1. Overview

HALO is a data platform designed to combine, organise, and explore spatial data.

It was built to address a common operational gap: while modern survey tools can capture large amounts of data, that data is often fragmented across formats, difficult to interpret, and lacks the context needed to understand real-world conditions. LiDAR, imagery, and video are typically processed separately, making it hard to correlate observations or track changes over time.

HALO provides a single environment where teams can:

- *Combine LiDAR, photogrammetry, and video data*
- *Organise datasets across projects and deployments*
- *Explore 3D environments and inspect spatial information*
- *Identify changes and assess condition over time*

The platform enables teams to move from raw survey data to usable spatial insight without relying on multiple tools or disconnected workflows.

2. Key Capabilities (Validated)

- Integration of LiDAR, photogrammetry, and sensor datasets into a unified spatial model
- Structured management of survey data across projects and deployments
- 3D visualisation and inspection of complex environments
- Alignment of video with spatial data for contextual inspection
- Identification of changes across datasets captured at different times
- Export of measurements, annotations, and outputs for reporting
- Local or controlled deployment (no dependency on external cloud services)

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3. Core Use Case

HALO is designed for scenarios where:

- Survey data is collected from complex or hard-to-access environments
- Multiple data types (LiDAR, imagery, video) need to be interpreted together
- Teams need to understand spatial conditions rather than individual datasets
- Changes over time must be identified and assessed
- Data must be accessible to non-specialist users for inspection and decision-making

4. Functional Scope (Current)

Data Integration
Import and combine LiDAR, photogrammetry, and video into a single spatial model.

Data Management
Organise datasets across projects, deployments, and time periods.

3D Visualisation
View and inspect spatial environments, including geometry and measurements.

Video Contextualisation
Overlay video onto spatial models with aligned position and orientation.

Change Assessment
Compare datasets over time to identify differences and assess conditions.

Export & Sharing
Export measurements, annotations, and datasets for reporting and collaboration.

5. Configurable / Flexible Elements

HALO is designed to integrate with different data capture workflows and deployment models.

The platform can be adapted to support:

- Different survey inputs (LiDAR sensors, cameras, robotic platforms)
- Project-specific data structures and workflows
- Integration with external processing or storage pipelines

HALO can also be used alongside Subterranean's capture systems, enabling a direct path from data acquisition to spatial analysis. Integration is optional and not required to use the platform.

6. Deployment & Compatibility

- **Application type:** Web-based application
- **Operation:** Accessed via browser; datasets hosted and managed centrally
- **Cloud dependency:** Yes (current deployment model)
- **Compatible inputs:** LiDAR datasets, photogrammetry outputs, and video data (format dependent)
- **Integration:** Compatible with standard survey processing workflows and Subterranean data capture systems

7. Contact & Collaboration

This datasheet describes current and near-term capabilities to support discussions around sales enablement, OEM integration, field trials, and co-development. More detailed specifications can be generated once target use cases are confirmed.

Contact info@subterranean.ie for more information.