

19 MAY 2022

Maximize the Value of 3D Point Cloud Data with an integrated Information Management & Engineering solution in the cloud

Andy Davidson

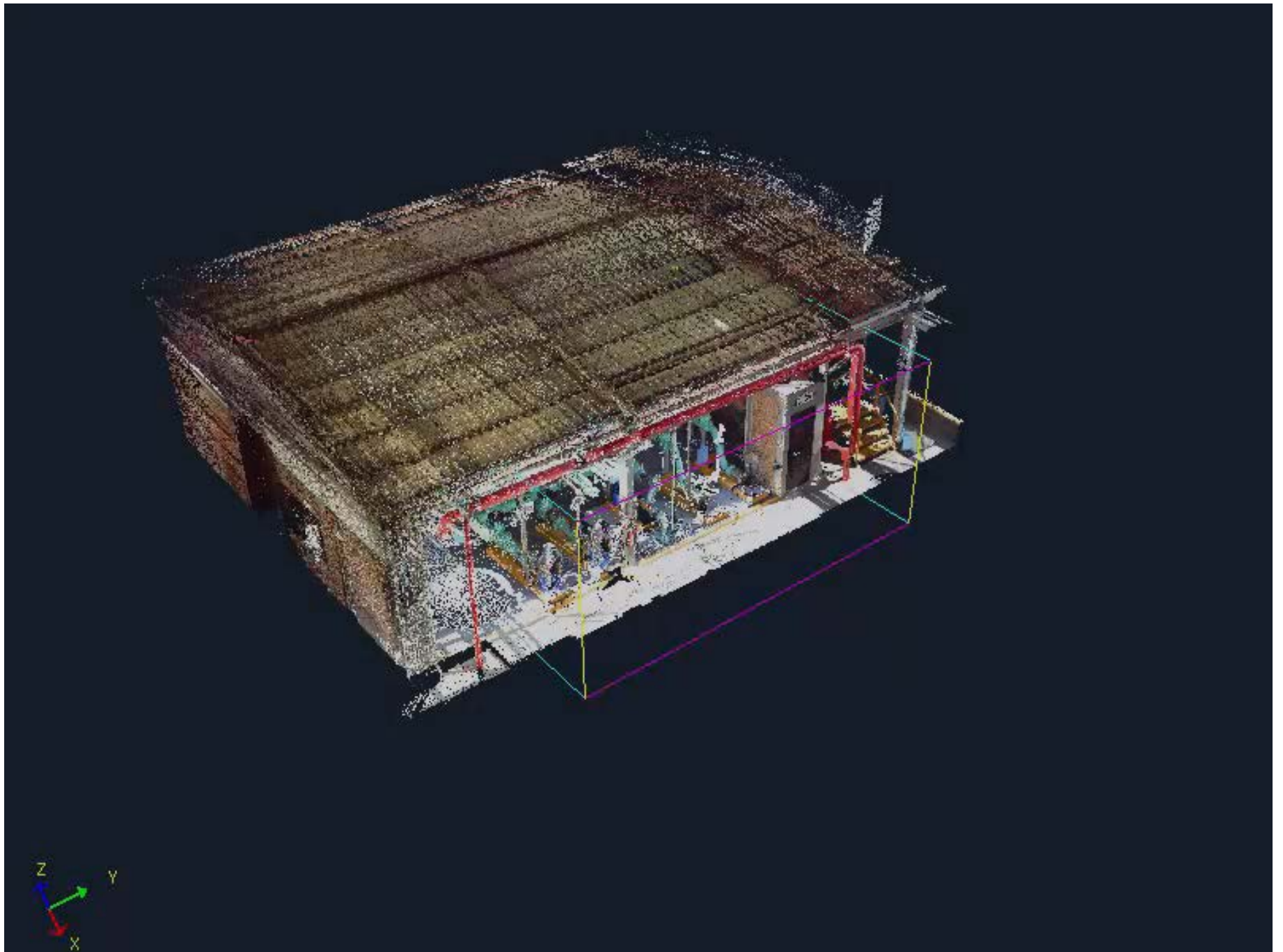
Mark Crombie

AVEVA

Agenda

- What is a point cloud?
- Point Cloud Management
- Asset Visualisation
- Brownfield Engineering
- Summary
- Q&A

What is a Point Cloud?



- Floorplan >
- Datasets >
- 3D Markups >
- Benchmarks >
- Measurements >
- Objects >
- San_Jacinto_College_Revam... ▾



Settings icon (gear)
Screenshot icon (camera)
Fullscreen icon (rectangle)



Why do we Laser Scan?

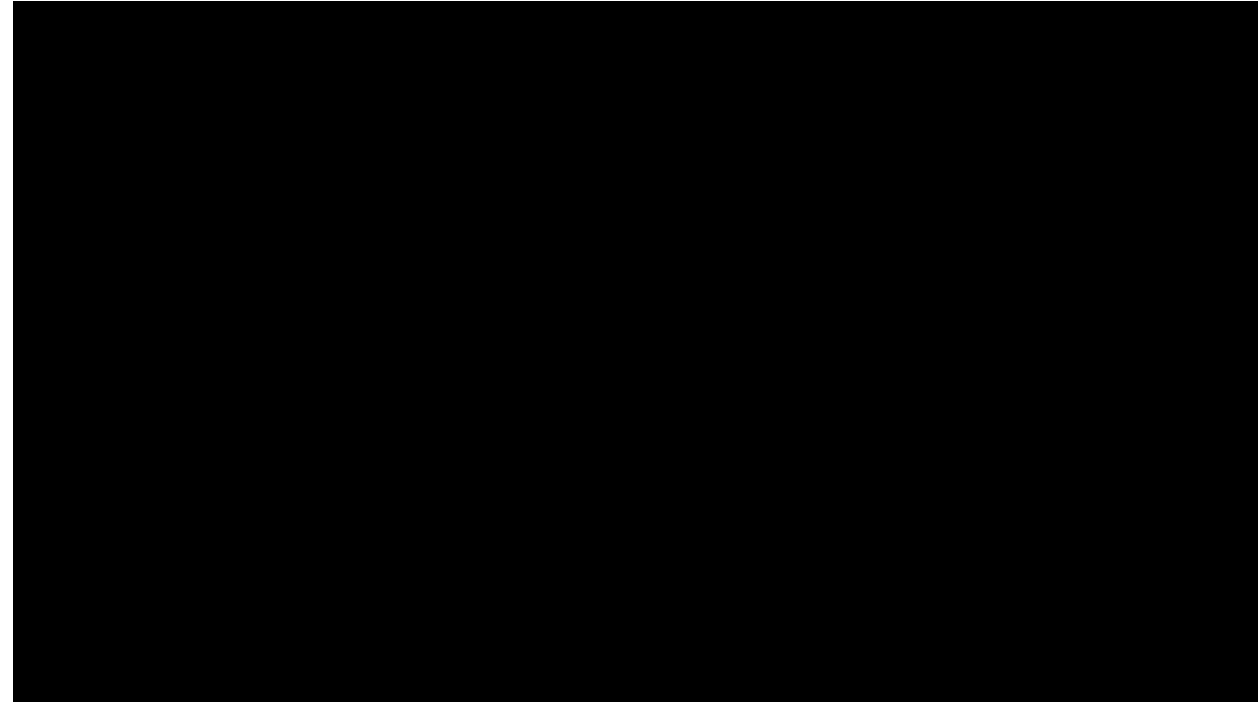
- As assets age, differences between as-built and as-design data develop
- Undiscovered differences lead to wide-ranging consequences
 - Higher re-work costs on revamp projects (*5%-7% on average, up to 15% of project costs, ENR*)
 - Unforeseen project extensions
- Laser Scans provide an opportunity to validate our work/decisions against the true as-built and reduce brownfield project rework



Reality Capture



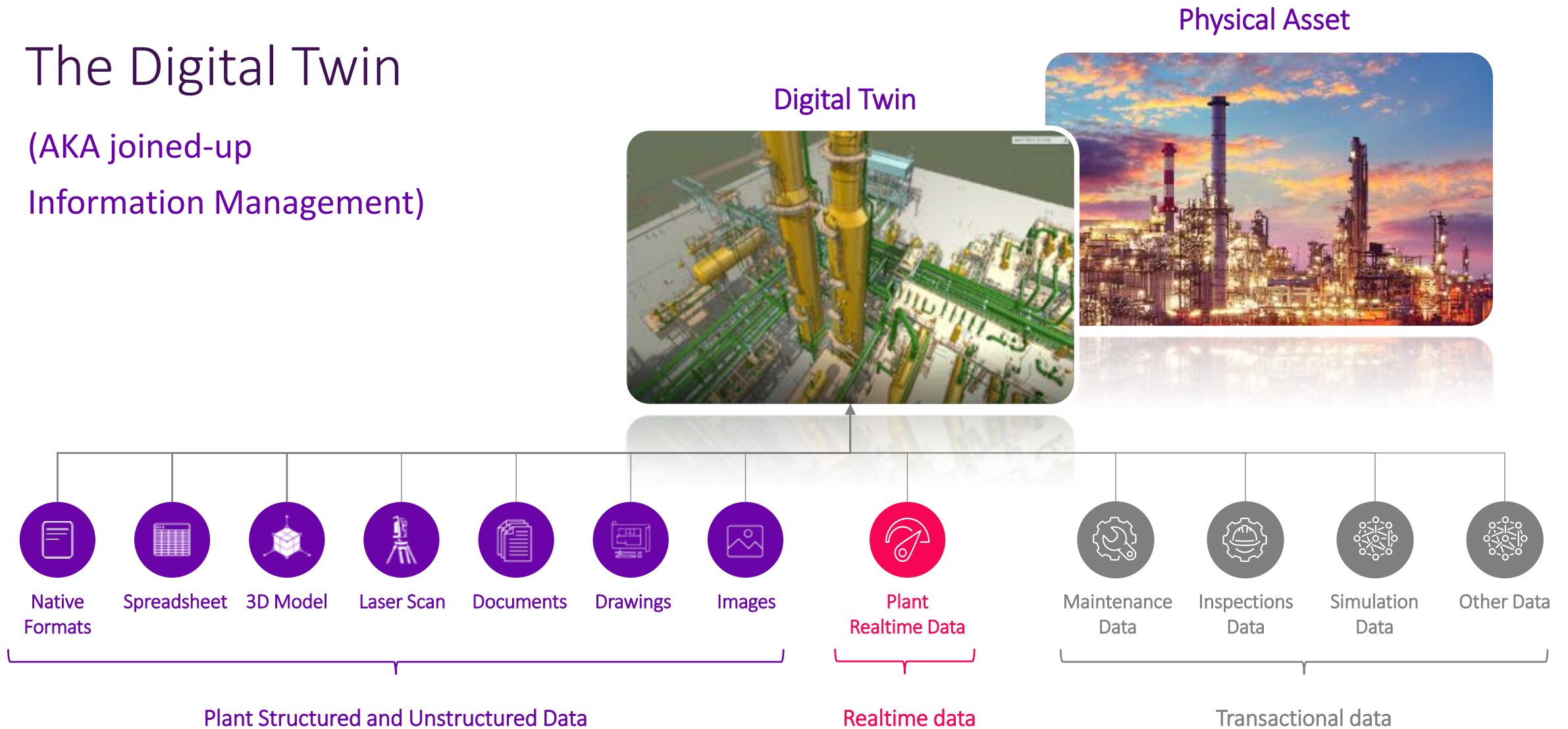
How it Started



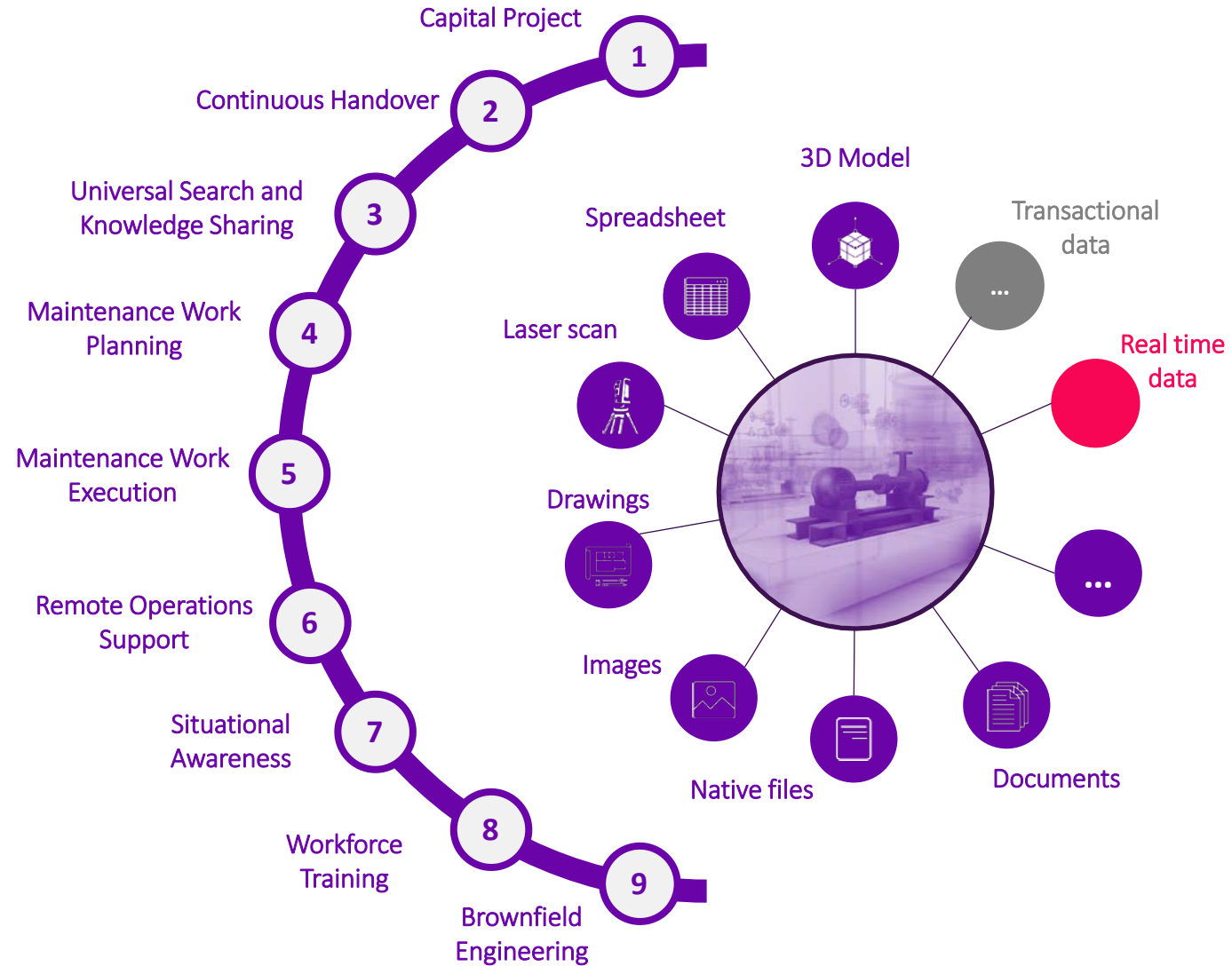
How it's Going

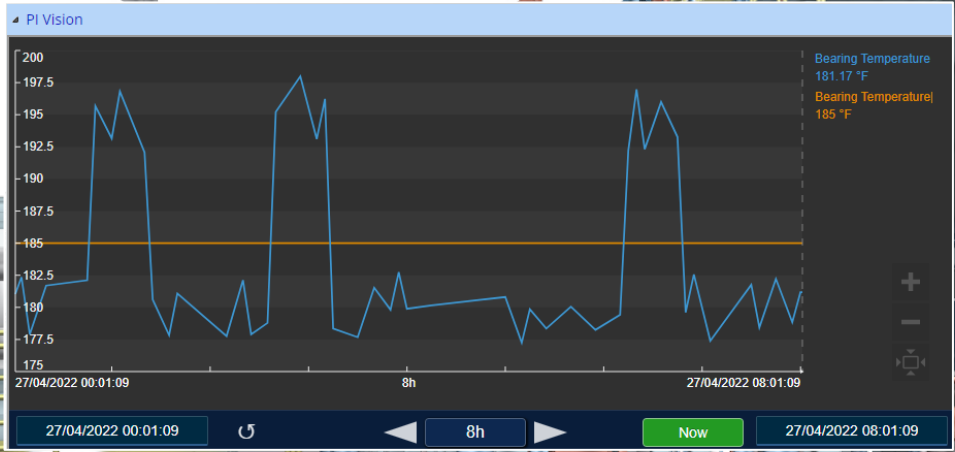
The Digital Twin

(AKA joined-up
Information Management)



Supporting Many Use Cases Across the Asset Lifecycle





P-1053
Equipment

2 Documents



Model



Reset View



Section



Measure



Visual Query



XRay



Collect



Collection





Challenges of Owning Point Cloud Data

The Problem

- Large storage requirements cause pressure from IT to reduce disk usage
- Heavy reliance on on-premise hardware for processing
- Remote teams who need access to large amounts of data
- Sites scanned multiple times leading to pile up of duplicate or fragmented data
- Naming conventions for scan jobs varied throughout group





AVEVA Point Cloud Manager



AVEVA Point Cloud Manager

One unified platform for your 3D captured data

- A single, scalable, multi-tenant platform enabling all stakeholders to work and collaborate effectively on any brownfield data
- A powerful set of highly integrated web-based capabilities
- Providing secure access for employees, clients, contractors and third parties
- A value proposition of a single, extensible, open cloud platform



AVEVA Point Cloud Manager

Asset Visualisation

3



Digital Twin



3D CAD

4

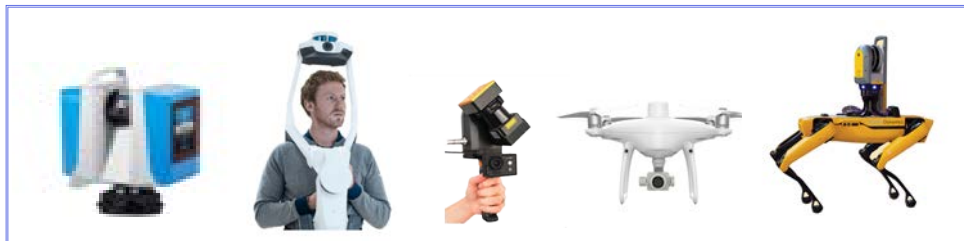
Brownfield Engineering

Scalable and Secure

1

AVEVA Point Cloud Manager on Connect

Secure, Scalable and Open Point Cloud Data
Processing, Storage & Management Platform



Agnostic to Scanning Device and File Format

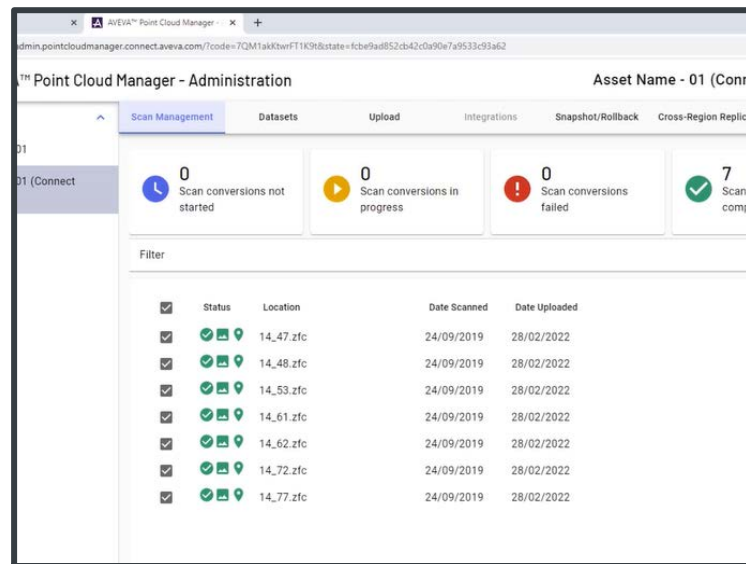
2

Open and Flexible

AVEVA

1. AVEVA Point Cloud Manager on AVEVA Connect

AVEVA Point Cloud Manager is much more than a viewer, it is a secure and scalable point cloud data processing and management platform



Filter	Status	Location	Date Scanned	Date Uploaded
<input checked="" type="checkbox"/>		14_47.zfc	24/09/2019	28/02/2022
<input checked="" type="checkbox"/>		14_48.zfc	24/09/2019	28/02/2022
<input checked="" type="checkbox"/>		14_53.zfc	24/09/2019	28/02/2022
<input checked="" type="checkbox"/>		14_61.zfc	24/09/2019	28/02/2022
<input checked="" type="checkbox"/>		14_62.zfc	24/09/2019	28/02/2022
<input checked="" type="checkbox"/>		14_72.zfc	24/09/2019	28/02/2022
<input checked="" type="checkbox"/>		14_77.zfc	24/09/2019	28/02/2022

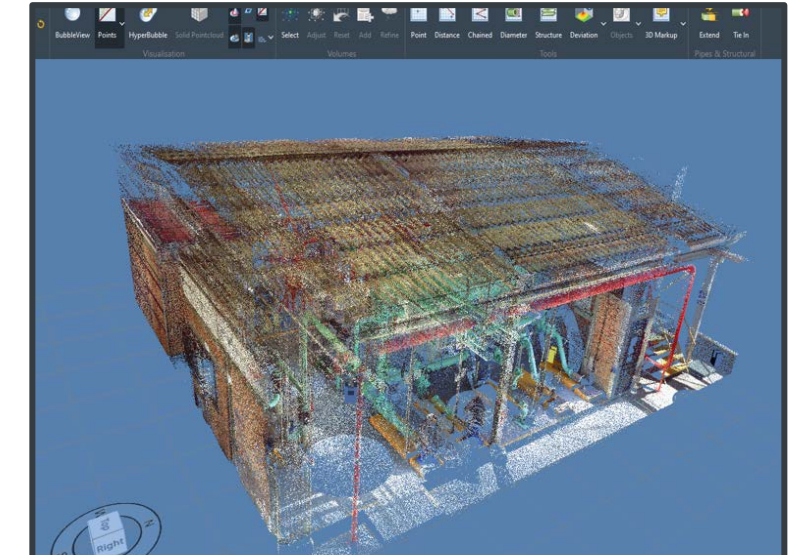
Cloud Native



Secure

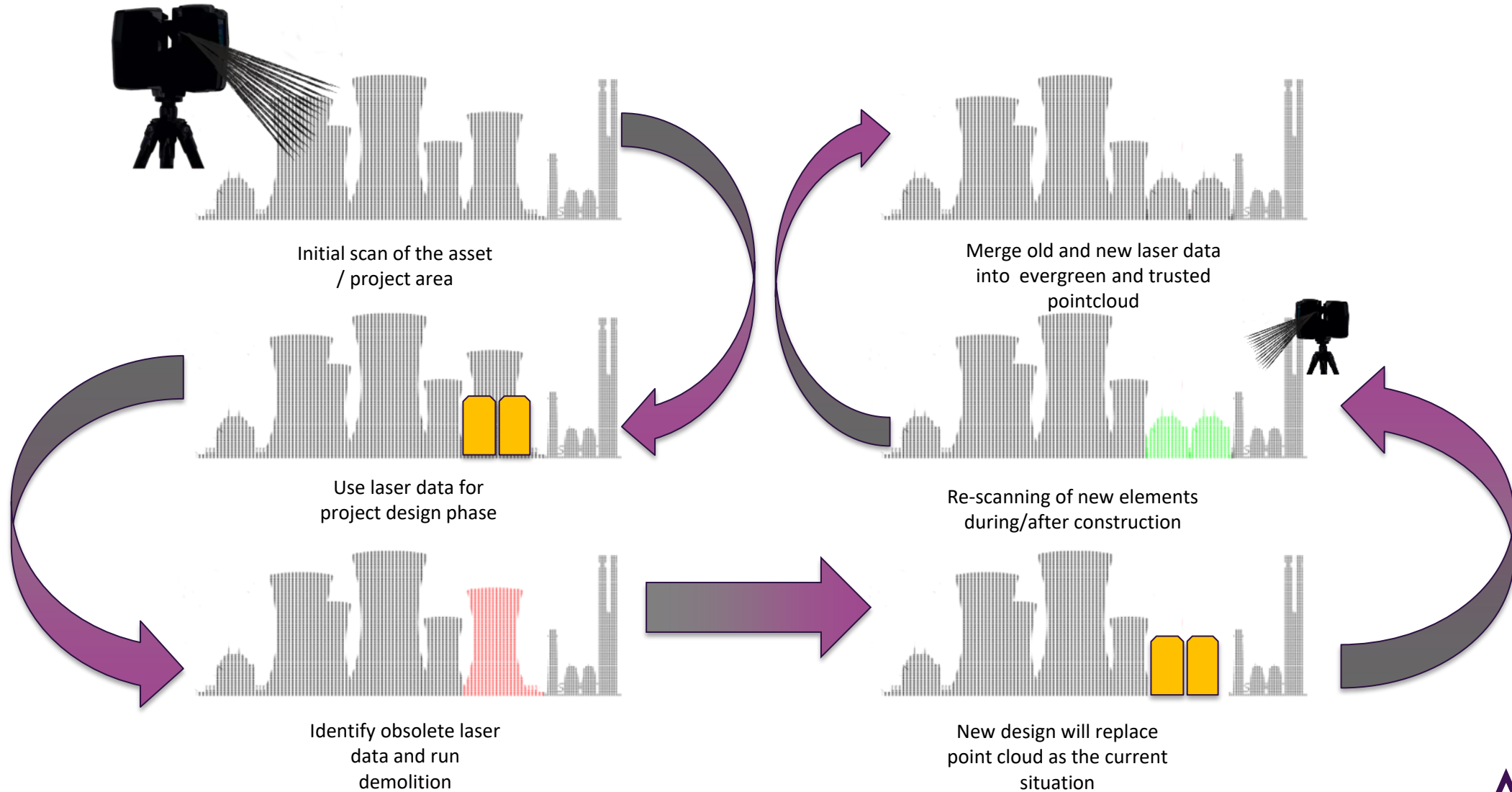


Global



Flexible

Keeping the data evergreen



2. Open to Scanning Device and File Format

Import data from all common scanning devices. All common proprietary and open file formats supported.



NavVis

REVOLUTIONISING REALITY CAPTURE IN THE PROCESS INDUSTRY



NavVis VLX

- A disruptive, step-change, scanning technology facilitating near instant update of the Digital Twin
 - Easy to use - needs little skill
 - Can be done by one person
 - Reduces scan time by 15x

Approach	1000 Scans	Production	Handover	Total
Tripod + on-premise Production	7 days	3 days	3 days	13 days
Wearable + Cloud Production	3 hours	5 hours	1 hour	<1 day



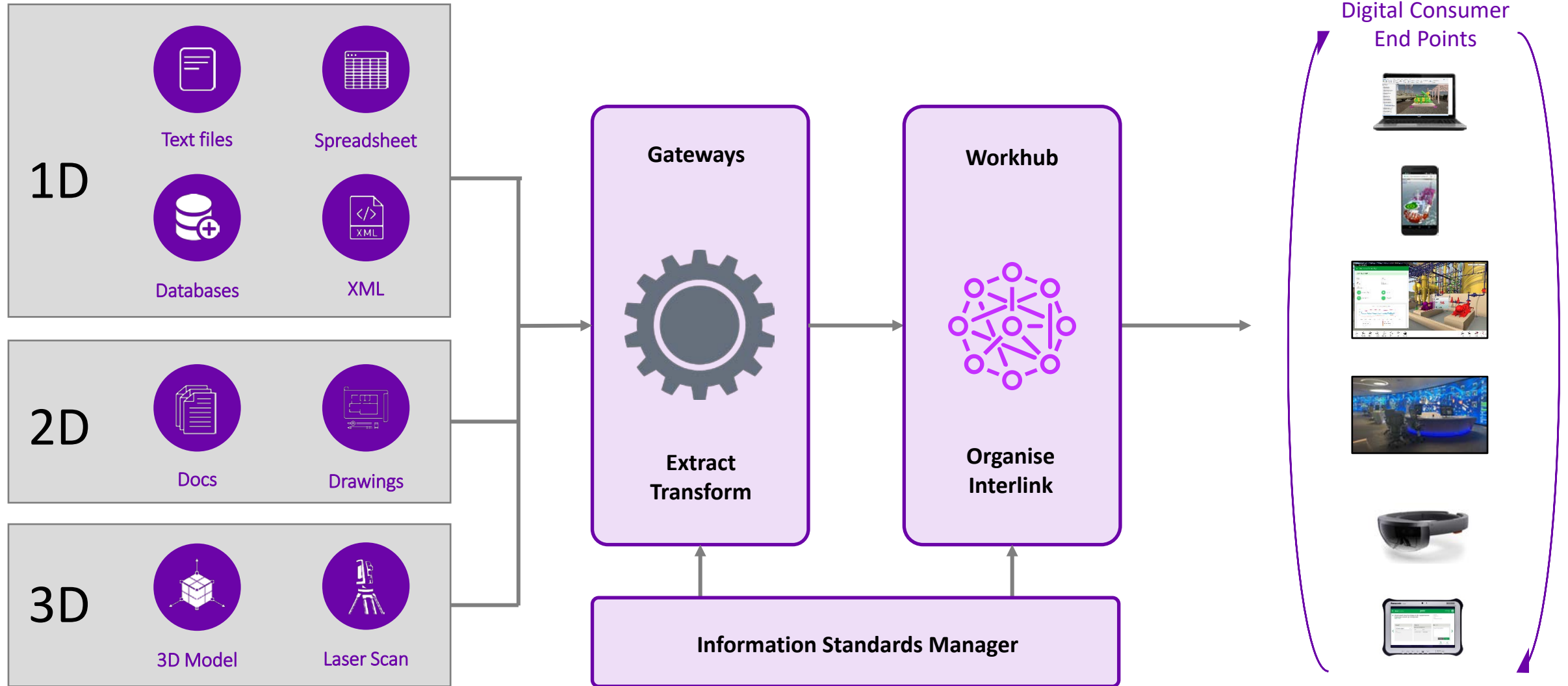
Powerful and effective
Information Management for
Engineering and Operations

Bring together information in multiple formats and from various source systems to create a complete cross-reference index with links to, and associations between, all items in the digital asset.

Provide fast and powerful search capabilities which, combined with its knowledge of tag and document associations, delivers efficient and effective location of information required for decision making.

Automatically extract and maintain tag to tag, tag to document, and document to document relationships. Exploiting this interconnectivity, it provides efficient navigation of the digital assets and aids in the discovery of new insights in your information.

AVEVA Asset Information Management



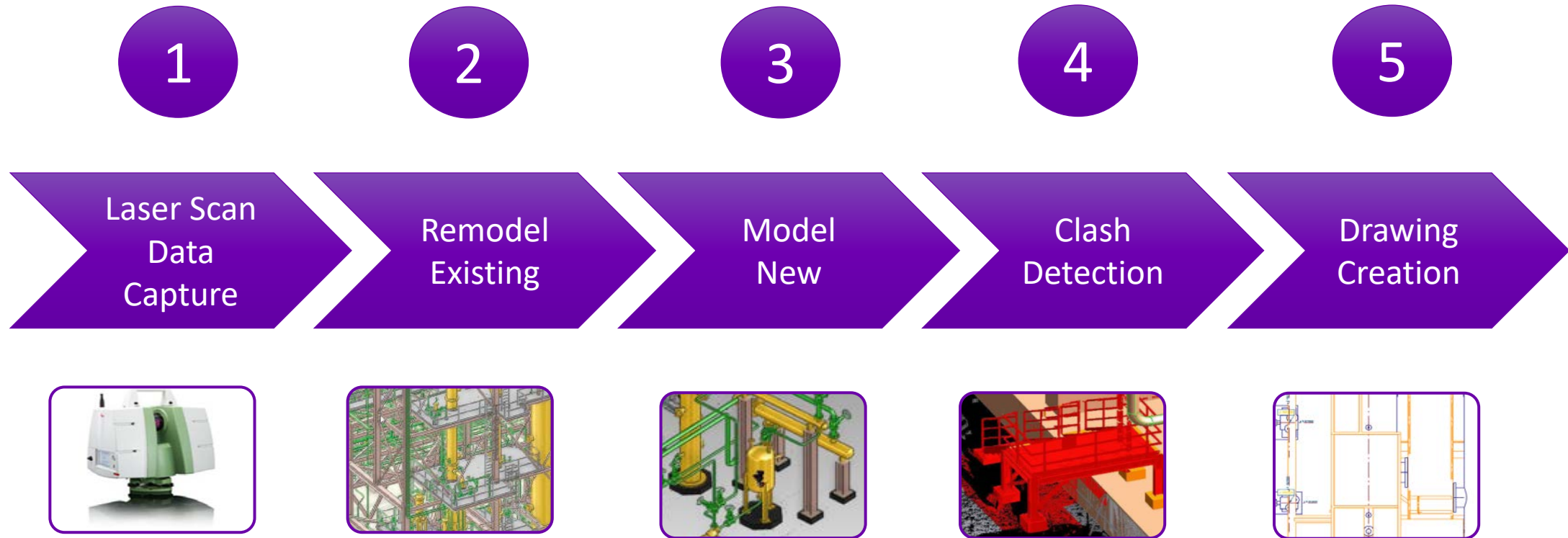


4. Brownfield Engineering

The Problem

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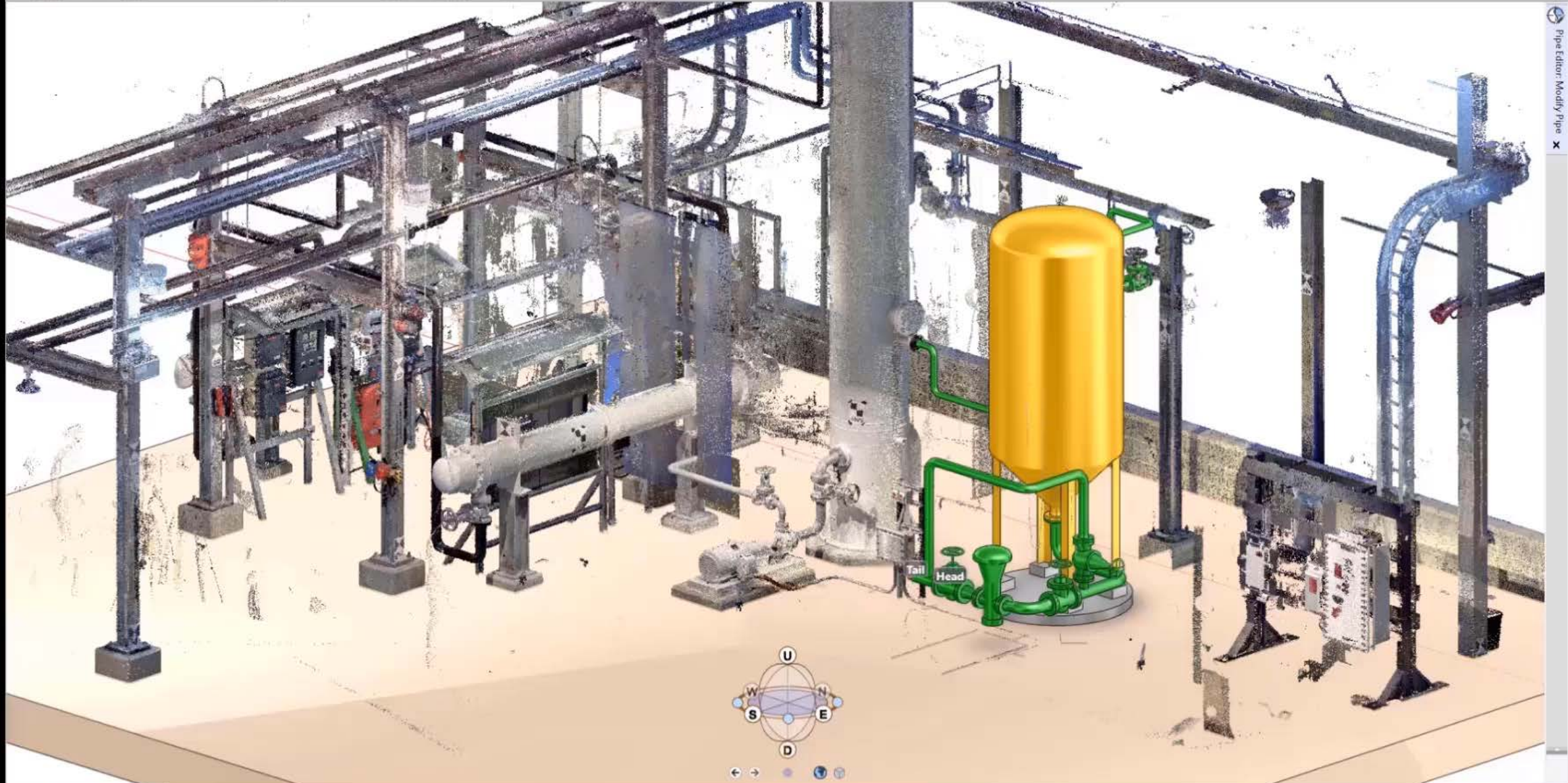
Typical Brownfield Project Workflow



SWS | POWER | Model - AVEVA E3D Design

PROJECT HOME VIEW TOOLS INTERFACES MANAGE DESIGN AIDS GENERAL EQUIPMENT PIPING ADMIN

Copy Copy Offset Copy & Paste Copy Rotation Paste Selection Copy Mirror Create Editor Move Rotate Modify Stretch Mirror Painter Delete Measure Mark Delete Measure Mark Clashes Clash Manager Checker Data Consistency Integrator Search Collections Comments Properties Attributes Object Snaps



GENERAL SHIPS | SHIP | Model - AVEVA Everything3D

HOME VIEW TOOLS MANAGE DESIGN AIDS GENERAL ADMIN

Graphics Colour Copy New Grid Plane Views
Auto-Colour Solid Edges Settings

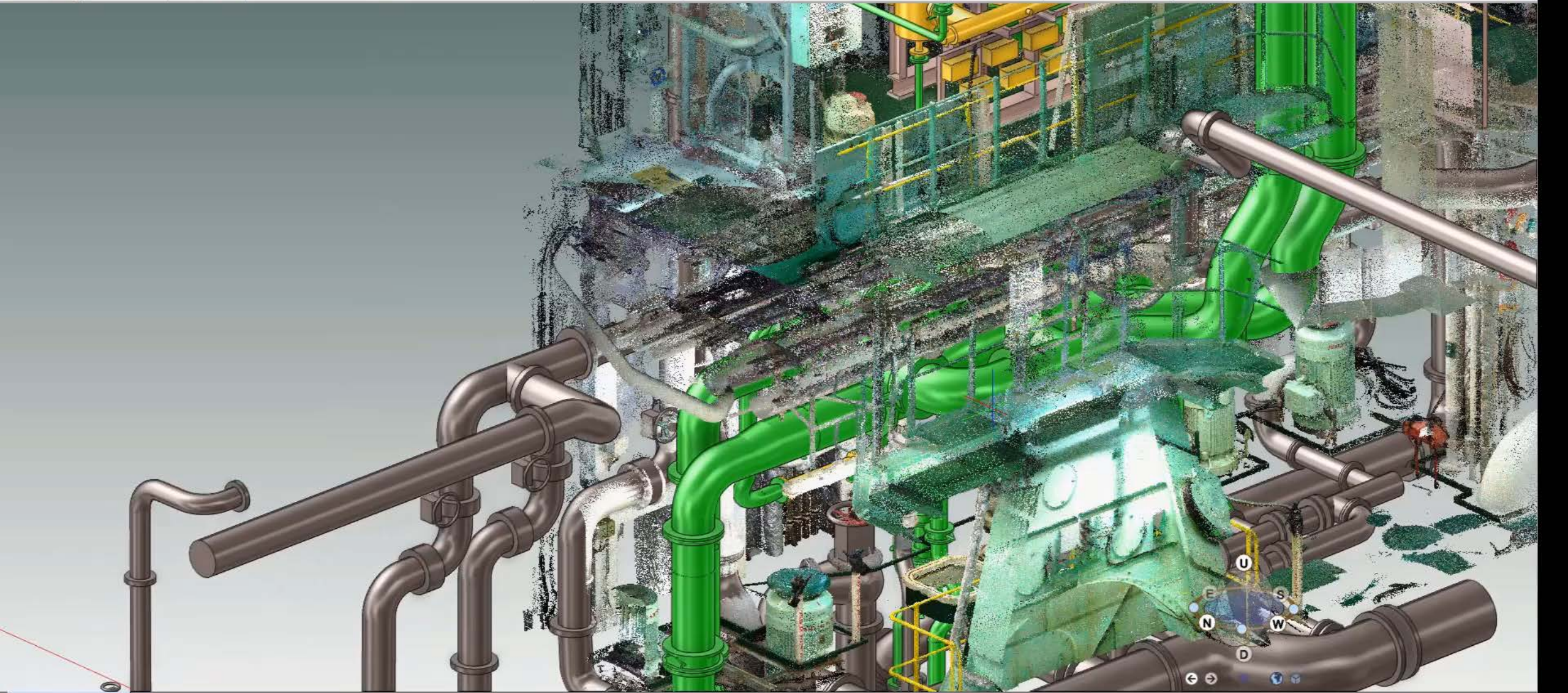
Look Zoom Limits Save Restore Copy Image Centre View Control
Walk Mode Fly Mode

Draw List Remove Hide Content

Add CE Hide World Current Element Coordinate System
Object Move 3 Points Create Clip Add Within Clip Modify Cap

Annotate Dimension Grids Annotations Aids Design Aids
Bubble Low Density Detail Laser Highlight Mask HyperBubble

Show Annotations Terrain Contours



3D View(1) - Drawlist(1)

Navigation and tool icons at the bottom of the interface.

STRUCTURES ProjAPS | ALL | Model - AVEVA Everything3D

PROJECT HOME VIEW TOOLS MANAGE DESIGN AIDS GENERAL SECTIONS PLATES WALLS && FLOORS STAIRS LADDERS && HANDRAILS AVEVA NET ADMIN

Graphics Colour Copy New Grid Plane Views Auto-Colour Solid Edges Settings

Look Zoom Limits Save Restore Copy Image Centre View Control

Walk Mode Fly Mode

Draw List Remove Content

Add CE Hide Tooltips

World Current Element Local Coordinate System

Object Move 3 Points

UV VW UW

Clip Cap Define Clip

Annotate Dimension

Annotations Aids

Display Low Density Mask

Bubble Detail Laser

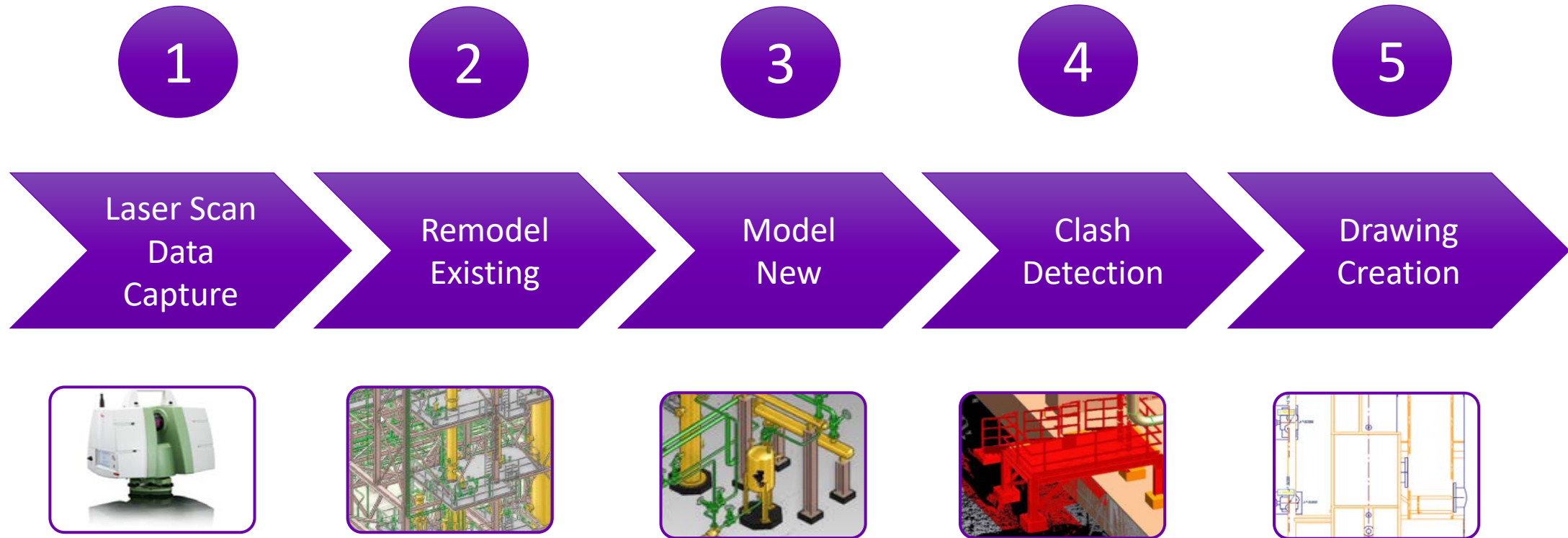


3D View(1) - Drawlist(1) x

No new messages



Typical Brownfield Project Workflow



AVEVA Point Cloud Manager

Asset Visualisation

3



Digital Twin



3D CAD

4

Brownfield Engineering

Scalable and Secure

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Open and Flexible

AVEVA

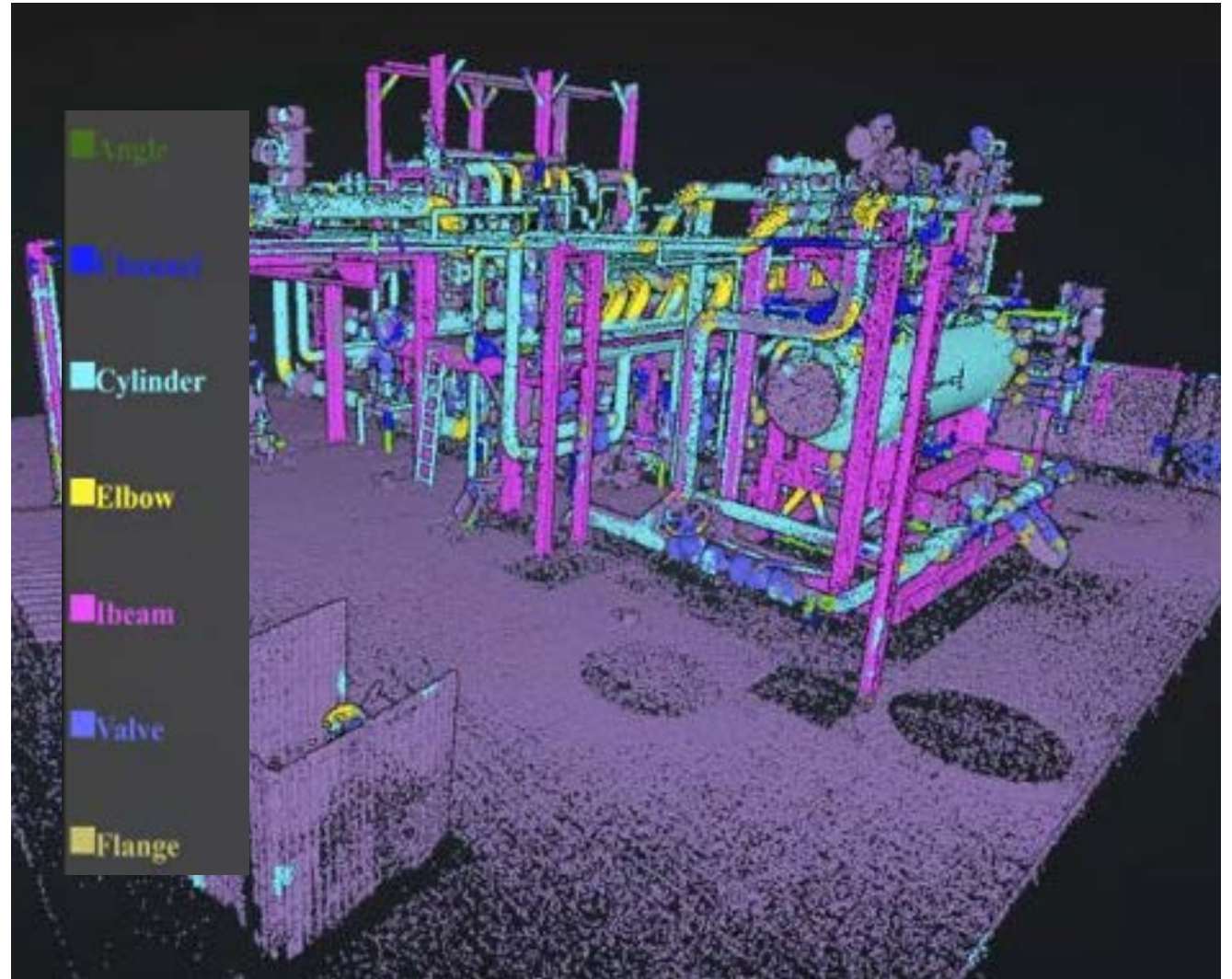


From the Lab

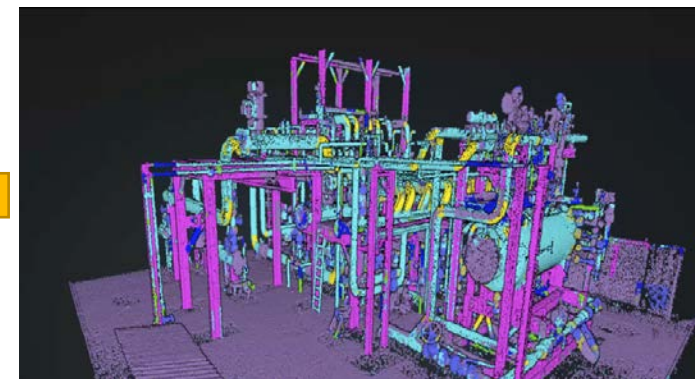
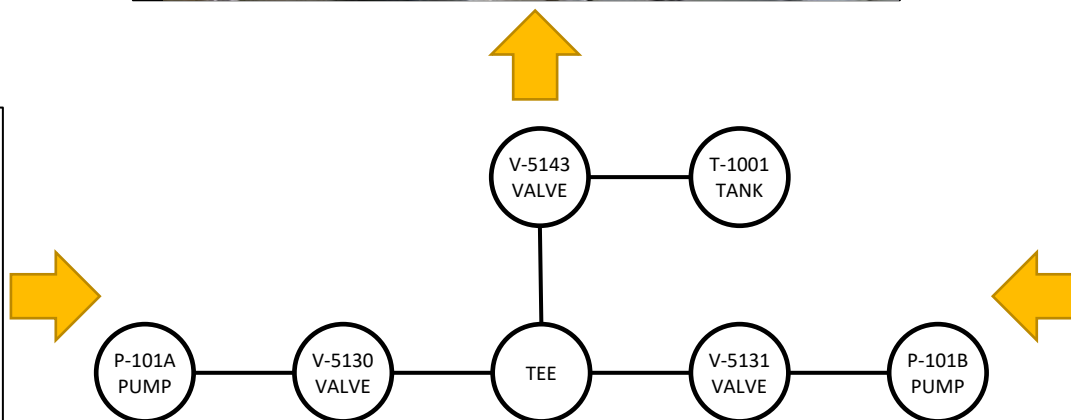
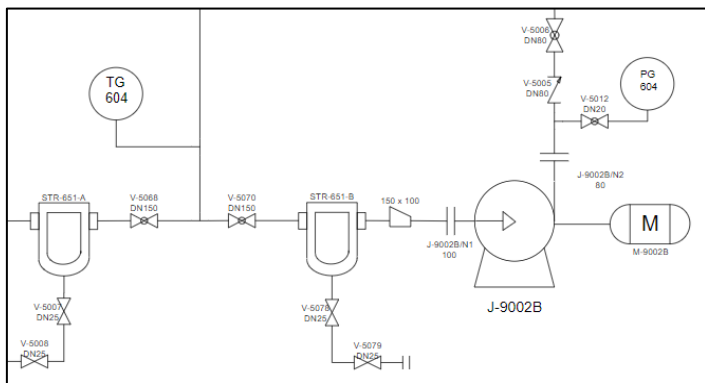
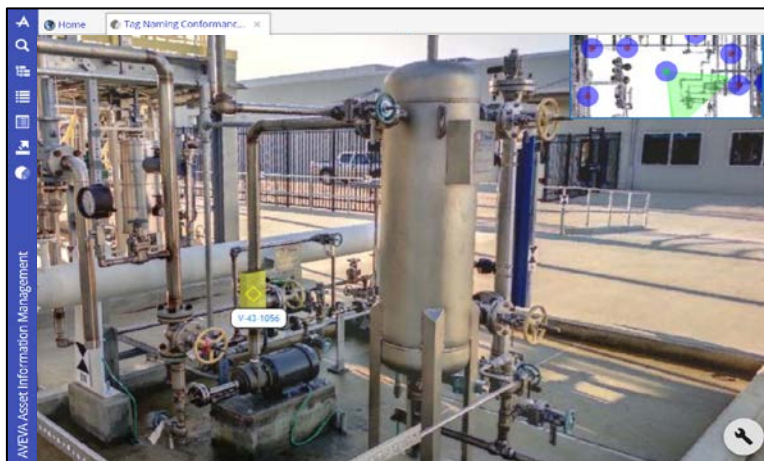
AVEVA

From the Lab: AVEVA's Vision for Intelligent Pointcloud

- Automated classification and tagging of objects identified in 3D point clouds captured from laser scanning an asset
- Intelligently unlock the content of 3D data
- Achieved through “Artificial Intelligence as a Service” which will trawl through Point Cloud data
- Eradicates the pain of manually locating and tagging key items such as vessels, pumps, pipes, valves, etc.



From the Lab: AVEVA's Vision for Intelligent Pointcloud





Summary

AVEVA Point Cloud Manager

EFFICIENCY



“AVEVA PCM on AVEVA Connect can help us to save almost **14,000 hours** on our 400 modification projects per year”
- **Global EPC**

ACCURACY



“Construction times cut by **25%** through using laser scanning to ensure **accurate retrofit**”
- **BLOM Maritime**

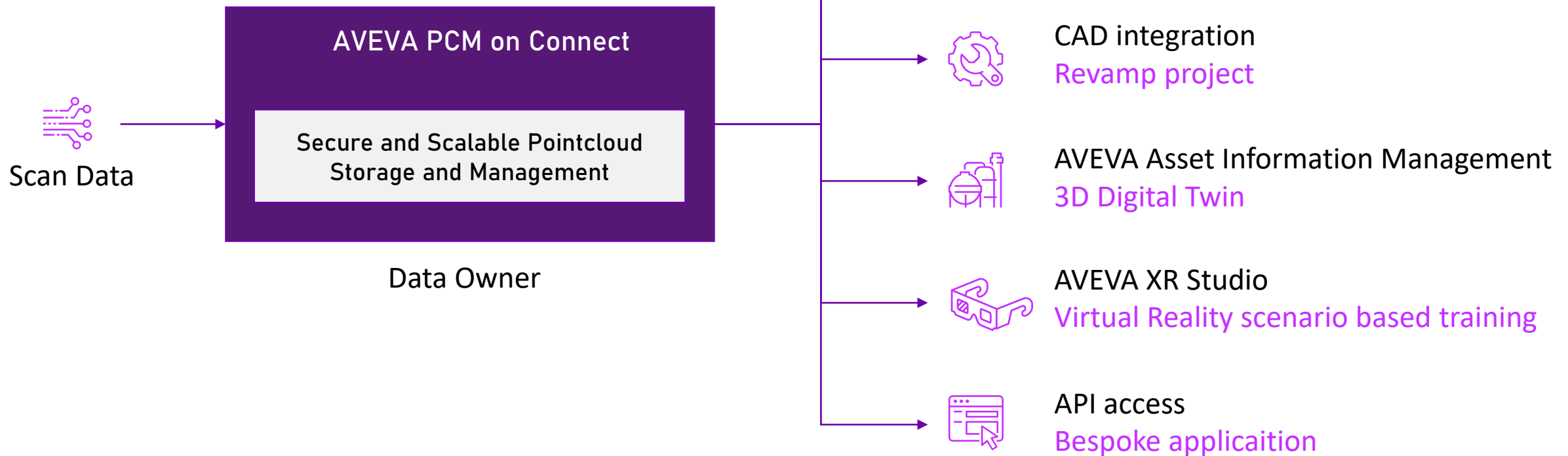
FLEXIBILITY



“With several **hundred TBs** of data our infrastructure is reaching its capacity limits. AVEVA PCM removes this challenge with its **unlimited scale**”
- **Global Chemical Company**

Stakeholders Environment

3D Data & Reality Capture



Questions?

Please wait for the microphone

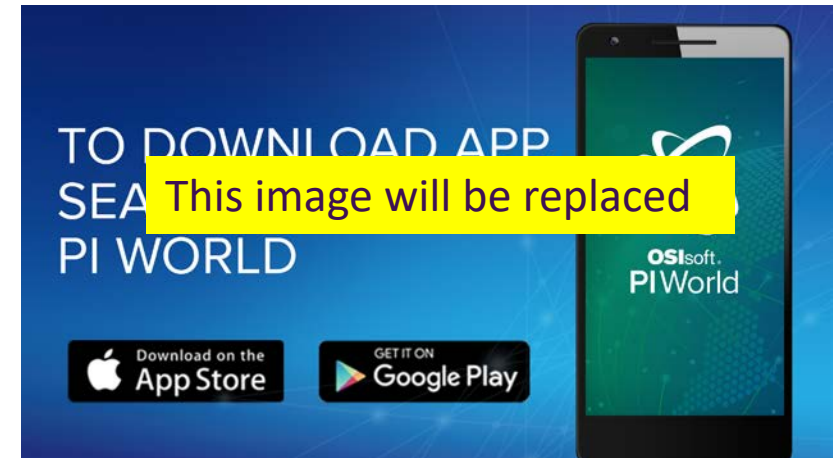
- State your name and company



Please remember to...

Complete the survey!

- Navigate to this session in the mobile agenda for the survey





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Learn more at www.aveva.com