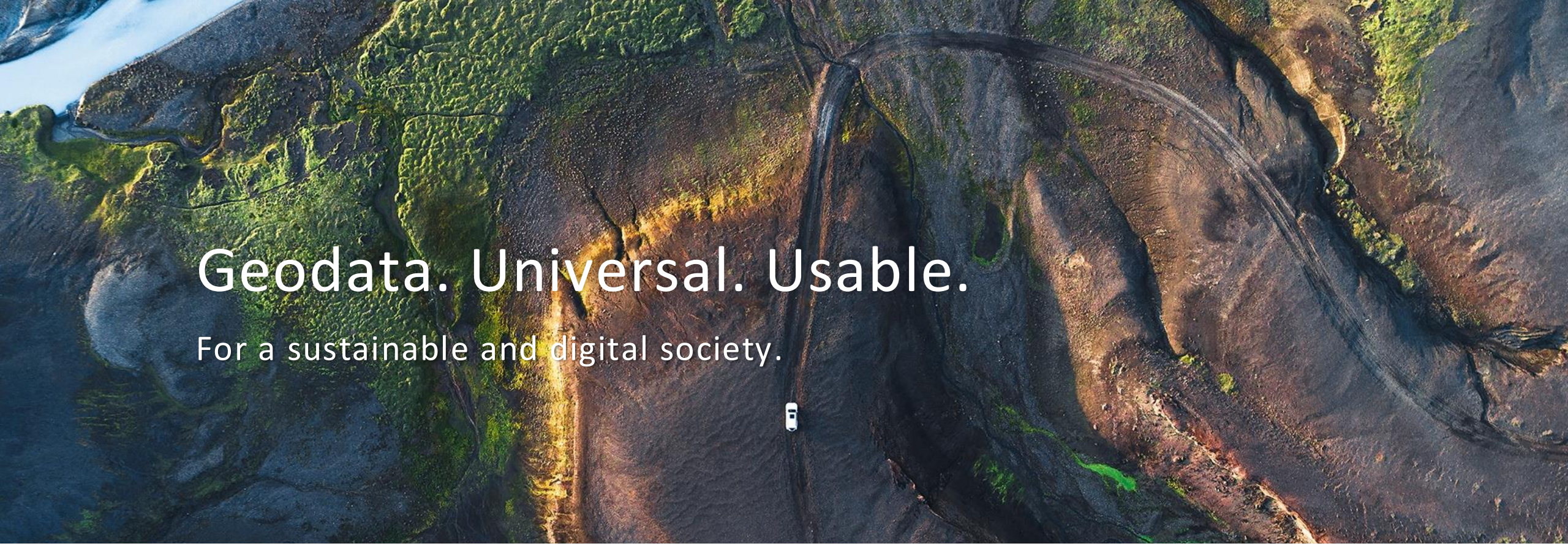



CISS TDI

Outline IMAGERY AI

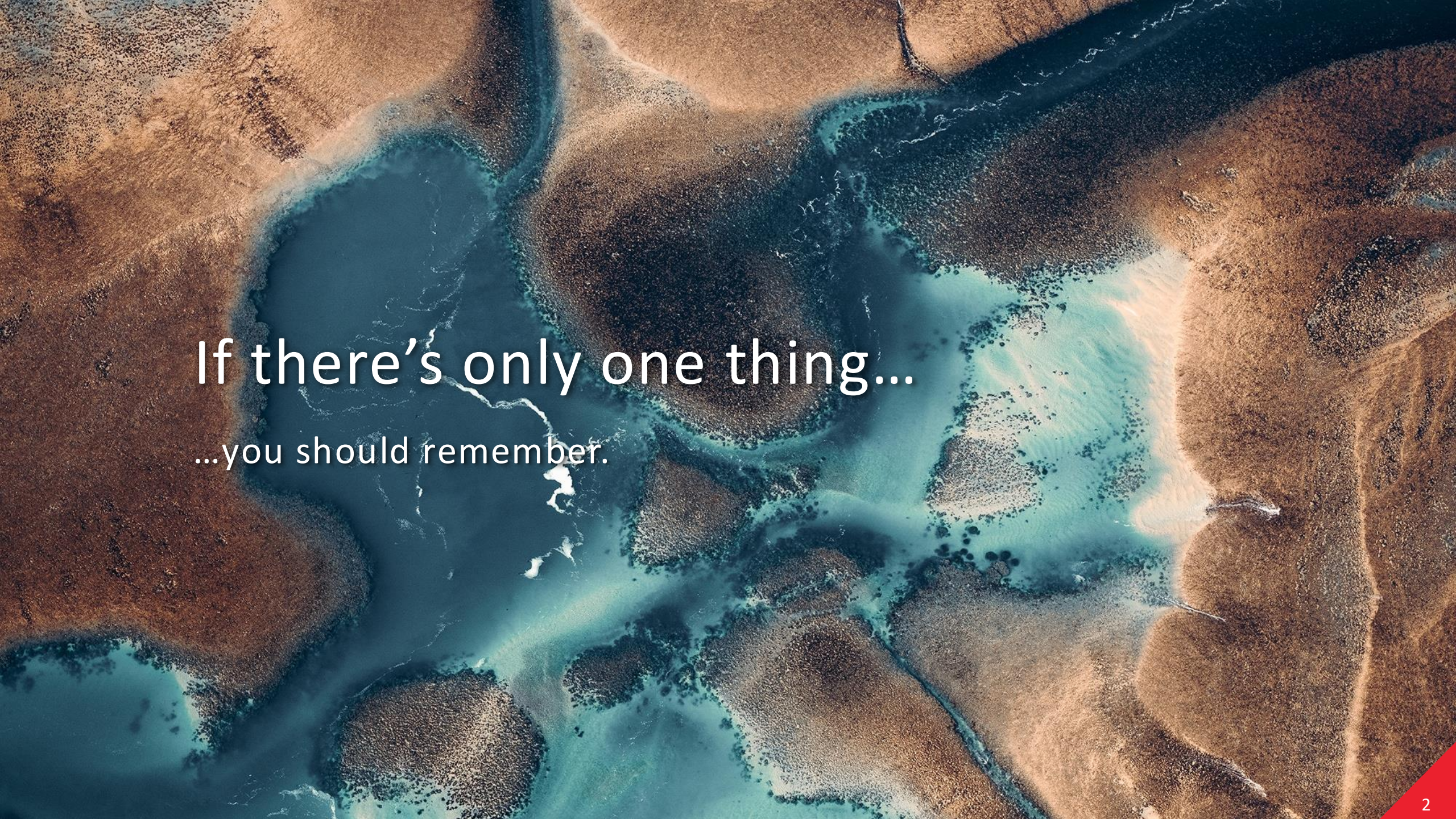
ORACLE

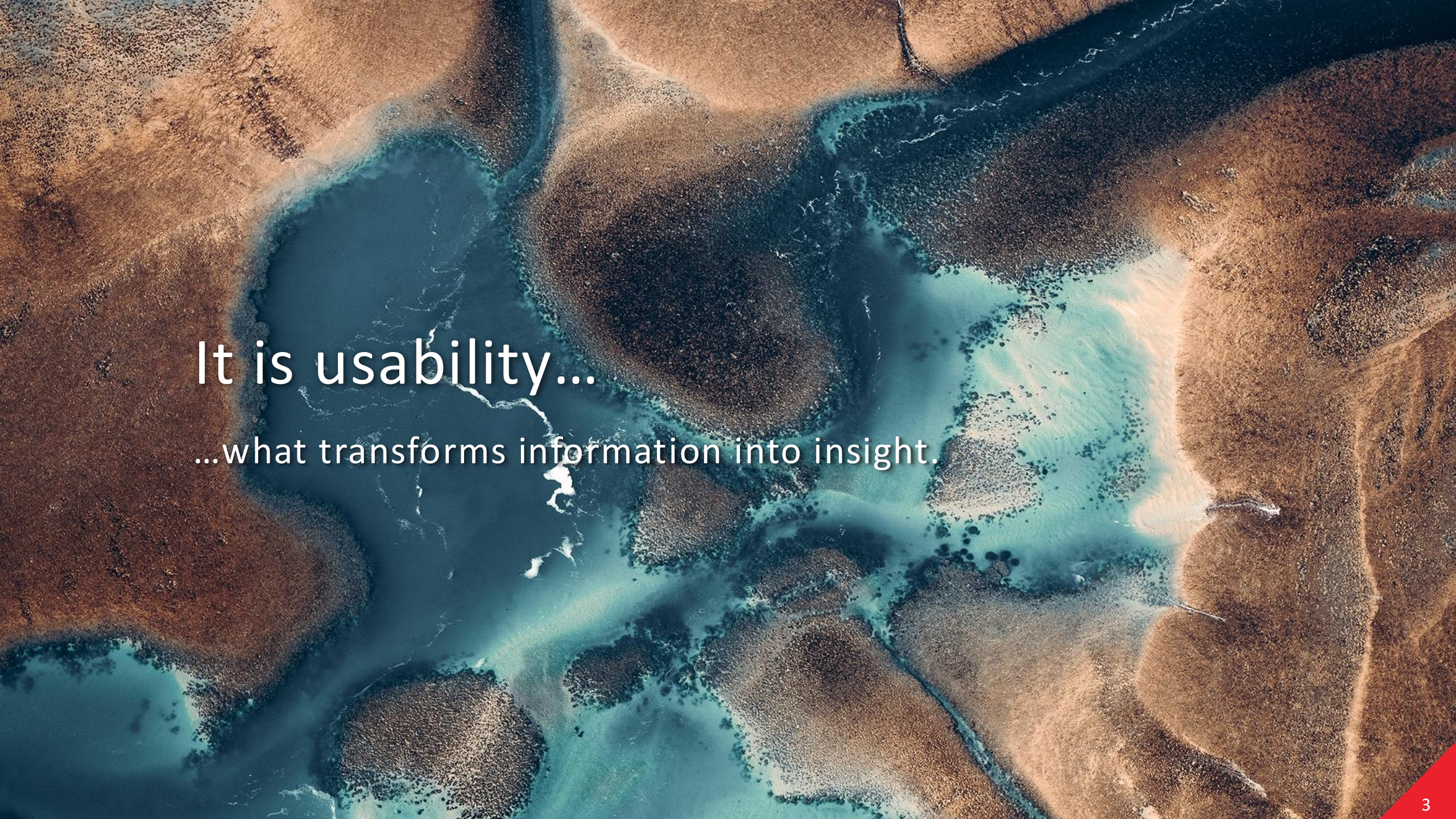
# From Imagery to Interactive 3D Maps.

AnDOUC TechCast.

Dr. Alexander Willner (CISS TDI GmbH)

Online, 13.11.2025.


If there’s only one thing…
…you should remember.


It is usability…
…what transforms information into insight.


Let me tell you why.

# I’m the father of three wonderful young children.

You sometimes find yourself volunteering for school events.

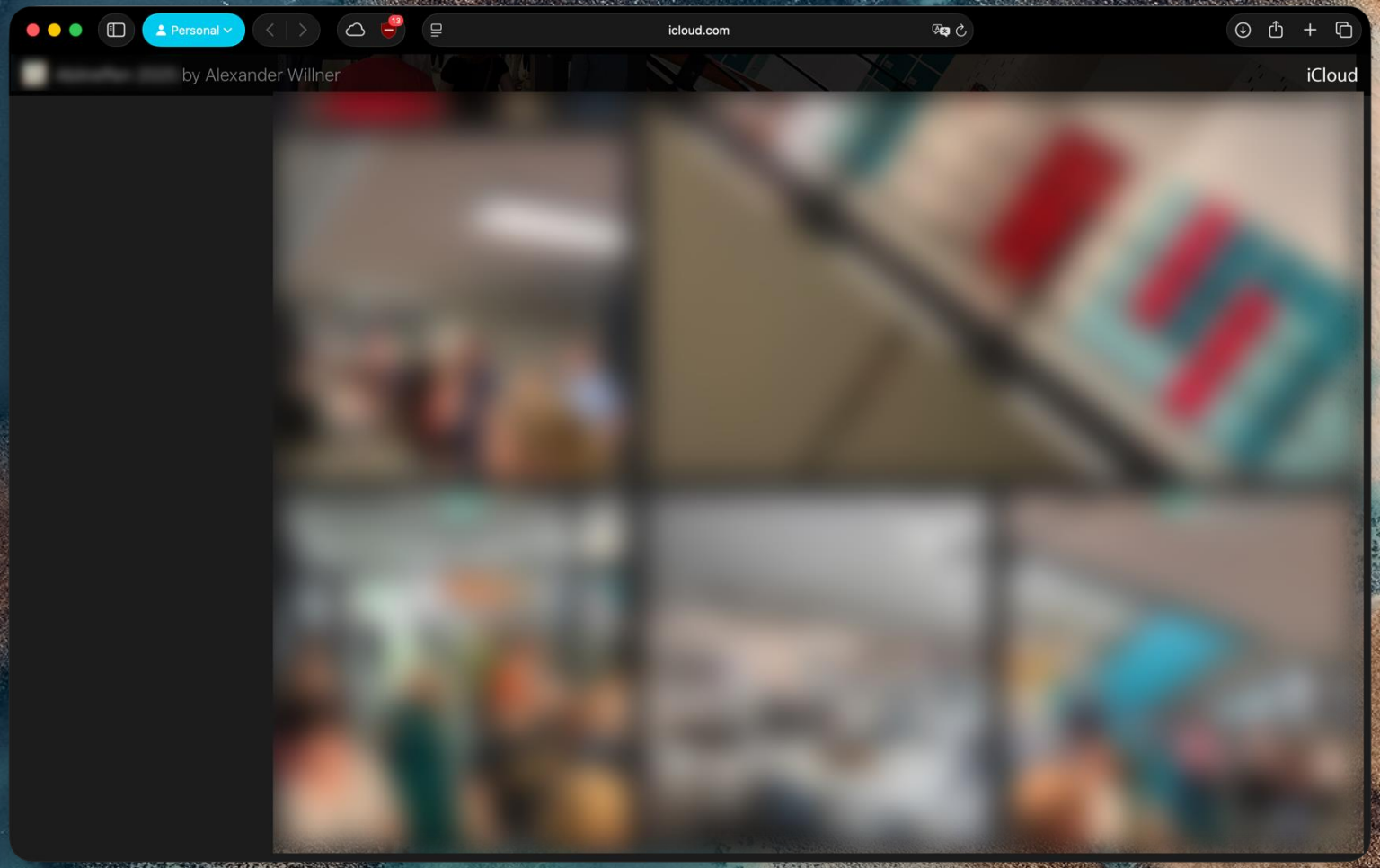
# Taking some photos and videos of a school performance.

It was a lovely event — full of energy, emotion, and proud parents.

Credits: Jonah Willner

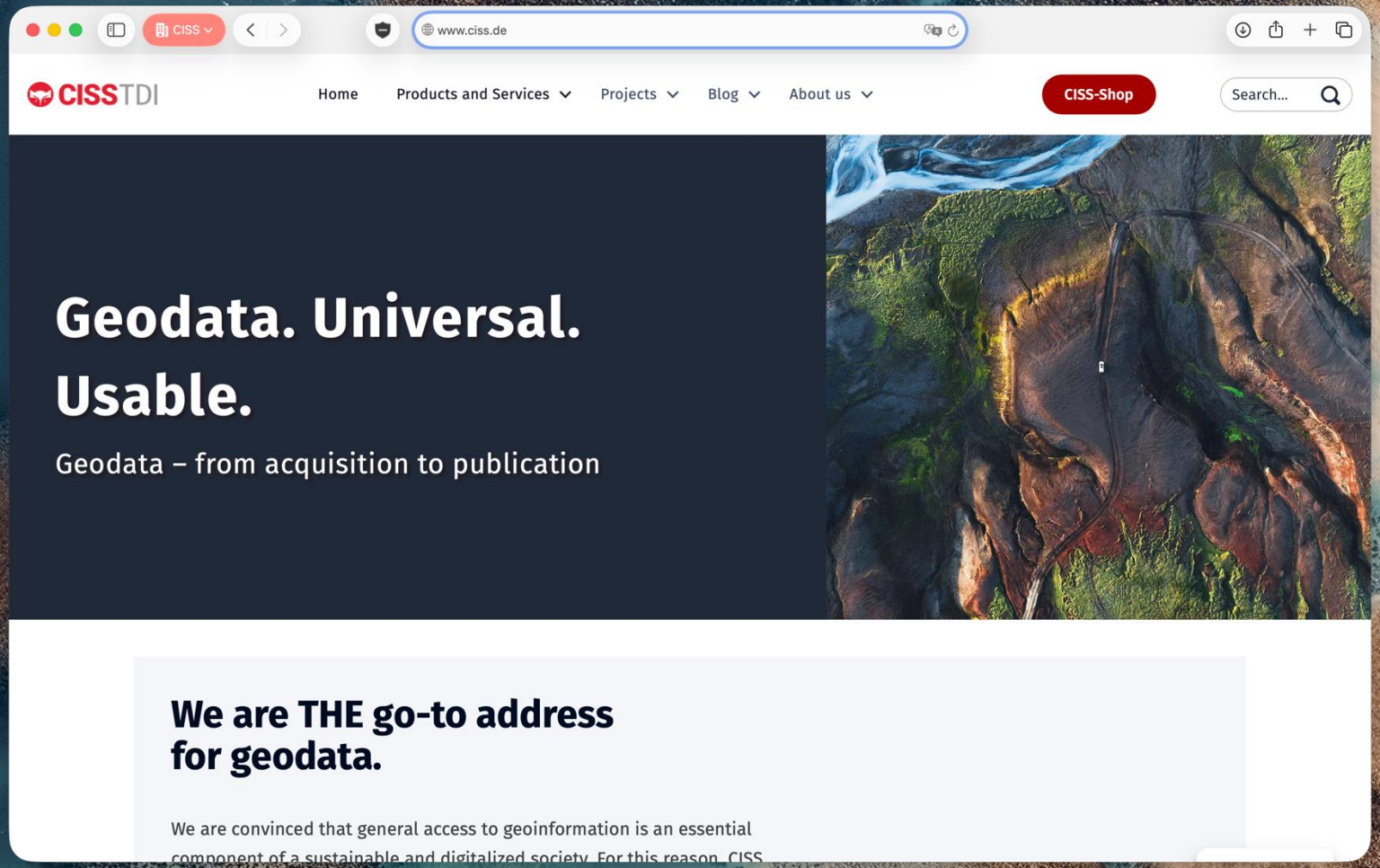
# Today sharing is easy. One click in my photo library.

The simplicity hides the complexity of the problem in the background.



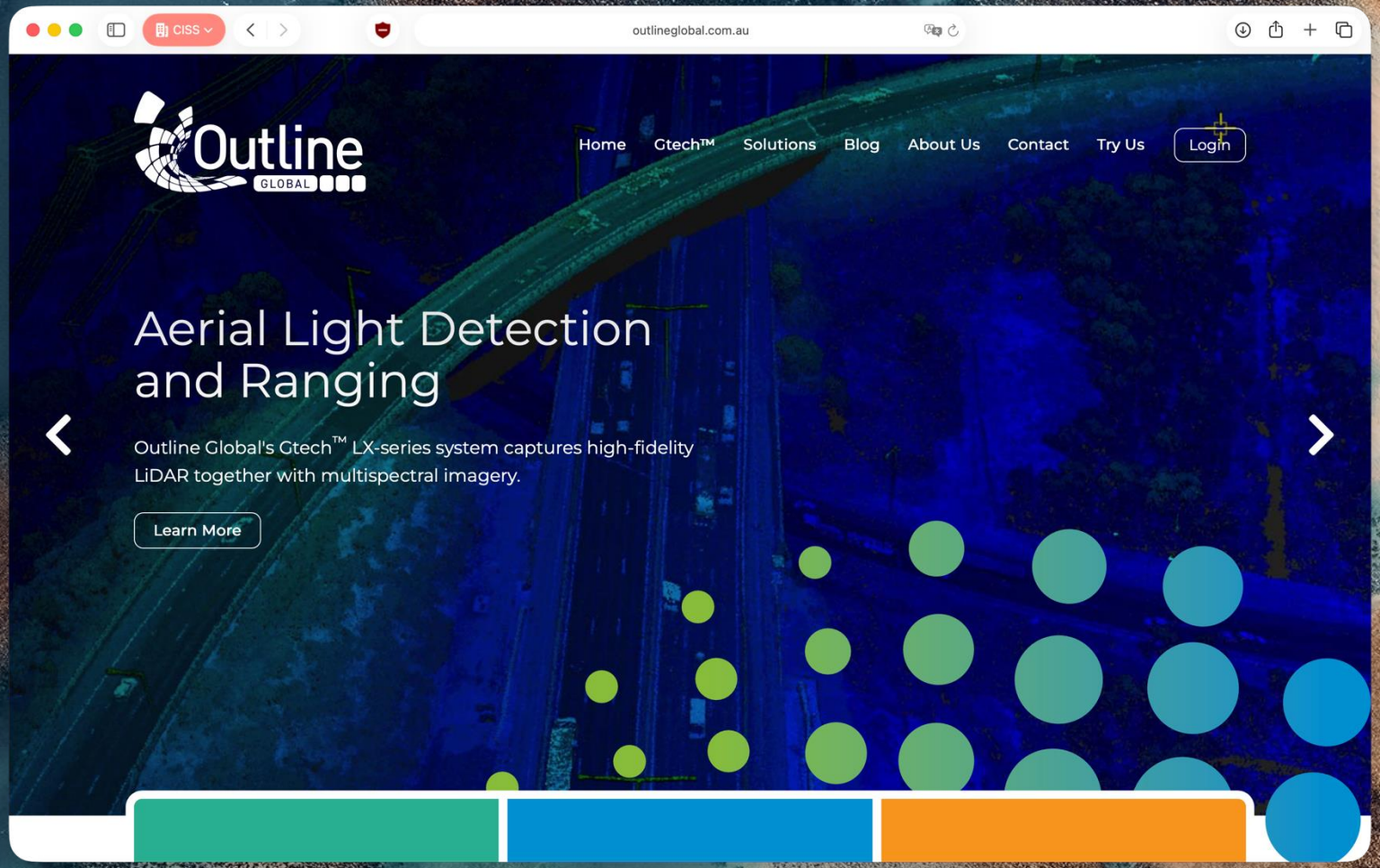
# In our professional lifes, things are a bit different.

## We work with others that manage large amounts of spatial data.



# About a year ago we met Outline Global.

## Premium quality geospatial imagery, LiDAR and location-based AI.



# Several terabytes of data…

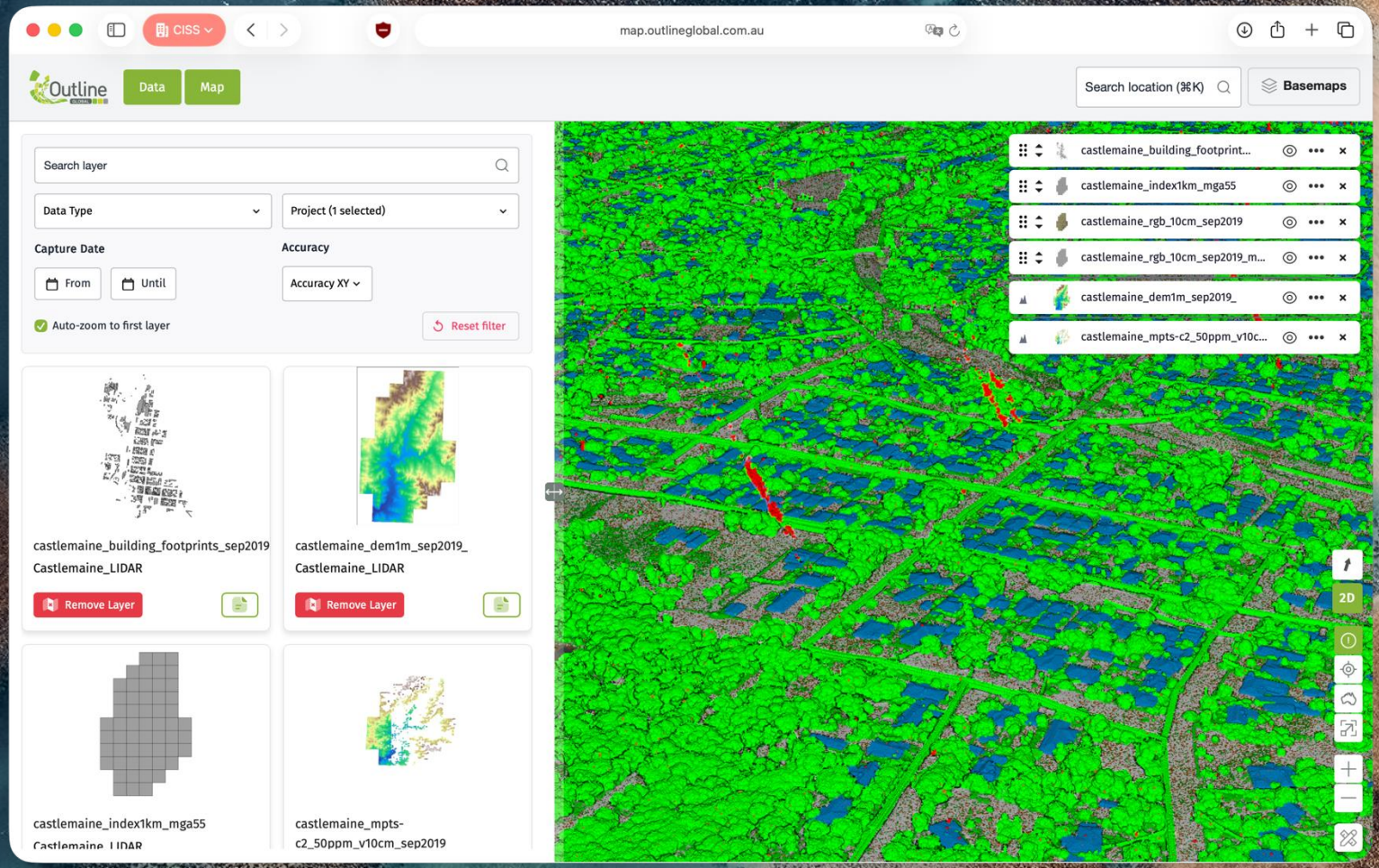
…need to be processed and delivered. Clients must download, inspect, evaluate, approve, and sometimes reorder datasets.


This still happened the old-fashioned way.
Unstable transfers, different file formats, versioning, …


So we set out to change that.
A joint effort of Outline Global, Oracle and CISS TDI.

# An “iCloud” for aerial and geospatial data.

For data generated by Outline Global and consumed by their clients.



# The system was designed with three main parts.

## Frontend

Portal developed by Oracle Consulting using APEX.

## Map and Geoservices

Developed by CISS TDI using SvelteKit, Giro3D, OpenLayers, Three.js, FastAPI, Celery, Untwine, LASpy, GDAL, PDAL and many more.

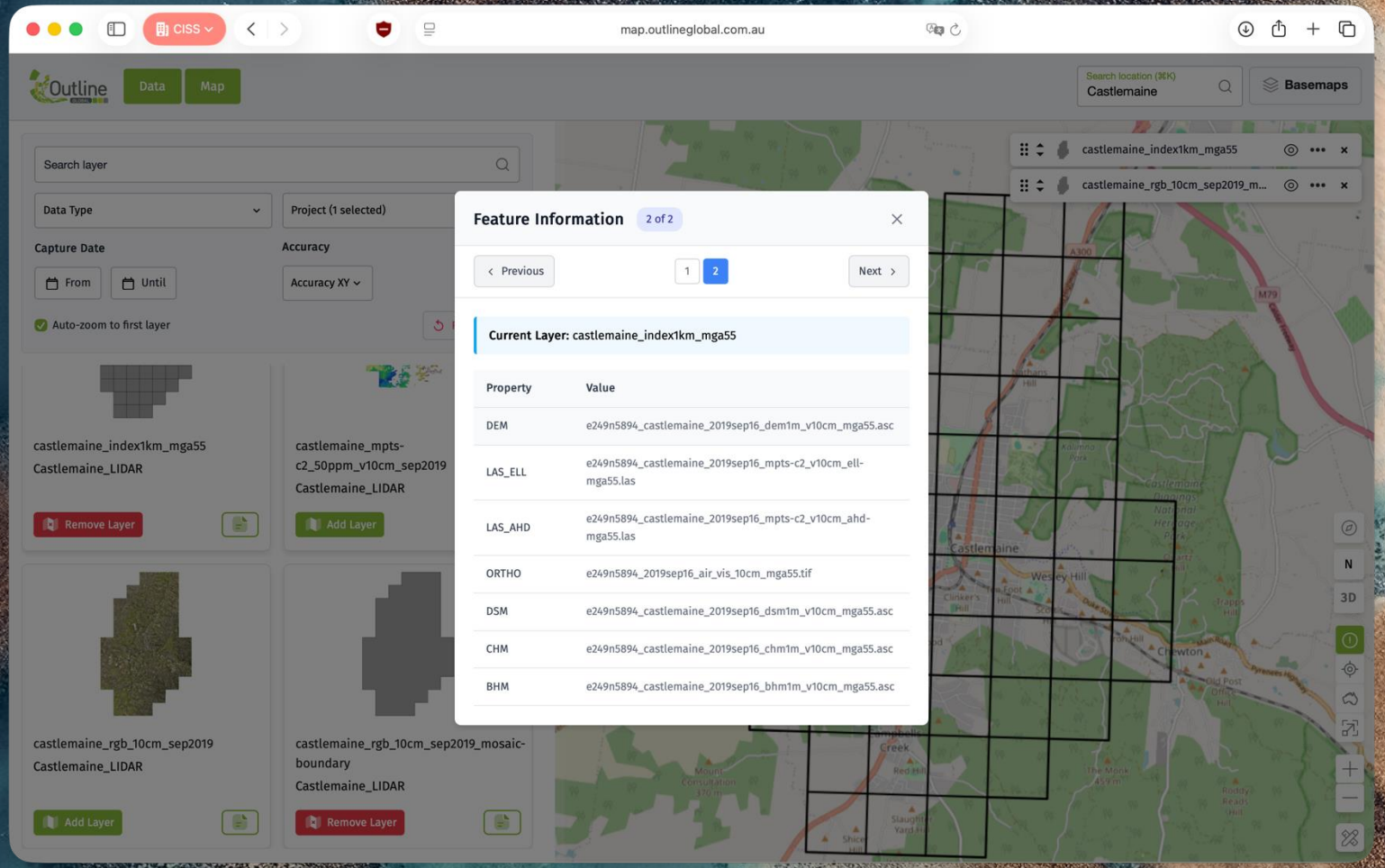
## Infrastructure

Deployed in an Oracle Cloud Infrastructure (OCI) tenant with Oracle Autonomous Database, MapViewer and Spatial Map that provide the OGC Services, do the hierarchy building, ...


How does it look like?

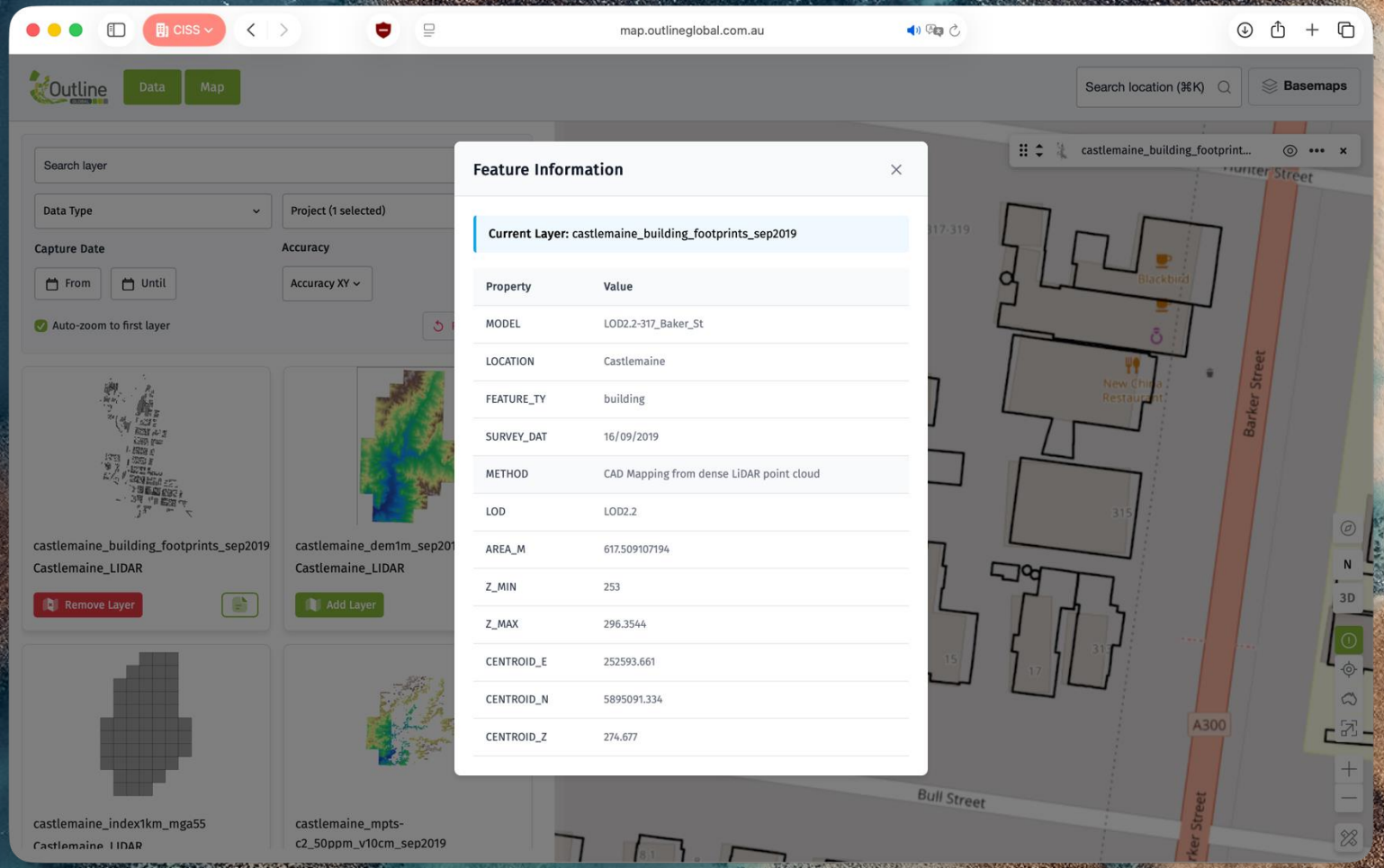
# Map: Meta Data.

## With details for different layers (Boundary, Index).



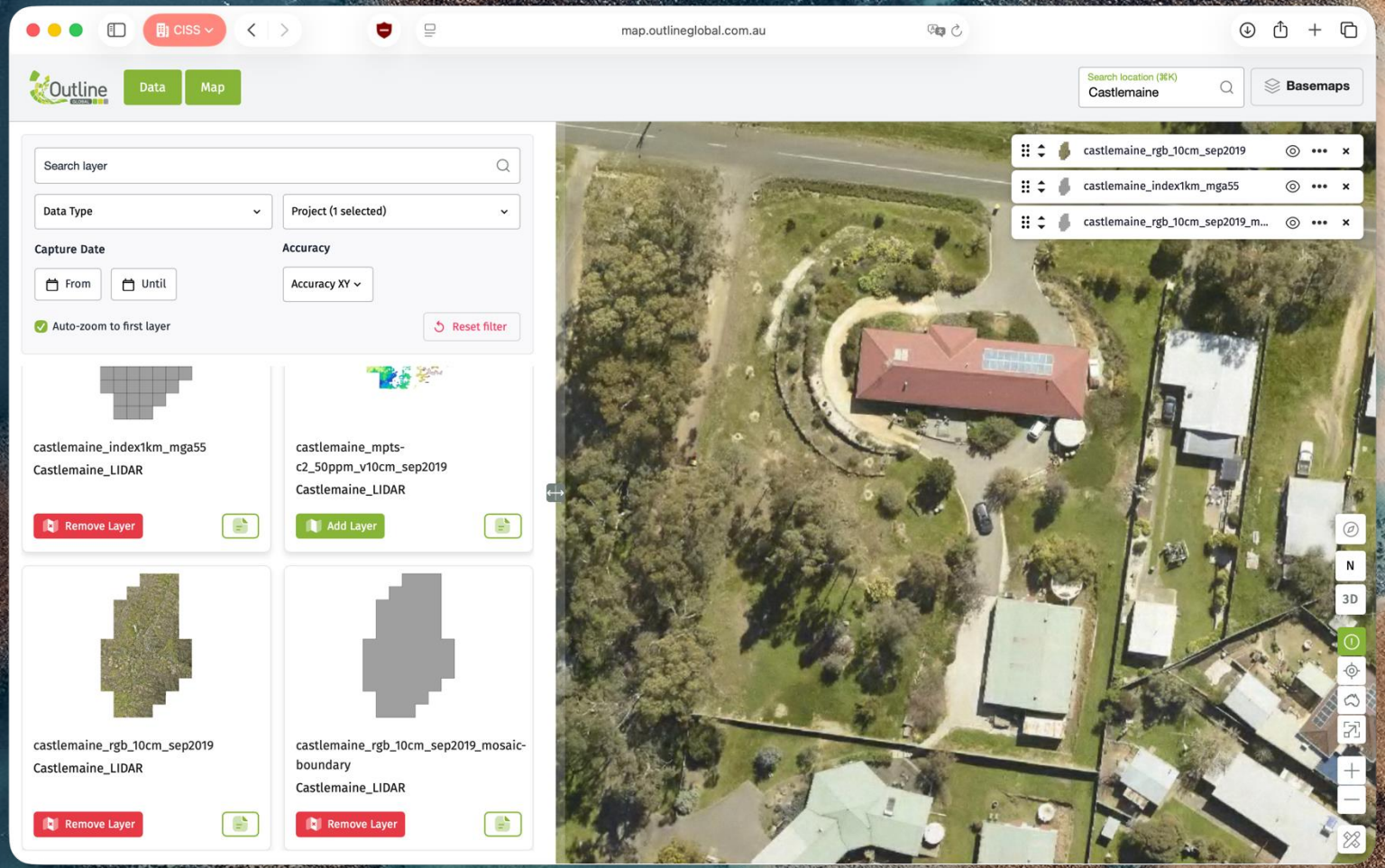
# Map: Vector / 3D Data.

## For example Level of Detail (LOD).

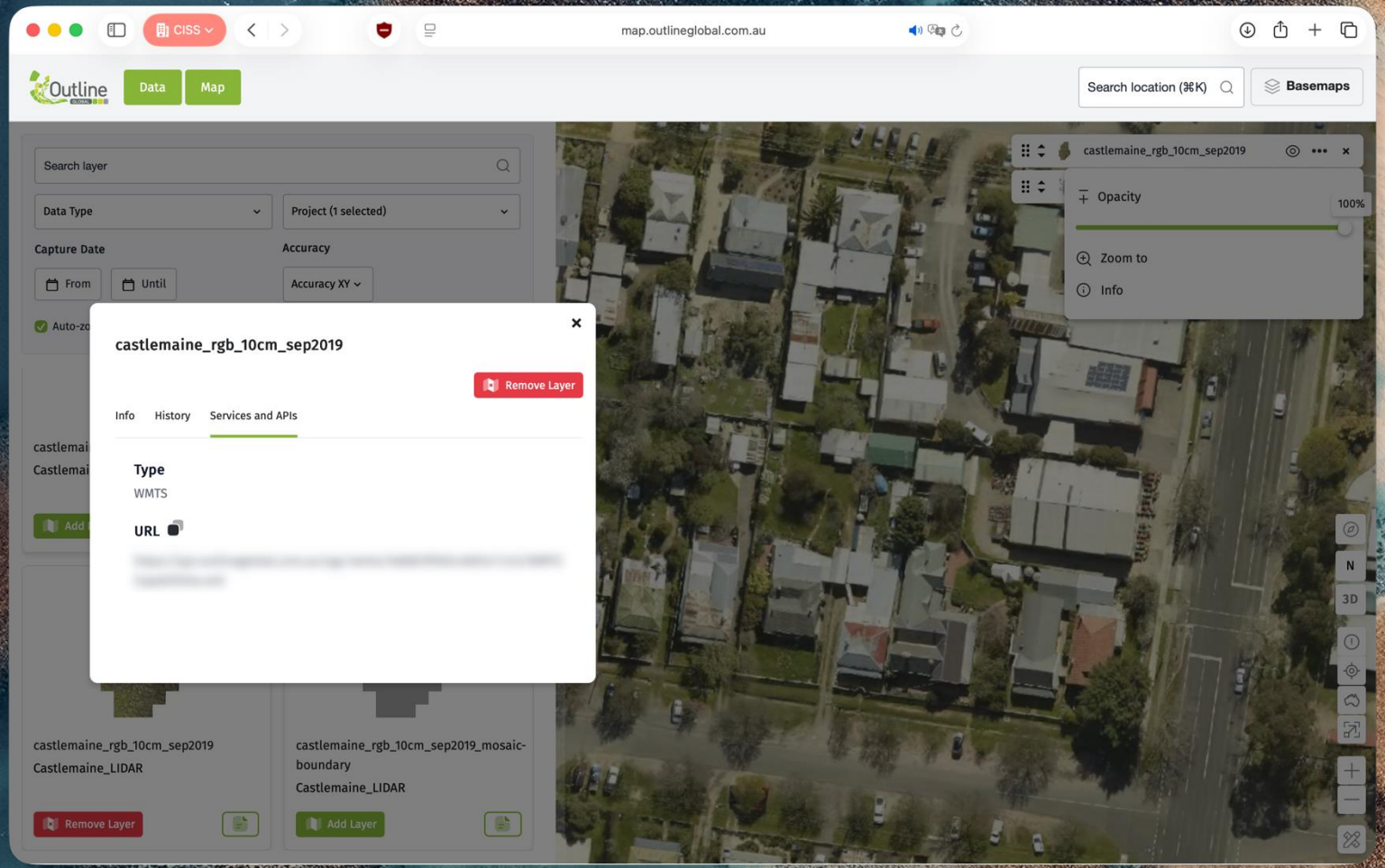


# Map: Imagery.

With a higher resolution than a typical base map.

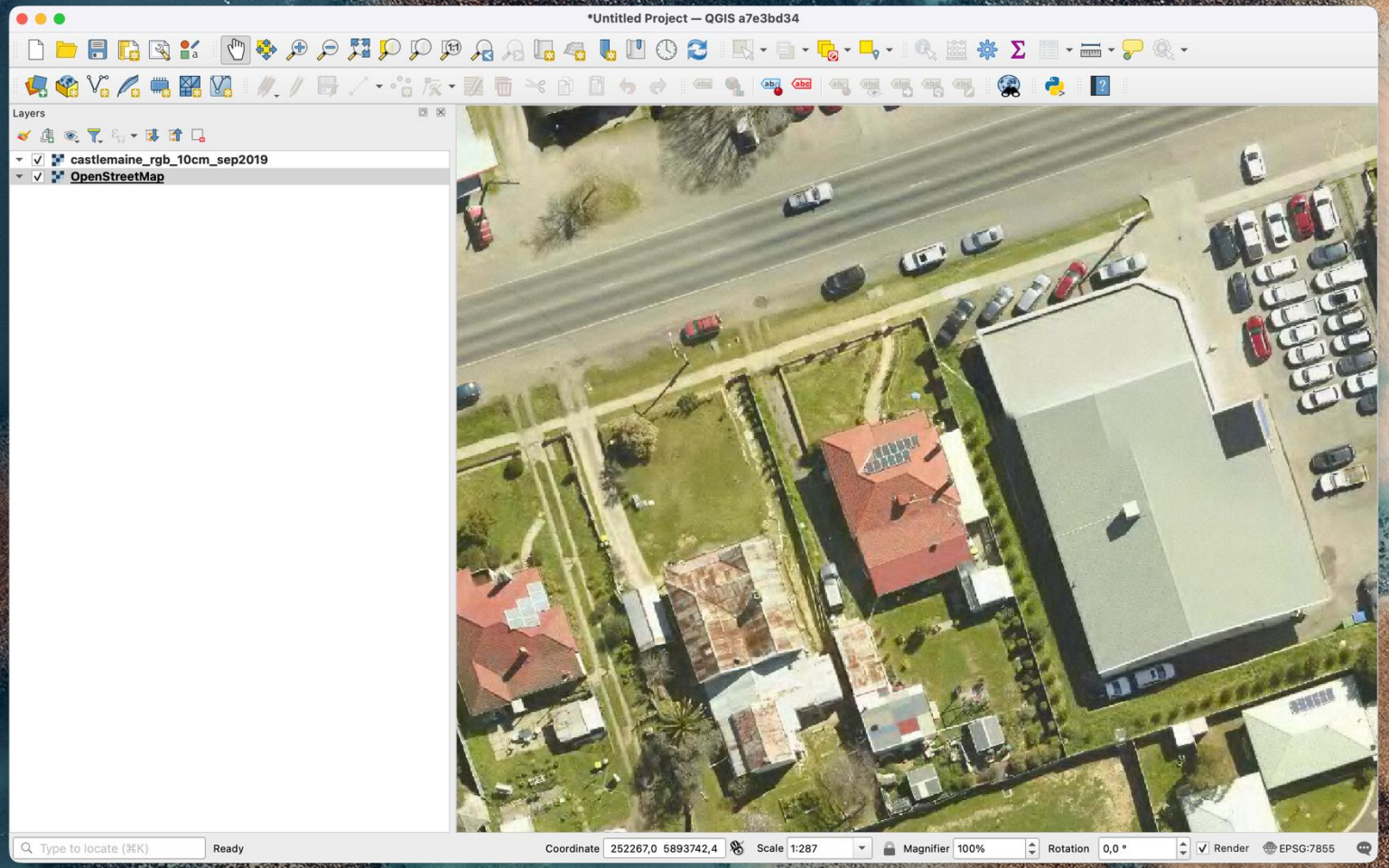


# Map: OGC Endpoints.



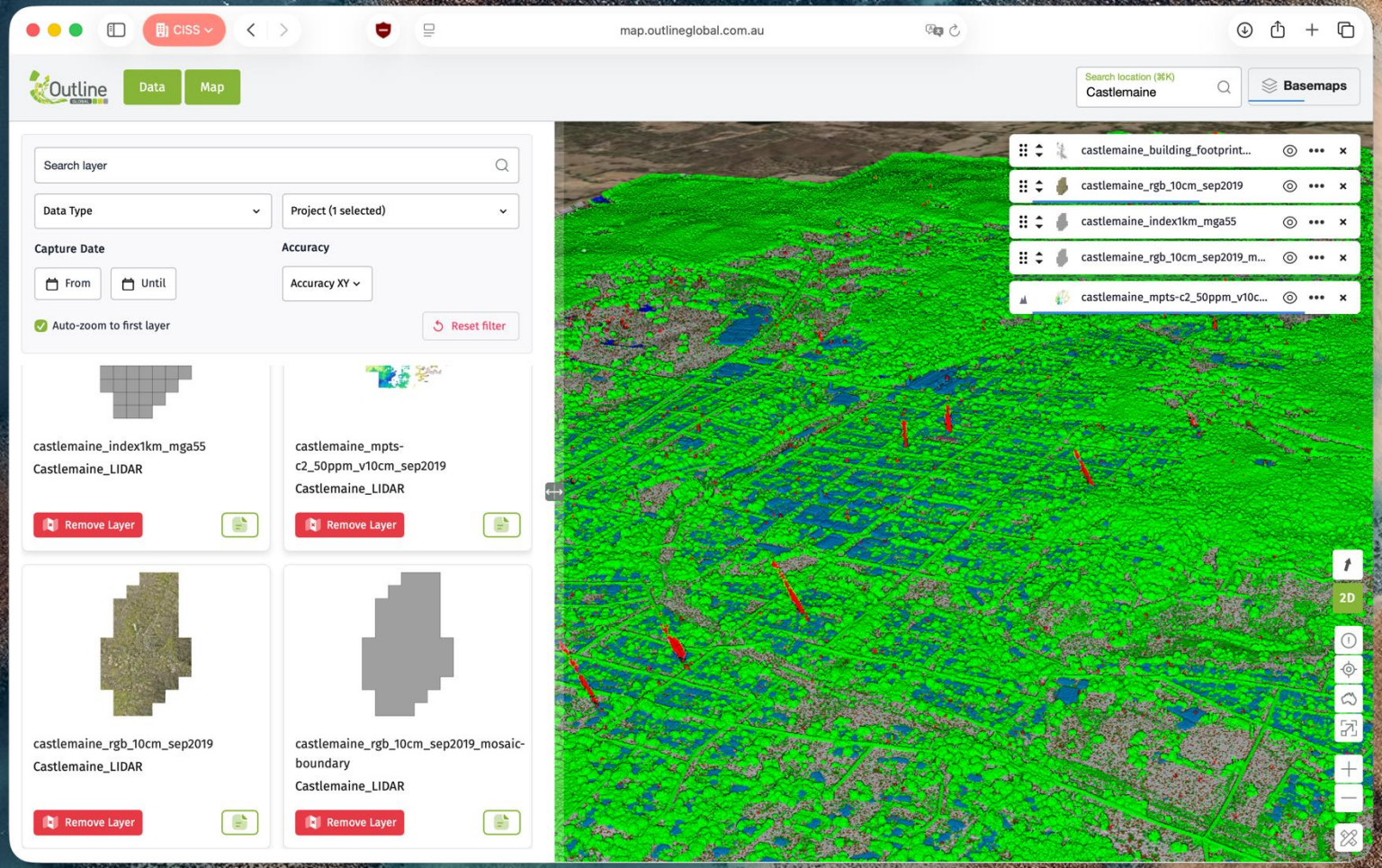
# Map: Imagery.

Direct access in a GIS via OGC services (WMTS in this example).



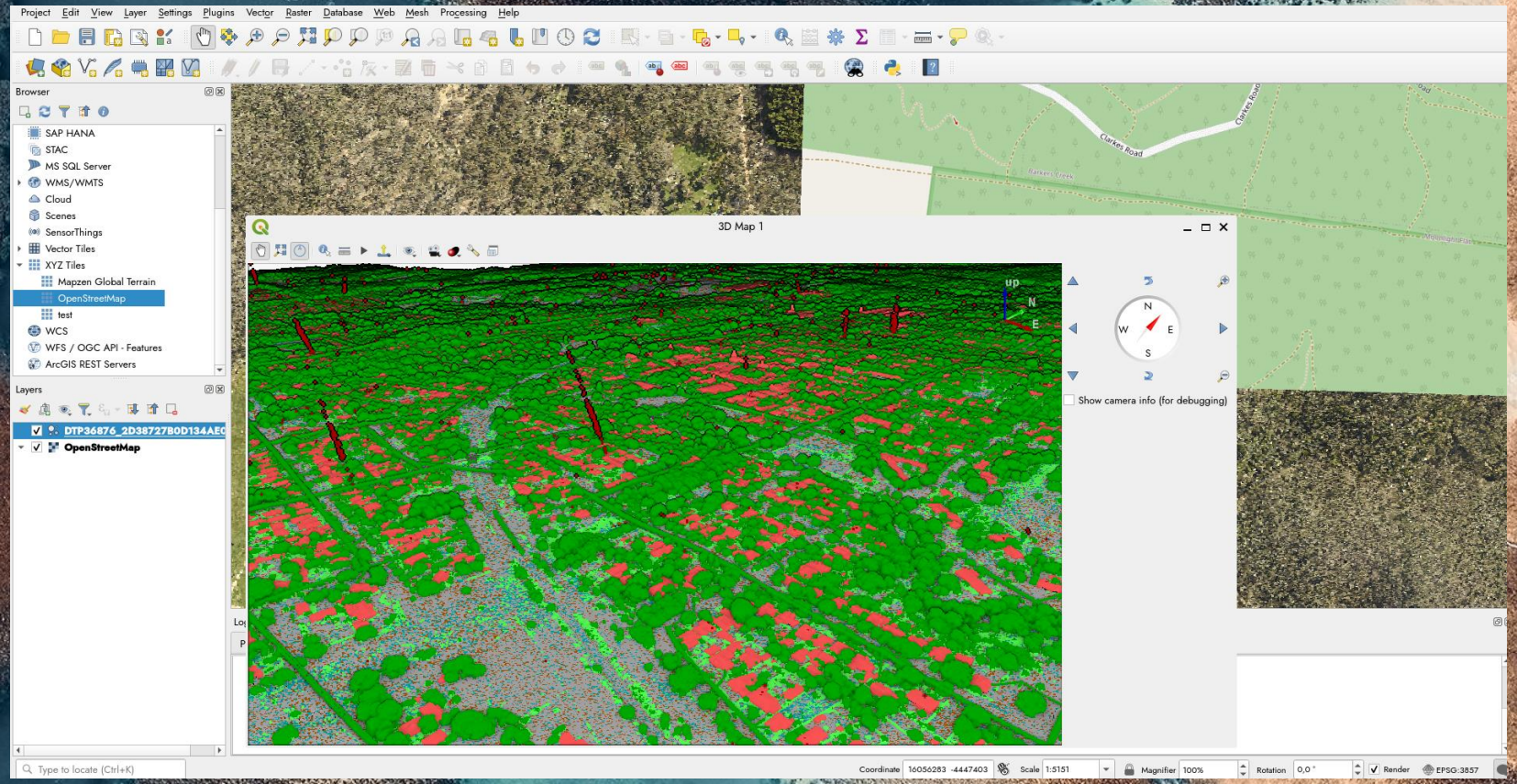
# Map: Cloud Optimized Point Clouds (COPC).

## Multiple detail levels for elevation, intensity, color, and classification.



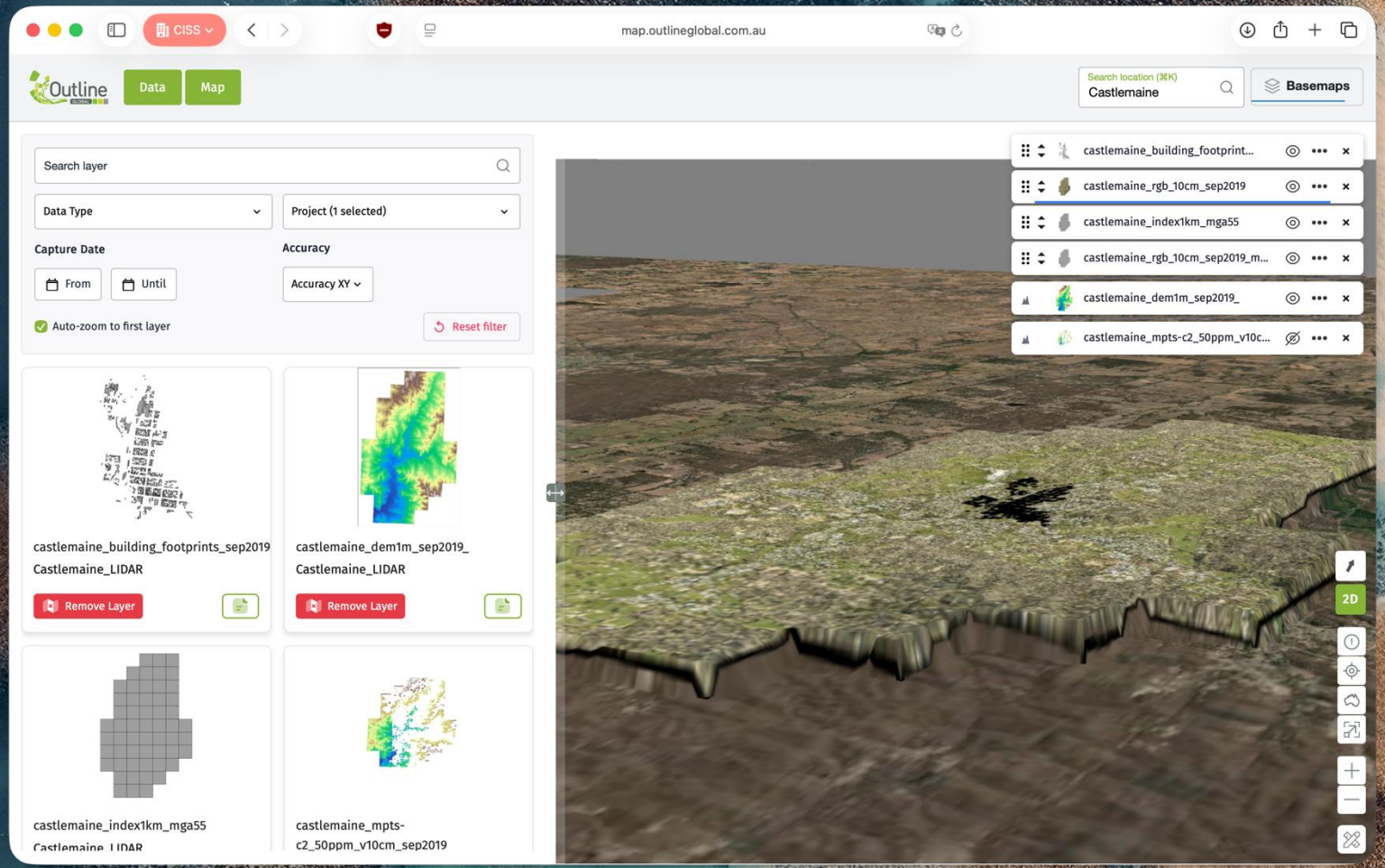
# Map: Cloud Optimized Point Clouds (COPC).

Direct access in a GIS via HTTPS services.

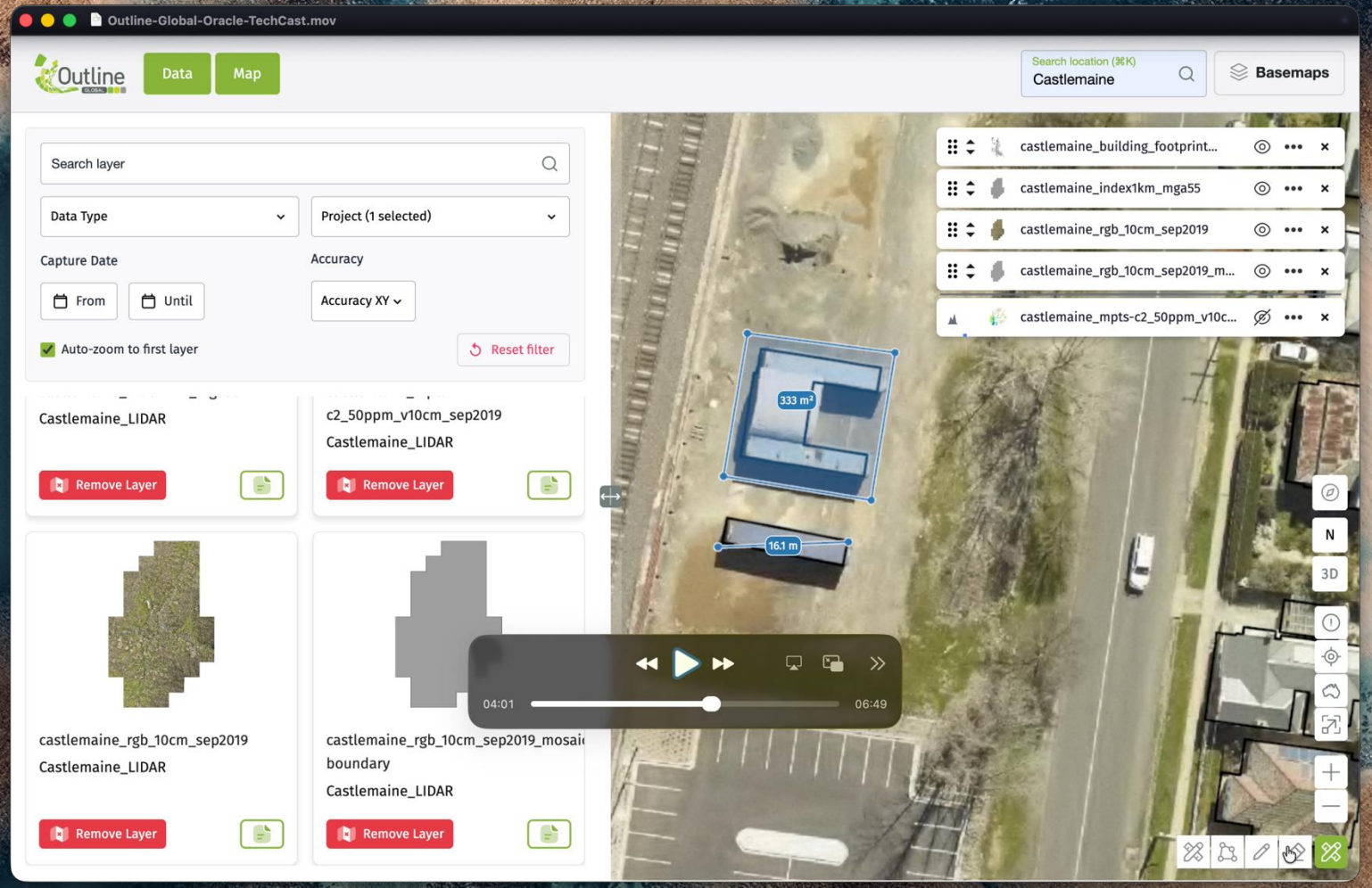


# Map: Digital Elevation Model (DEM).

A 2.5D digital representation of the surface.




Let’s have a live demo, shall we?


Outline-Global-Oracle-TechCast.mov
Outline
Data
Map
Search location (⌘K)
Castlemaine
Basemaps
Search layer
Data Type
Project (1 selected)
Capture Date
From
Until
Accuracy
Accuracy XY
Auto-zoom to first layer
Reset filter
Castlemaine_LIDAR
Remove Layer
c2_50ppm_v10cm_sep2019
Castlemaine_LIDAR
Remove Layer
castlemaine_rgb_10cm_sep2019
Castlemaine_LIDAR
Remove Layer
castlemaine_rgb_10cm_sep2019_mosai
boundary
Castlemaine_LIDAR
Remove Layer
castlemaine_building_footprint...
castlemaine_index1km_mga55
castlemaine_rgb_10cm_sep2019
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333 m²
16.1 m
04:01
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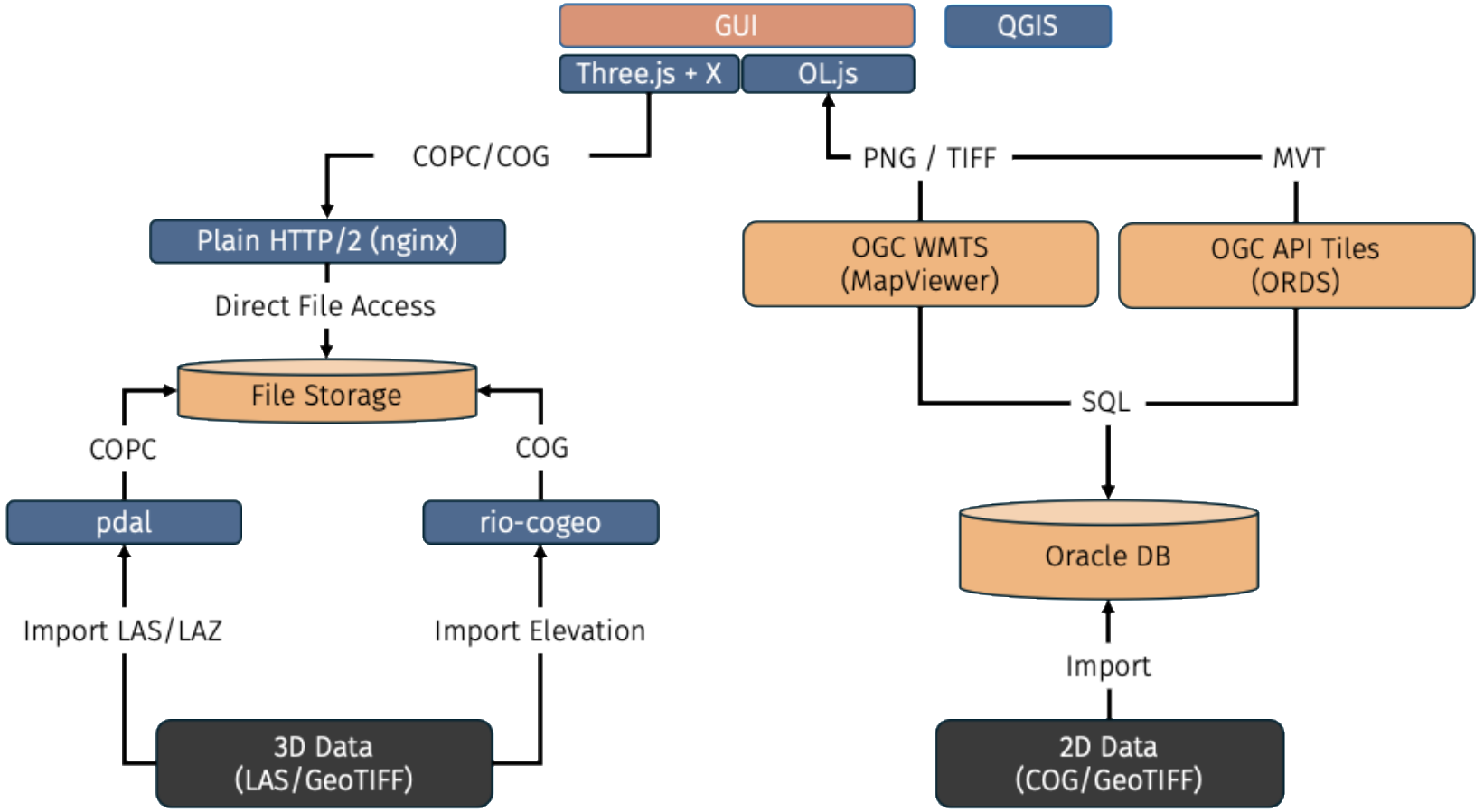
N
3D

# Some more technical background.

## Architecture of the 2D / 3D ETL pipeline with OGC endpoints.



# Outlook.

Beyond that, many more ideas are waiting to be implemented. The foundation is strong.

## Spatial ML Algorithms

Analysis and prediction of geospatial data.

Oracle 23ai has support for cluster analysis, outlier analysis, spatial correlation, regression analysis, spatial classification, spatial aggregation, ...

## Geometric Intersection

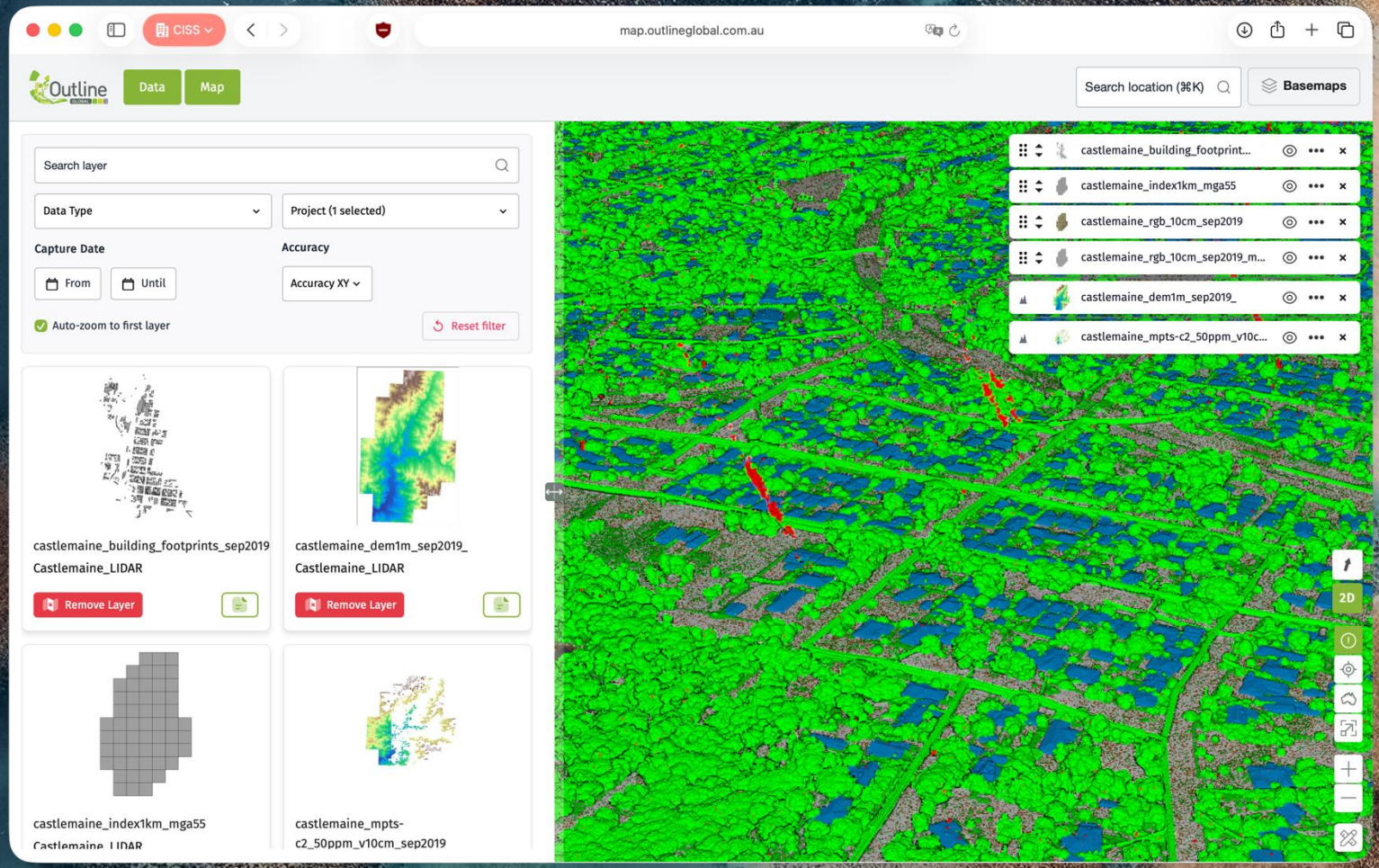
On-demand polygon-based extraction and data conversion to allow users to select an area of interest and download only what they need and how the need it.

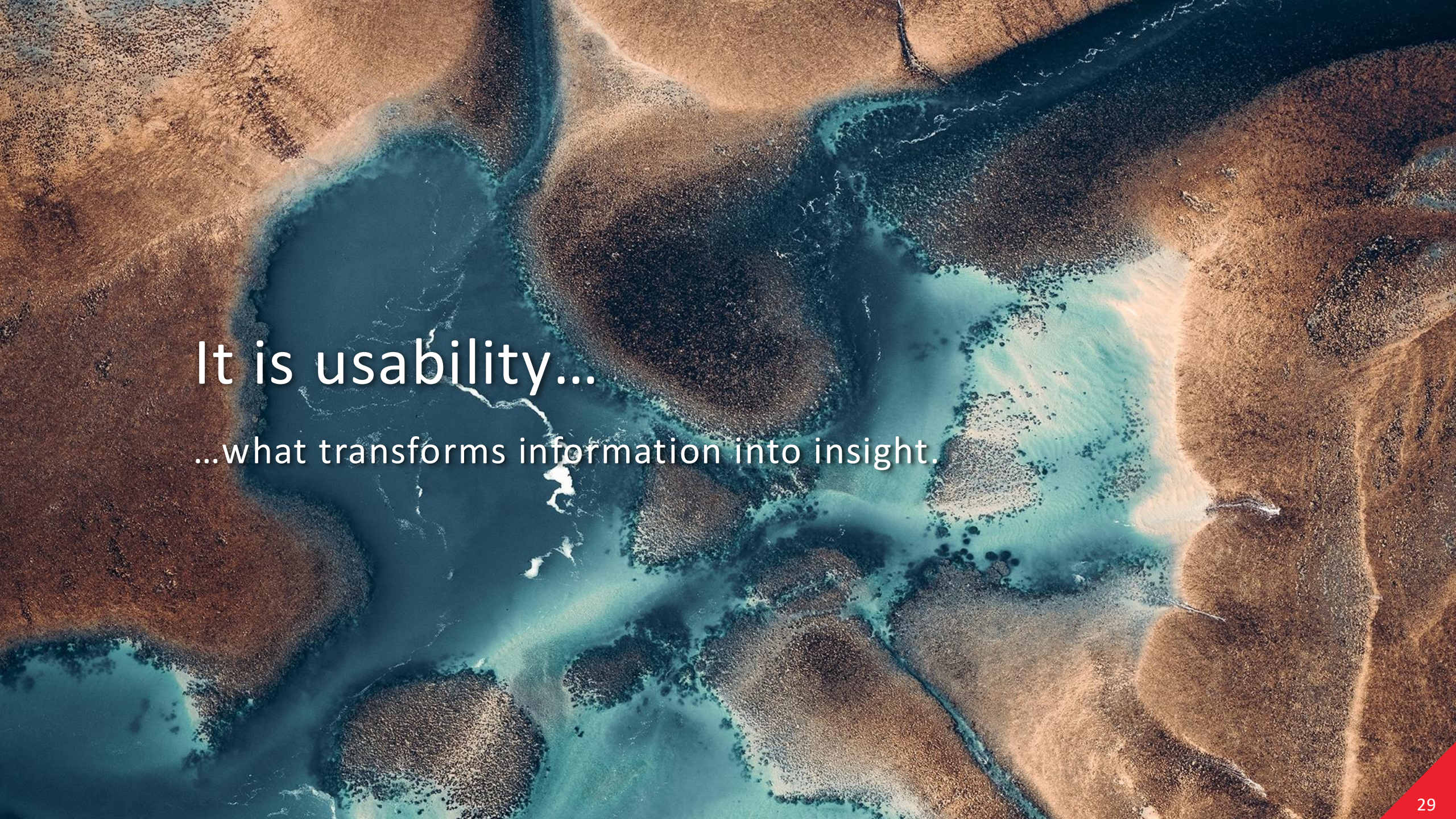
## Order via Portal / API

Let customers select an area and type of information to request for flyovers.

# The goal was an “iCloud” for aerial and geospatial data.

For data generated by Outline Global and consumed by their clients.




It is usability…
…what transforms information into insight.

# Here Today

## Representing a Great Team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