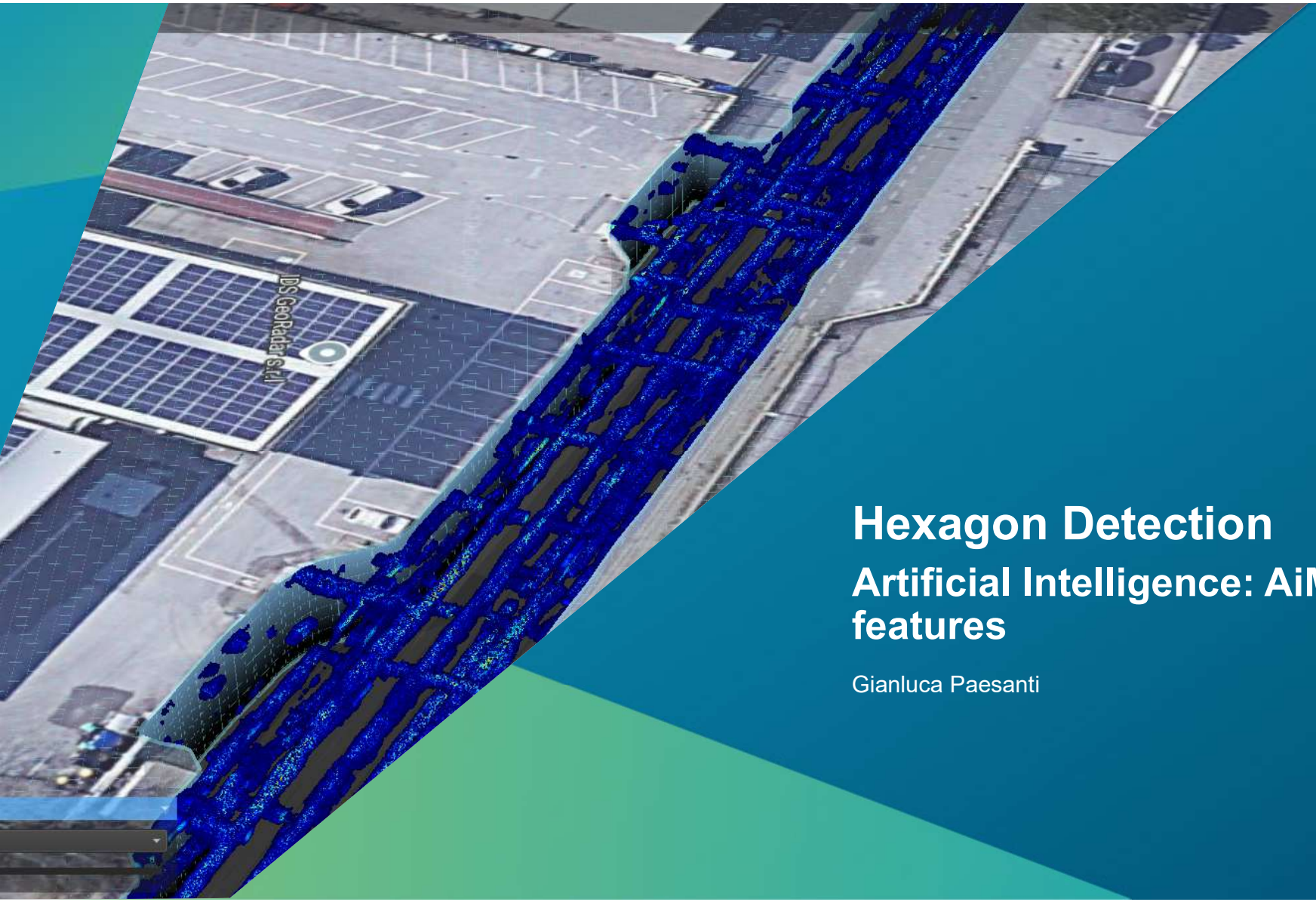
IQMaps

Post processing software is able to easily manage huge amounts of data, ***minimizing the processing time***.

Stream DP employs the latest software technology solution for data collection and post processing.

HEXAGON


Above ground capture with RTC360 and georeferenced using FLX100
C.R.Kennedy
GEOSPATIAL SOLUTIONS



Hexagon Detection

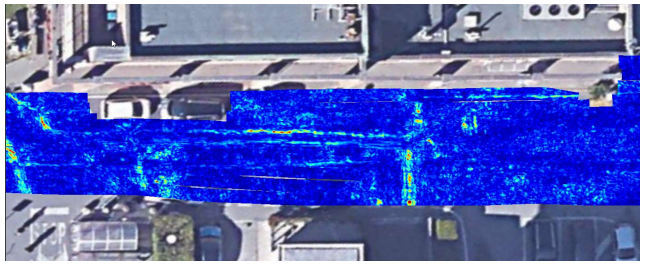
Artificial Intelligence: AiMaps new features

Gianluca Paesanti

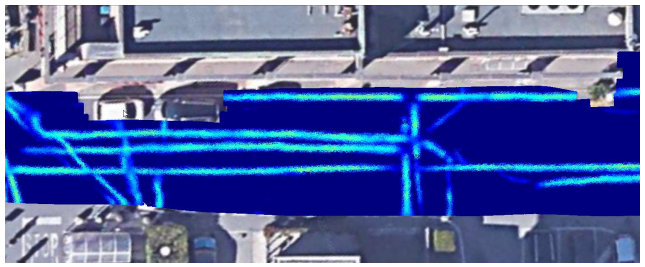
HEXAGON

AiMaps is a **SaaS** able to provides an **enhanced tomography** of the **utility network** to minimize human error, reduce excavation risks, and preventing costly utility strikes.
This advanced approach optimize the accuracy of results minimizing workload and costs for utility detection application.
AiMaps performs these tasks in cloud exploiting Hexagon's **HxDR platform** with state-of-the-art **deep learning technology**.

Standard Tomography



AiMaps result



AiMaps| Ecosystem Map

Customer Persona

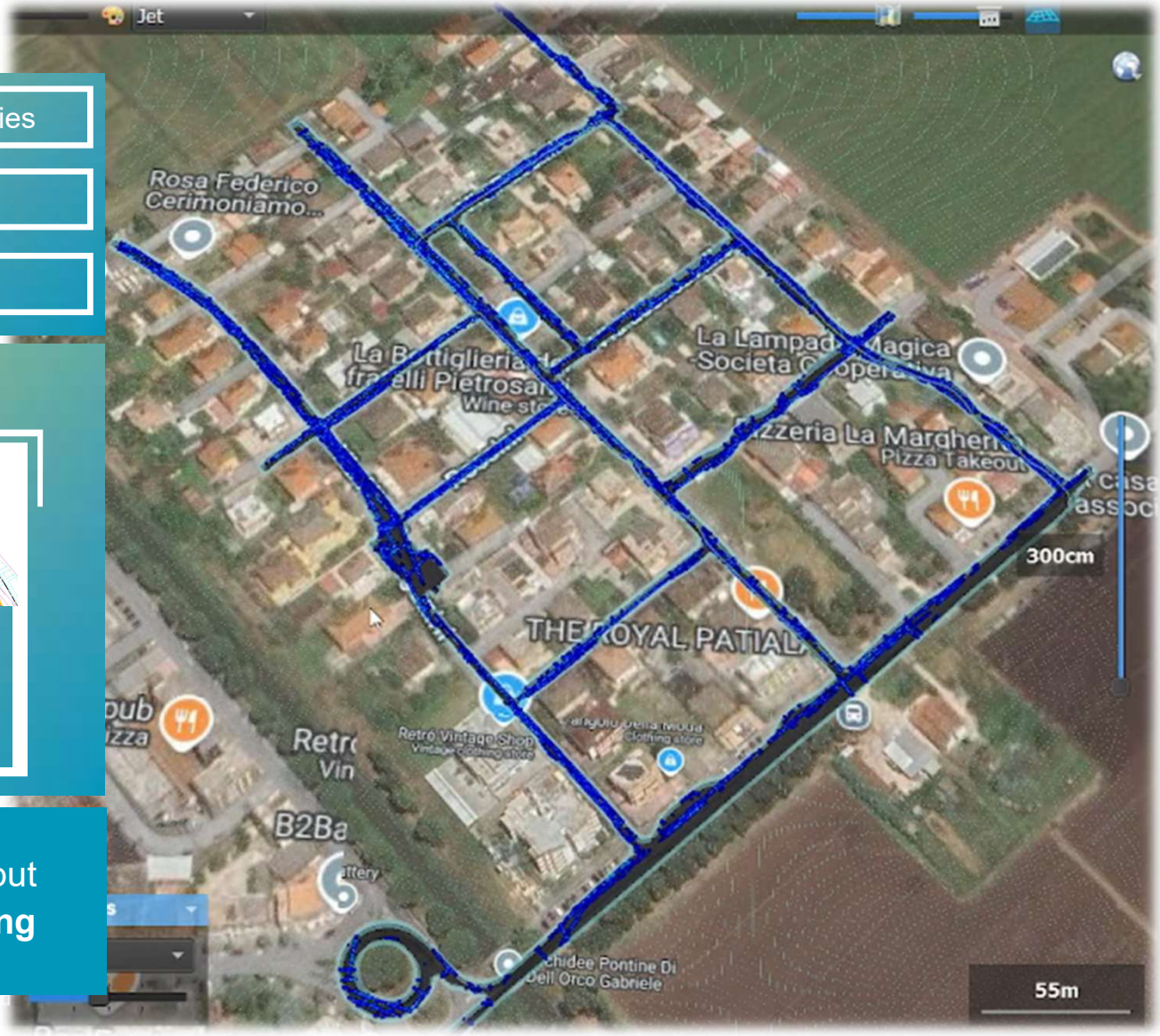
- Utility Location Service / Surveyor Companies
- Utilities companies
- Geophysical companies

Application

Underground
Utility Mapping

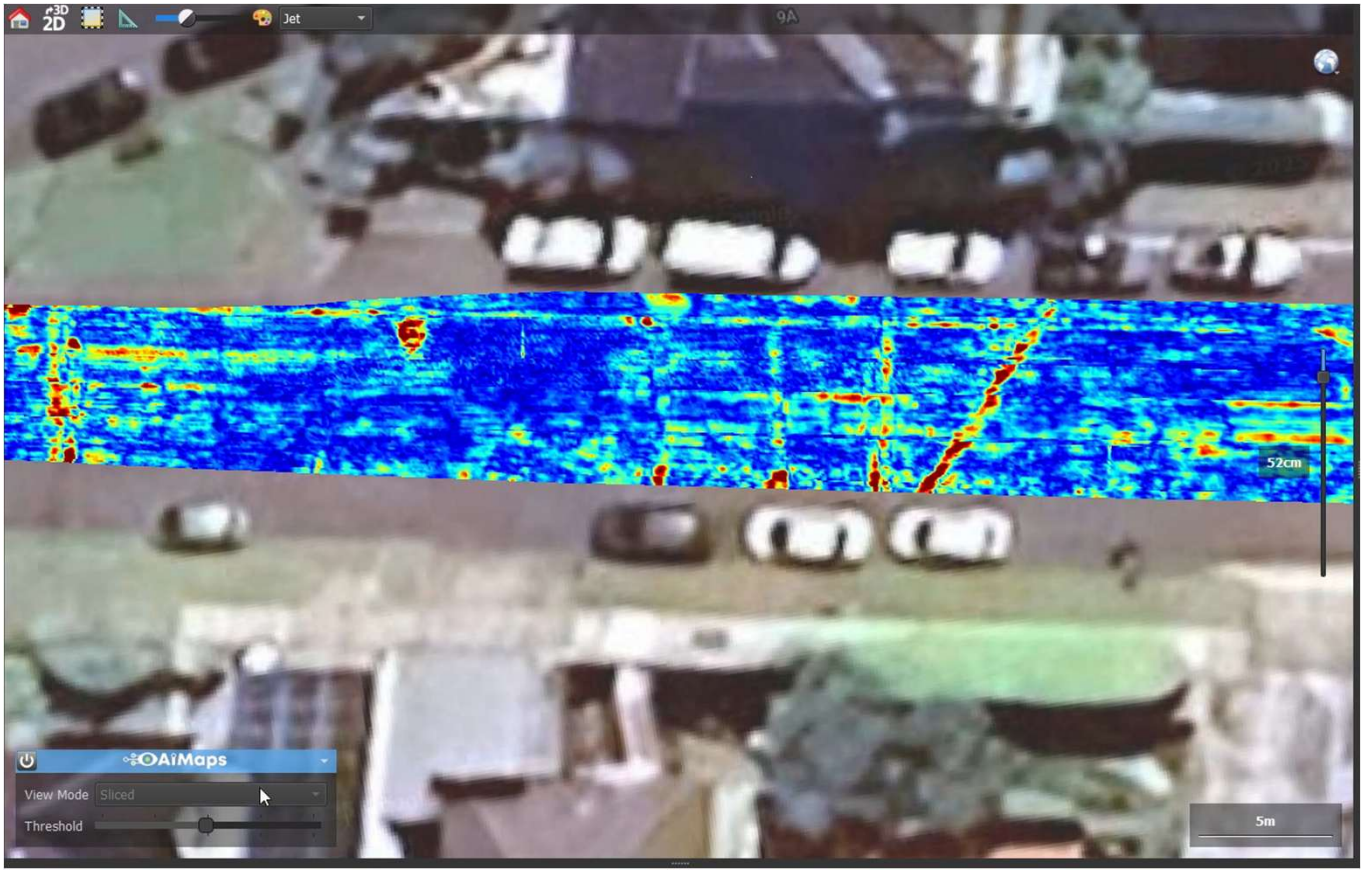
Scope

CAD/GIS Output
Mapping



AiMaps

Key Features



Overcoming complexity

Provides an intuitive and **easy-to-use results** for professionals to perform data processing and interpretation.

Raising Productivity

Drives down time and workload in radar data processing and interpretation. **Up to 70% cost savings** in underground utility analysis and extraction process

Accuracy of results

Minimize human error on radar data interpretation thanks to clear result produced by AiMaps. It **reduces excavation risks** and preventing costly **utility strikes**.

HEXAGON

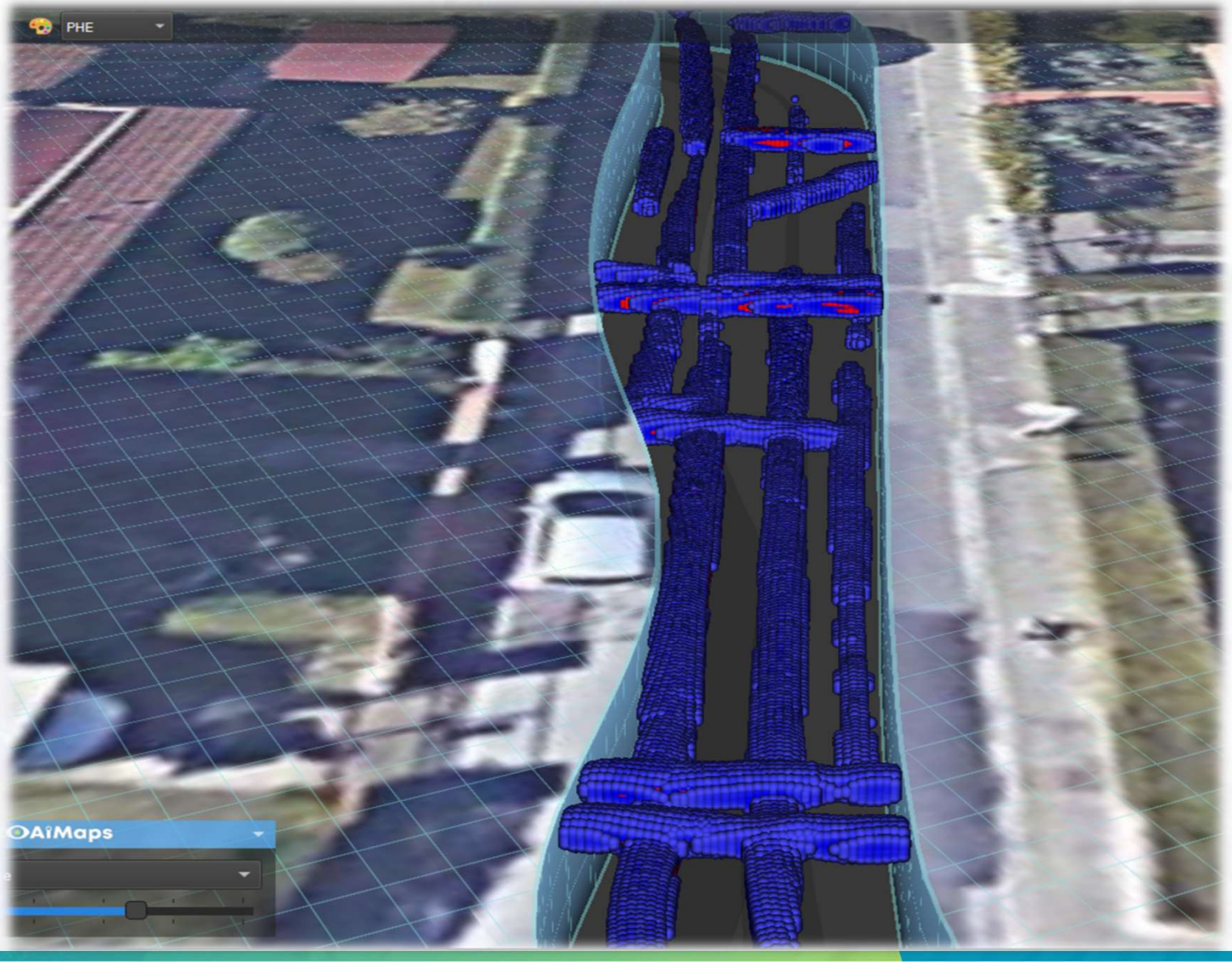
AiMaps

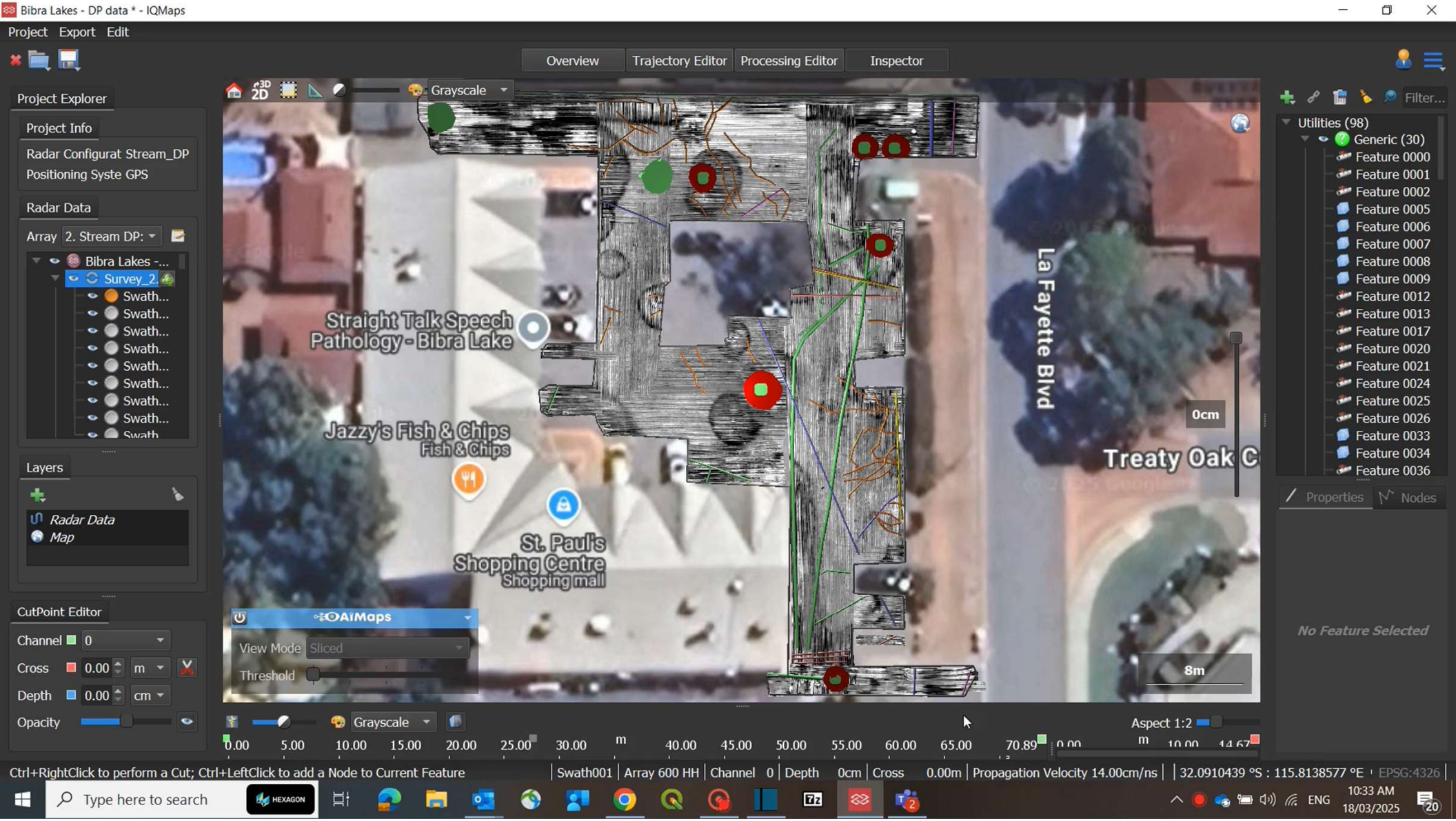
Supported Radar

Stream UP

Stream C

Stream DP




Bibra Lakes - DP data * - IQMaps
Project Export Edit
Overview
Trajectory Editor
Processing Editor
Inspector
Project Explorer
Project Info
Radar Configurat Stream_DP
Positioning Syste GPS
Radar Data
Array 2. Stream DP:
Bibra Lakes -...
Survey_2
Swath...
Layers
Radar Data
Map
CutPoint Editor
Channel 0
Cross 0.00 m
Depth 0.00 cm
Opacity
Grayscale
Straight Talk Speech Pathology - Bibra Lake
Jazzy's Fish & Chips
Fish & Chips
St. Paul's Shopping Centre
Shopping mall
La Fayette Blvd
Treaty Oak C
0cm
8m
AiMaps
View Mode Sliced
Threshold
Aspect 1:2
0.00 5.00 10.00 15.00 20.00 25.00 30.00 m 40.00 45.00 50.00 55.00 60.00 65.00 70.89
Utilities (98)
Generic (30)
Feature 0000
Feature 0001
Feature 0002
Feature 0005
Feature 0006
Feature 0007
Feature 0008
Feature 0009
Feature 0012
Feature 0013
Feature 0017
Feature 0020
Feature 0021
Feature 0024
Feature 0025
Feature 0026
Feature 0033
Feature 0034
Feature 0036
Properties
Nodes
No Feature Selected
Ctrl+RightClick to perform a Cut; Ctrl+LeftClick to add a Node to Current Feature
Swath001 | Array 600 HH | Channel 0 | Depth 0cm | Cross 0.00m | Propagation Velocity 14.00cm/ns | 32.0910439 °S : 115.8138577 °E | EPSG:4326
Type here to search
ENG
10:33 AM
18/03/2025

Francis Street - Mermaid Beach DP data_DR * - IQMaps

Project Export Edit

Overview | Trajectory Editor | Processing Editor | Inspector

Project Explorer

Project Info

Radar Configu Stream_DP

Positioning Sy GPS

Radar Data

Array 2. Stream

Francis St...

Survey

Sw...

Layers

Radar Data

Map

CutPoint Editor

Chann 0

Cross 0.0 m

Depth 118 cm

Opacit

Utilities (50)

Generic (25)

Feature 0000

Feature 0001

Feature 0002

Feature 0003

Feature 0004

Feature 0005

Feature 0006

Feature 0008

Feature 0009

Feature 0016

Feature 0020

Feature 0022

Feature 0031

Feature 0039

Feature 0044

Feature 0049

Feature 0050

Feature 0050

Feature 0052

Filter...

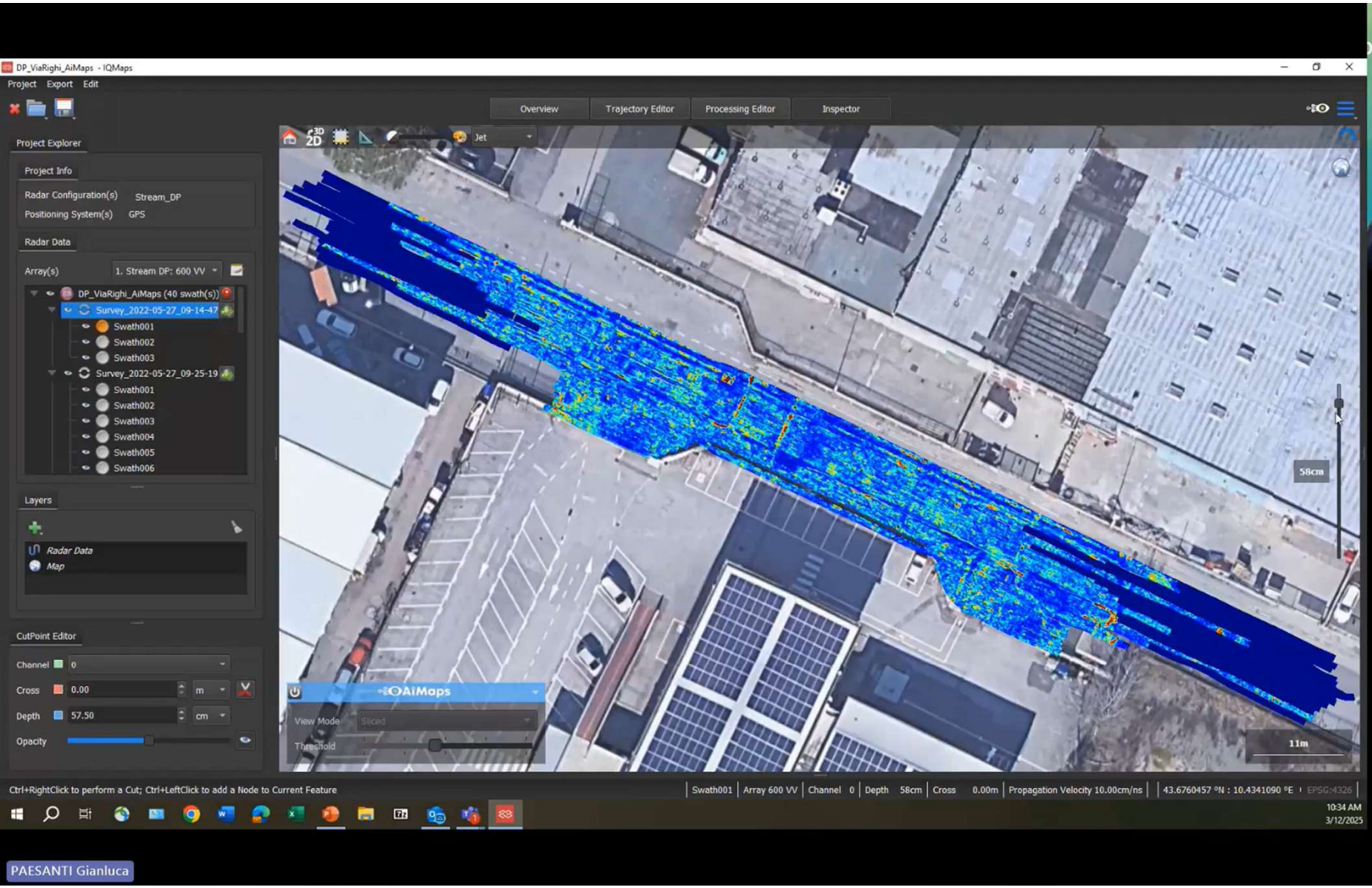
Properties | Nodes

No Feature Selected

Ctrl+RightClick to perform a Cut; Ctrl+LeftClick to add a Node to Current Feature | Swath016 | Array 600 HH | Channel 0 | Depth 118cm | Cross 0.00m | Propagation Velocity 10.00cm/ns | 28.0428727 °S : 153.4366605 °E | EPSG:4326

Type here to search

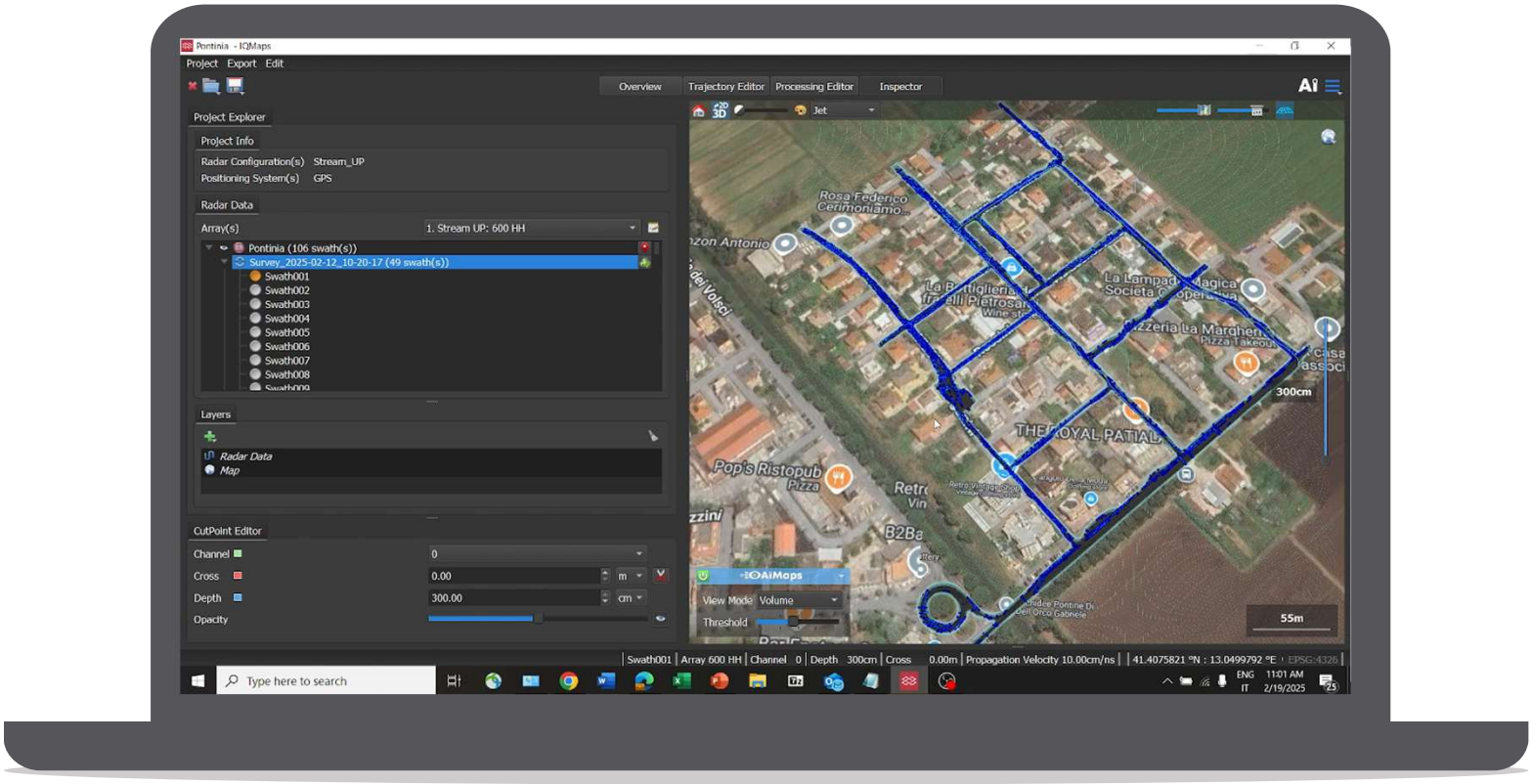
ENG 5:09 PM 11/03/2025



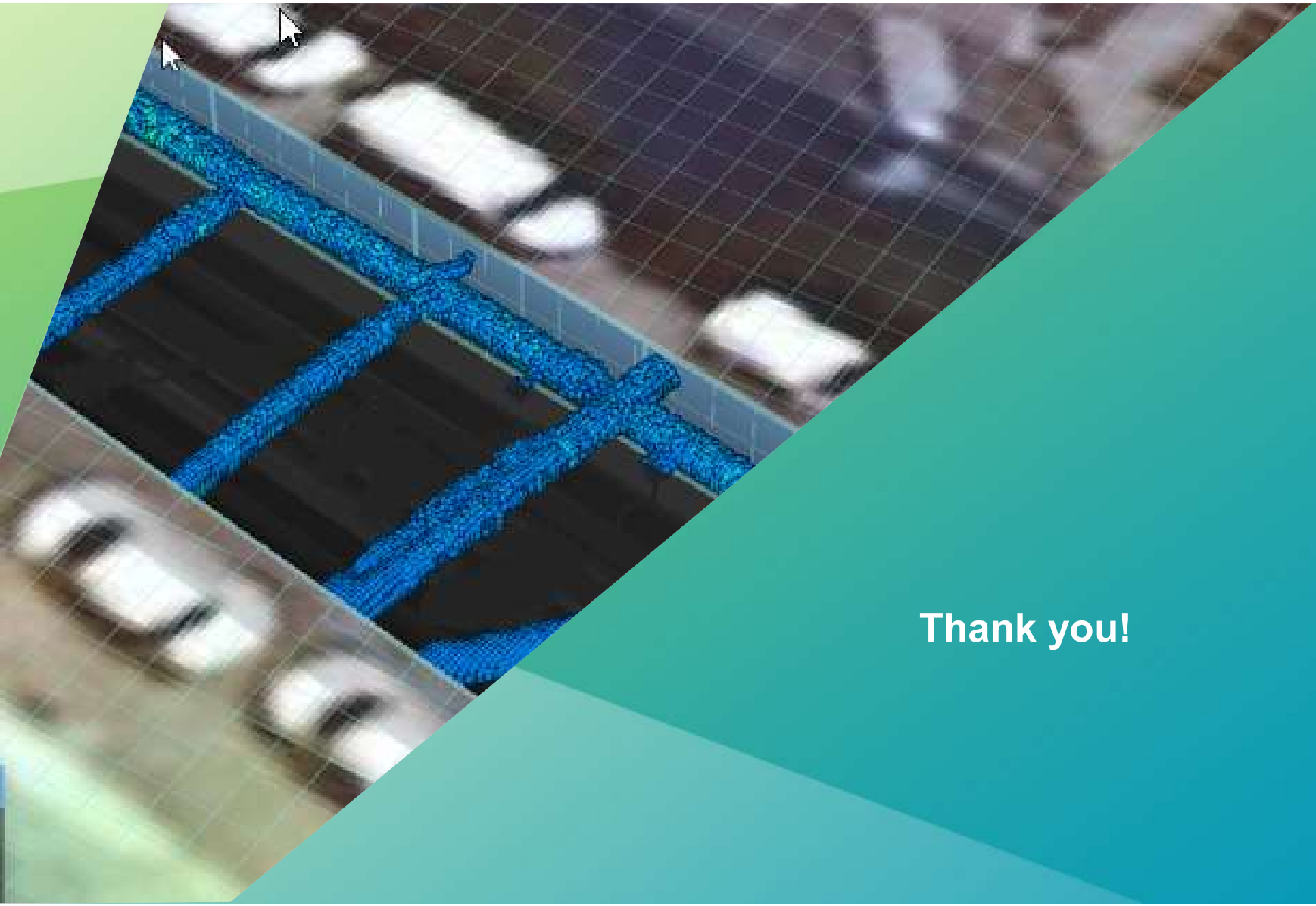
PAESANTI Gianluca

AiMaps

Live Demo



HEXAGON



Thank you!

HEXAGON

uMap & IQMaps

New Features

HEXAGON

uMaps & IQMaps

Latest features

2024 — **Jul 2024**

IQMaps

- A-Scan View
- Export OpenGPR processed data
- Support for multi-systems Projects

uMap Logger

- Grid Review

Feb 2025 — **2025**

IQMaps

- Free Running Management
- Position Marker Management
- ConX & GeoCloud Integration
- Export SEGY
- Export SHP file with attributes

uMap Logger

- Free Running (with GPS)
- Free Running (with Marker)
- ConX & GeoCloud Integration

HEXAGON

Main Contents

Free Running

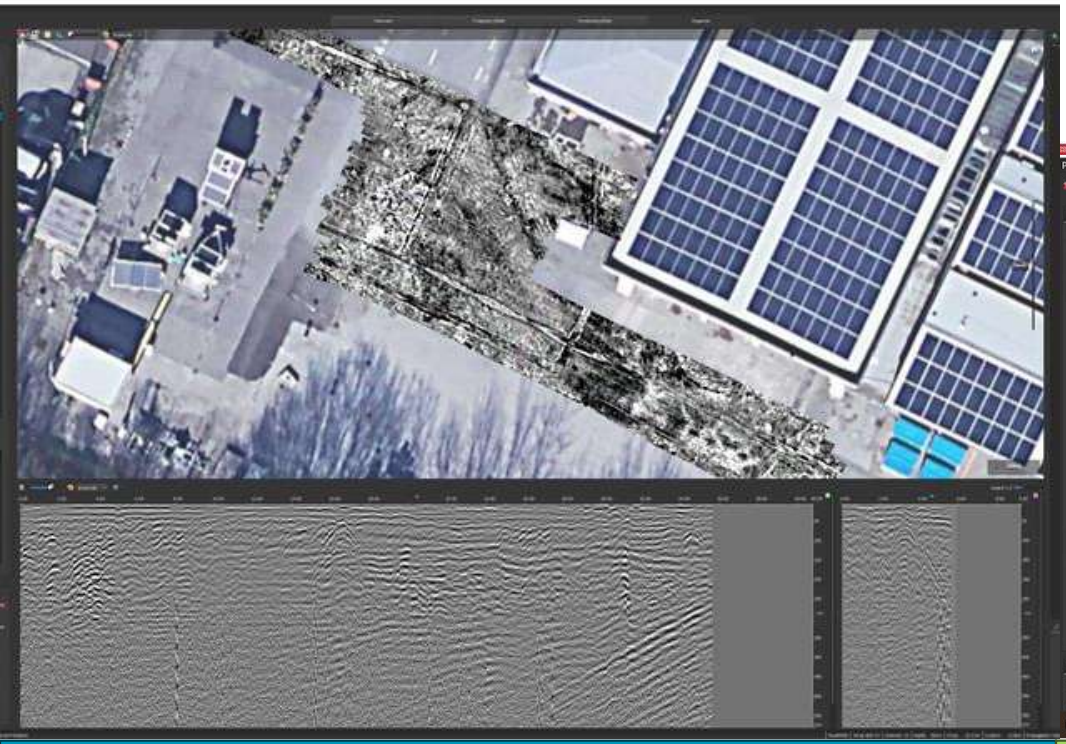
Free Running
GPS

Free Running –
Position Marker

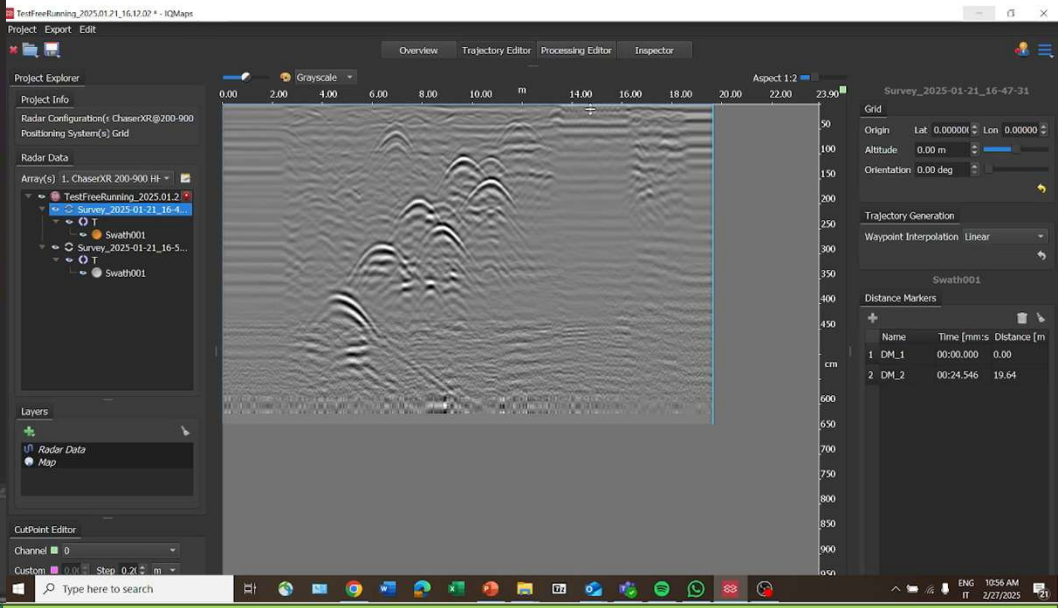
ON

Main Contents

Free Running



Free Running
GPS



Free Running
Position Marker


Chaser XR Plus Cart
No limits to your inspection activities

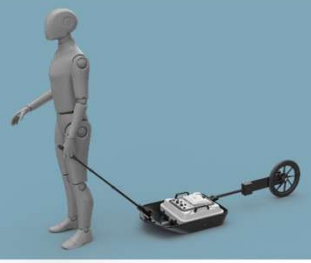
Use Case

UC1 – Geology – Ice and snow investigation

Geophysical companies and research centers. Typically, users are very skilled on GPR usage.

Defining of glacier thickness or locating crack

Cart can not be used in this scenario, the more suitable hardware configuration is the dragging kit



Use Case

UC2 – Environmental assessment – Sinkhole Detection

Geophysical companies or Utility location companies which want enlarge the market and using advanced GPR system like chaser XR for services different from utility location

Locating sinkholes on scenario to avoid road collapsed caused due to void there on underground

Typically, cart is used for this kind of case. Drag kit can be used to collect data on more complex scenario

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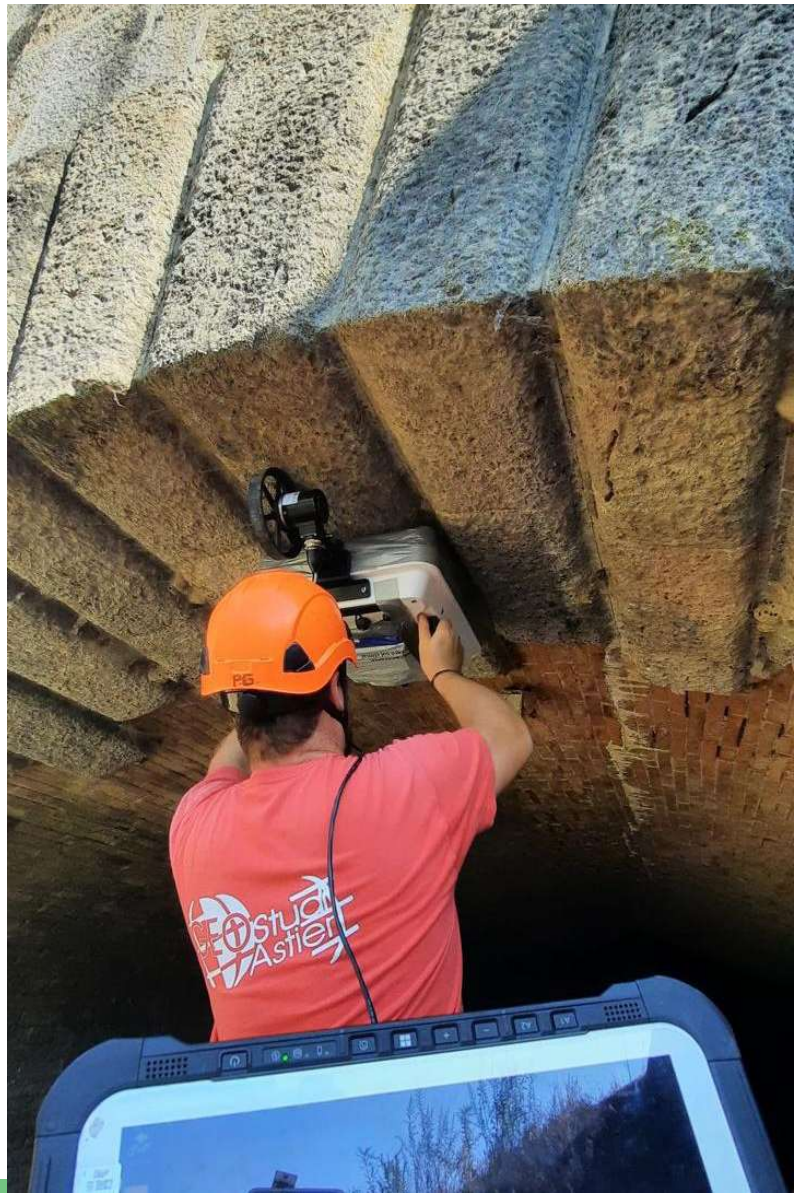
Use Case

UC3 – Environmental assessment – Tunnel Inspection

Geophysical or Engineering Consult. Typically, users are very skilled on GPR usage.

Understanding of structural condition and rebar geometry and condition on modern tunnel structures

In this case the user must collect data on vertical wall or ceiling, so the antenna is used by itself with only the encoder wheel connected.



Use Case

UC3 – Environmental assessment – Drone

Geophysical or Engineering Consult. Typically, users are very skilled on GPR usage.

Detecting buried mine on fields, archeological…

In this case the user must collect data on vertical wall or ceiling, so the antenna is used by itself with only the encoder wheel connected.

Thank you

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Subsurface Mapping Solutions

Introduction to Subsurface Mapping Solutions Pty Ltd and their innovative techniques for mapping underground structures.

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