Sellafield is going Digital

October 2020

Sellafield Ltd

Introductions

- Neil Picthall: Enterprise Asset Management Programme Manager / Digital Transformation Lead
- John Robison: Head of Digital Engineering Capability
- Laura Johnson: Strategy & Technical, Decommissioning

Digital Introduction

- Our Digital journey hasn't just started, we have embraced technology and new ways of working for years.
- We use robotics to support our decommissioning programmes, business analytics to model performance outcomes and Geospatial information to manage our site.
- But we recognised as part of our enterprise transformation that we could go much further to drive acceleration and efficiency.
- We actually started with informed decision making as the driver, which as we learnt more became – Digital Transformation.
- We have been on a significant journey over the past 3 years.

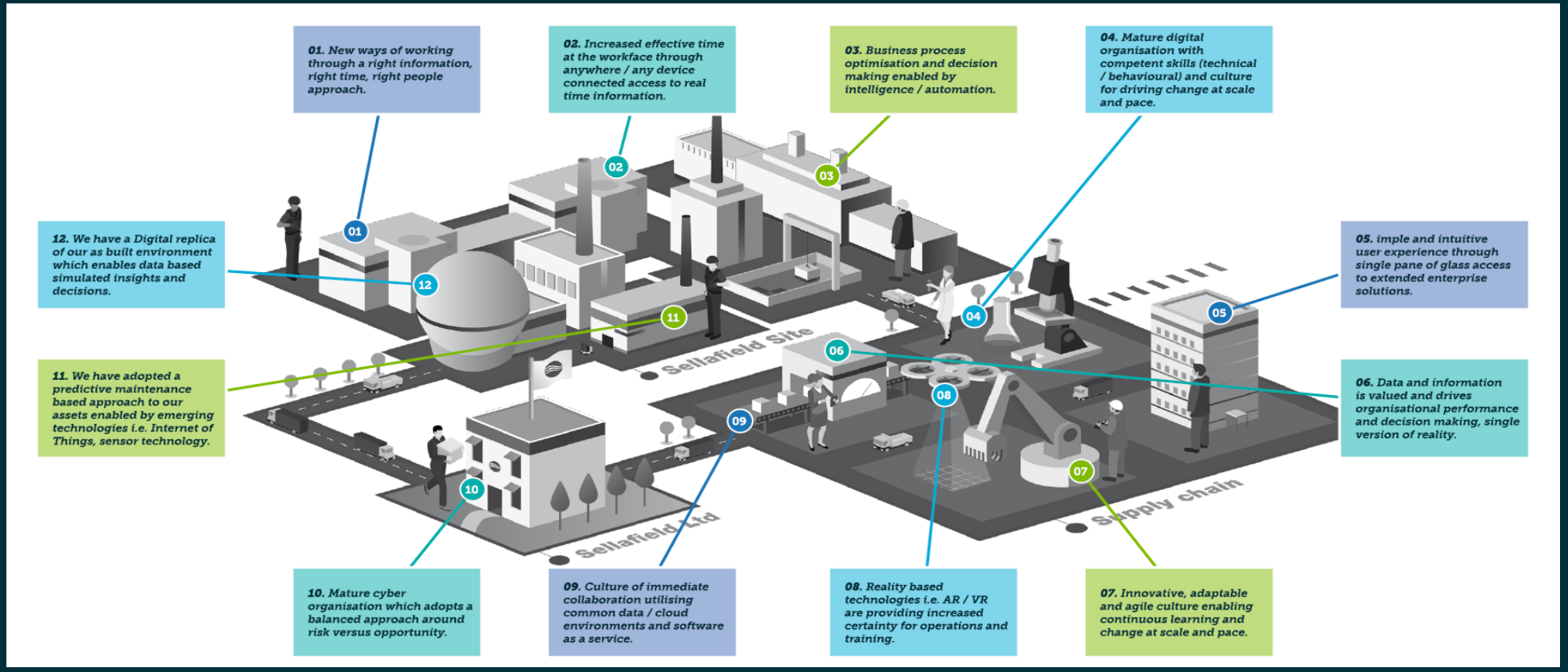
Digital Journey

- Horizon scanned and benchmarked the ‘art of the possible’.
- Engaged across the business on a ‘strat-hack’ to determine how Digital can enable improved performance outcomes.
- Defined ‘Digital’ for Sellafield – what does it mean for us.
- Launched a number of ‘proof of concepts’ to identify opportunities, benefits and to show stakeholders the ‘art of the possible’.
- Developed our 1st Digital Strategy early 2020.

Our Vision for a Digital Sellafield

Our vision is for a Digitally Connected Sellafield, which transforms the way we work to achieve our commitments of safer, faster and cheaper delivery

So what does a Digitally Connected Sellafield mean? Let's step forward 5 years to 2024 these are some of the visible changes we will see as we progress our Digital Maturity...



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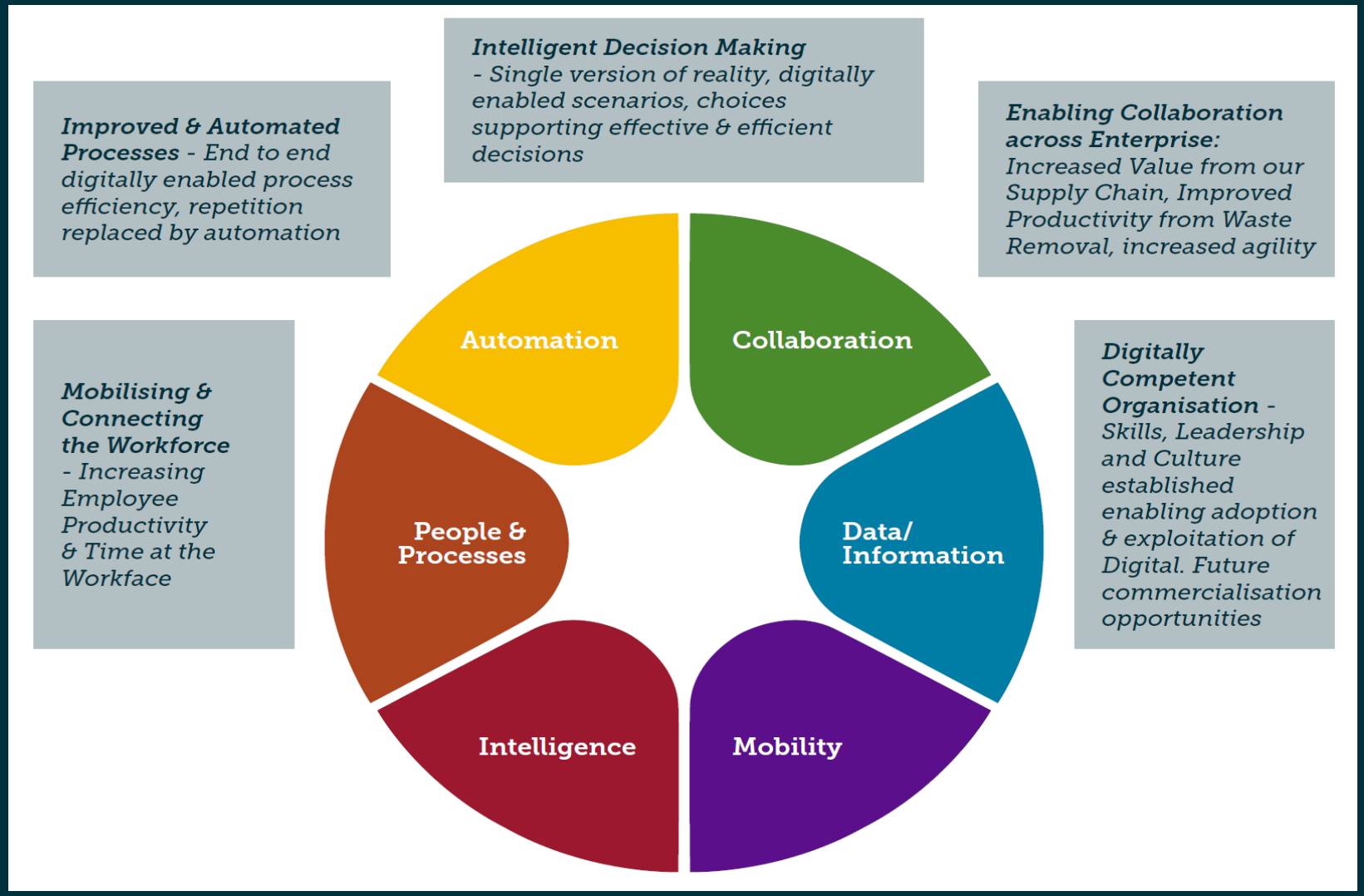
Five Digital Objectives & Six Digital Themes



Digital Deployment Model

- Our deployment model for Digital is enterprise wide.
- Deployed through business plans, business capabilities and change programmes.
- Three specific areas of focus for today

    1. Enterprise Asset Management
    2. Digital Engineering Capability
    3. Digital in Decommissioning

Enterprise Asset Management Programme

- Persona led development.
- Data & Information Management standards and governance.
- Digital Twin ‘Proof of Concepts’.
- Retrofit BIM for Legacy Assets.
- Operational Management Platform assessment.
- BIM model exploitation into Operations.
- Robotic Process Automation for work orders.

Sellafield Going Digital:

Project Delivery

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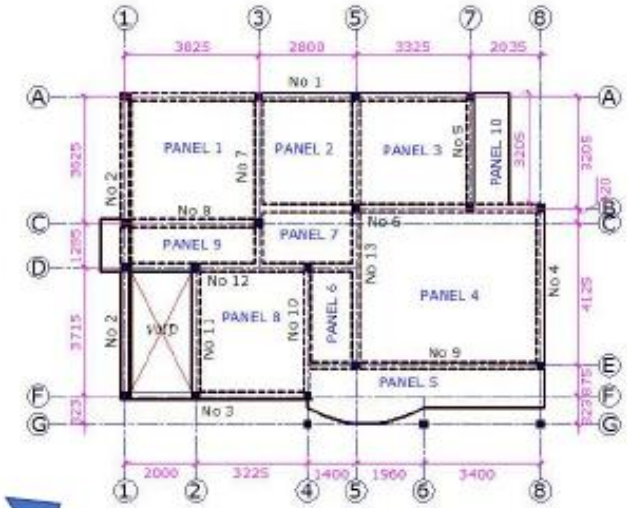
We have changed before


PANEL 1
PANEL 2
PANEL 3
PANEL 4
PANEL 5
PANEL 6
PANEL 7
PANEL 8
PANEL 9
PANEL 10
No 1
No 2
No 3
No 4
No 5
No 6
No 7
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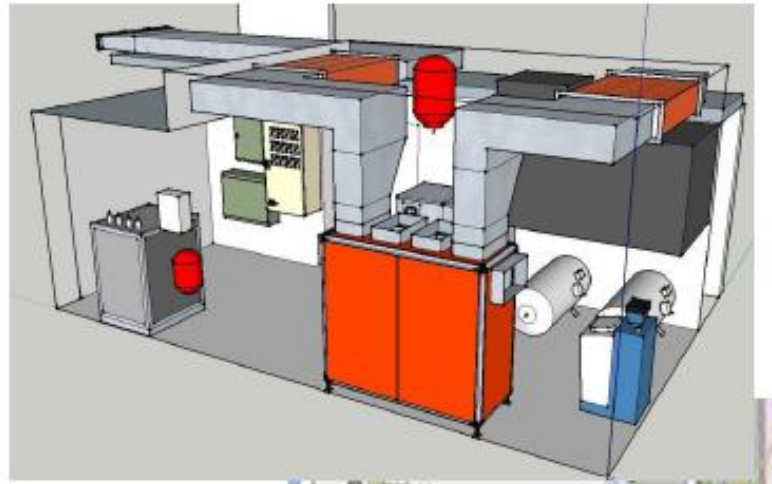
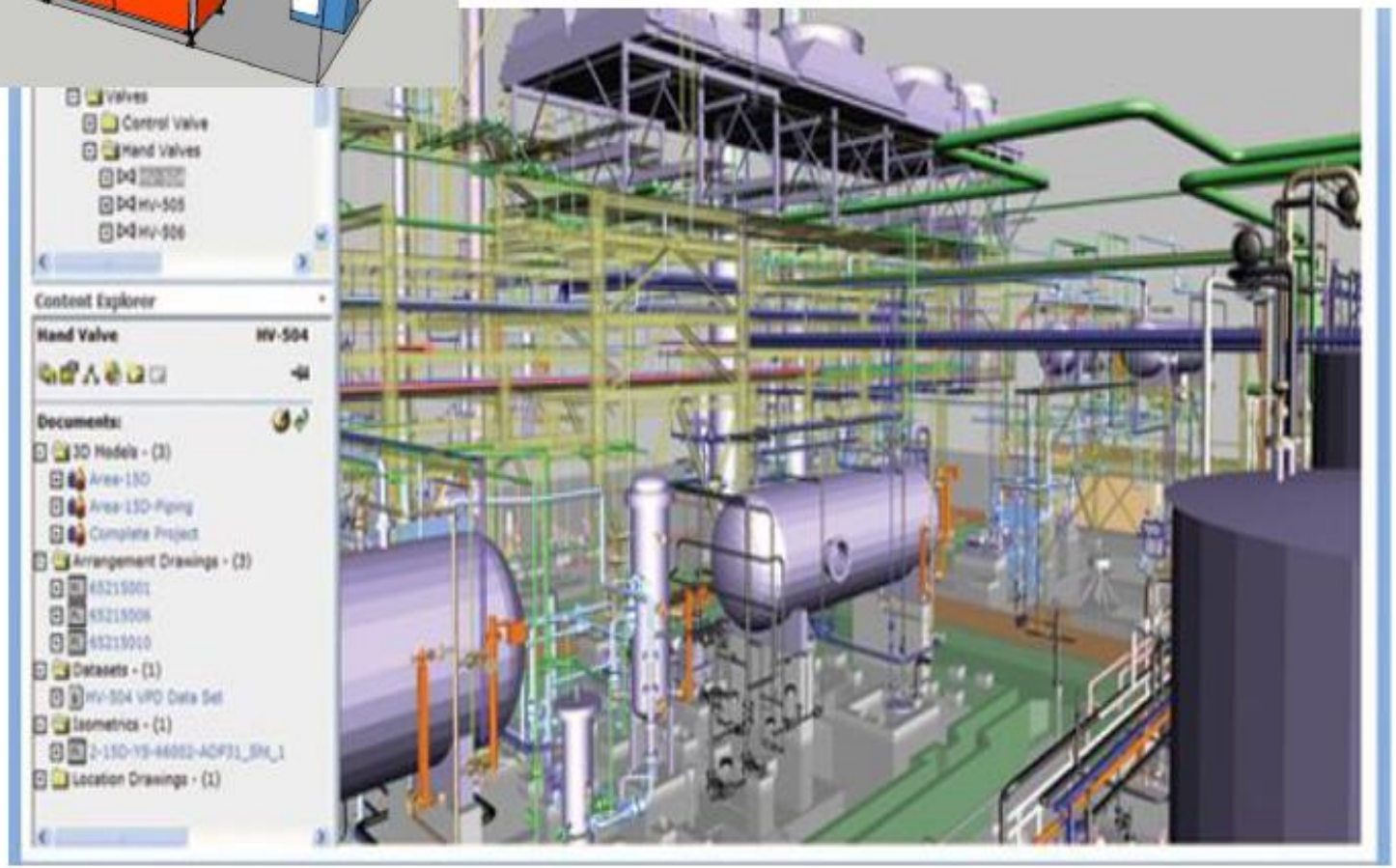
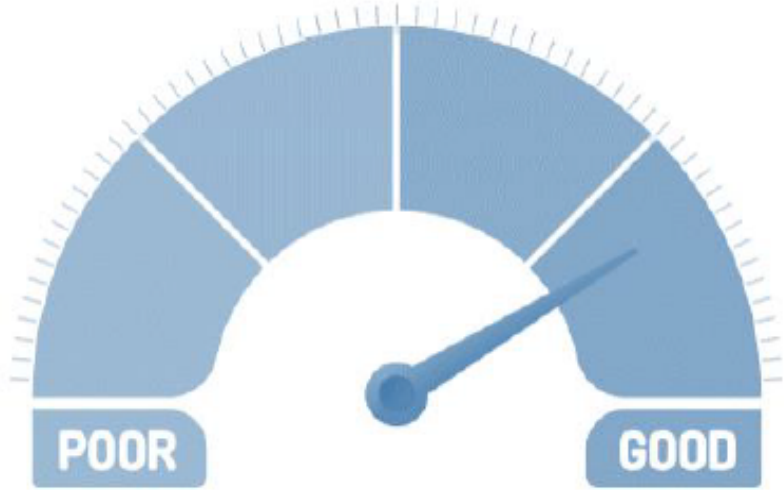
No 10
No 11
No 12
No 13
VOID




Valves
Control Valve
Hand Valves
HV-505
HV-506
Content Explorer
Hand Valve
HV-504
Documents:
3D Models - (3)
Area-15D
Area-15D-Piping
Complete Project
Arrangement Drawings - (3)
Datasets - (1)
HV-504 VPD Data Set
Isometrics - (1)
Location Drawings - (1)

Engineer
Procure
Construct



Efficiency

Communication

Automation

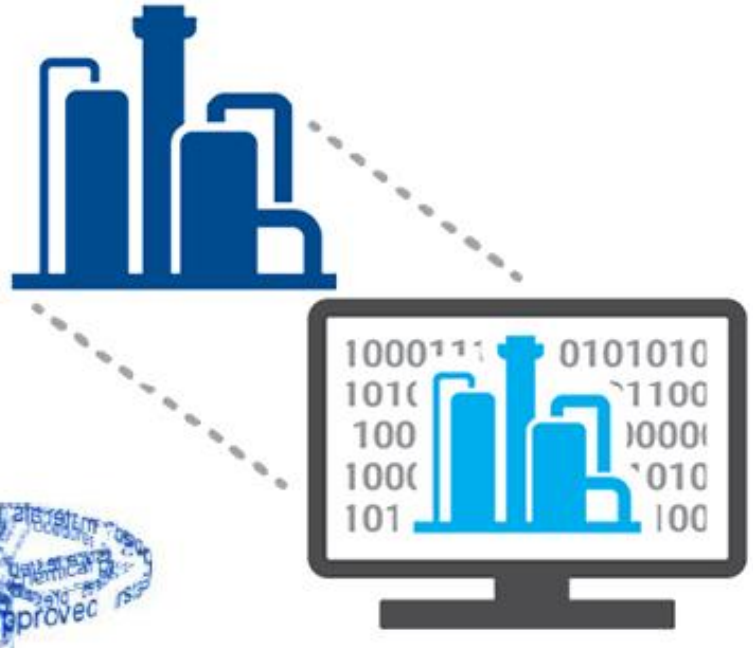
Collaboration

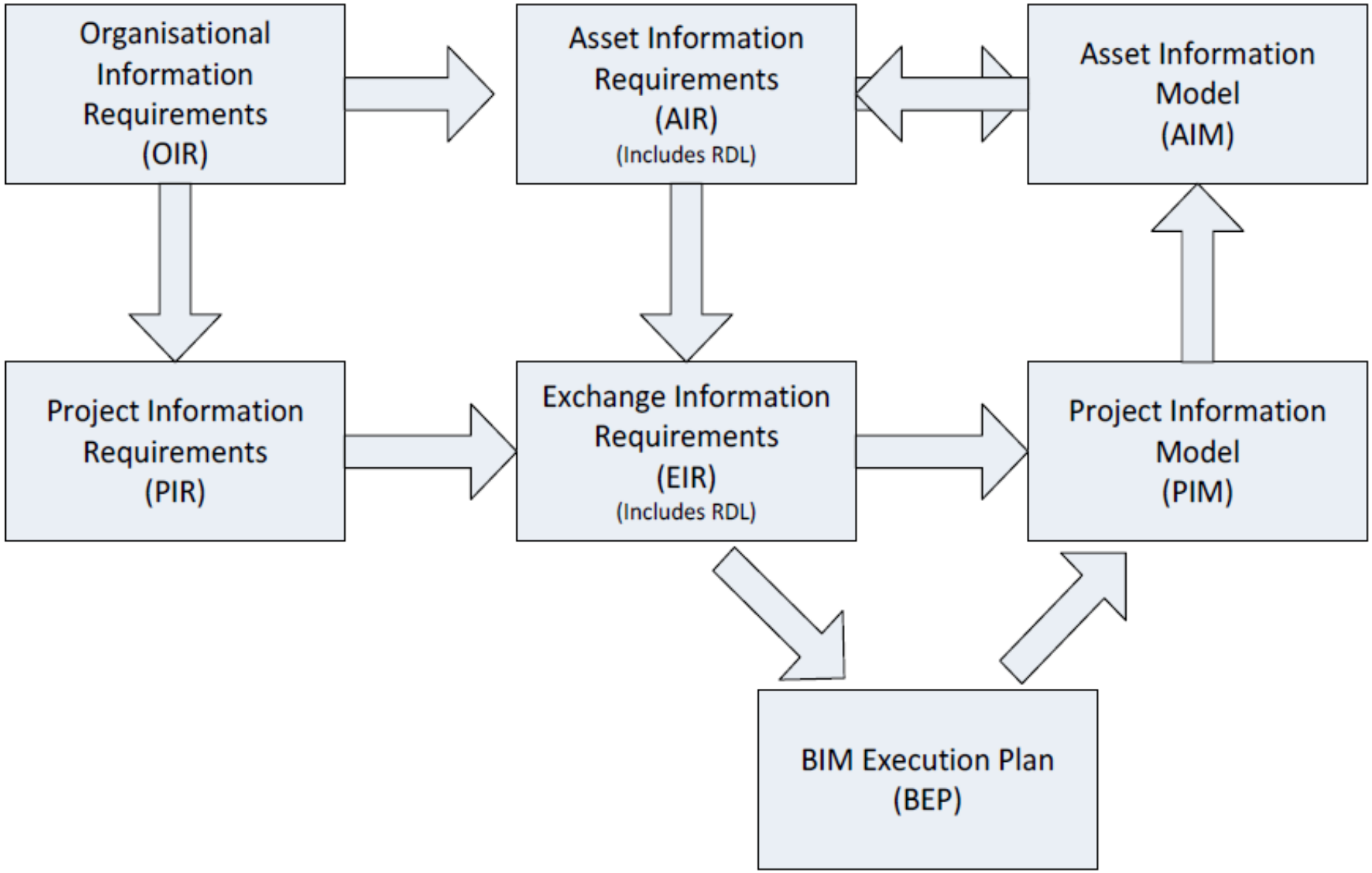
Digital Twin

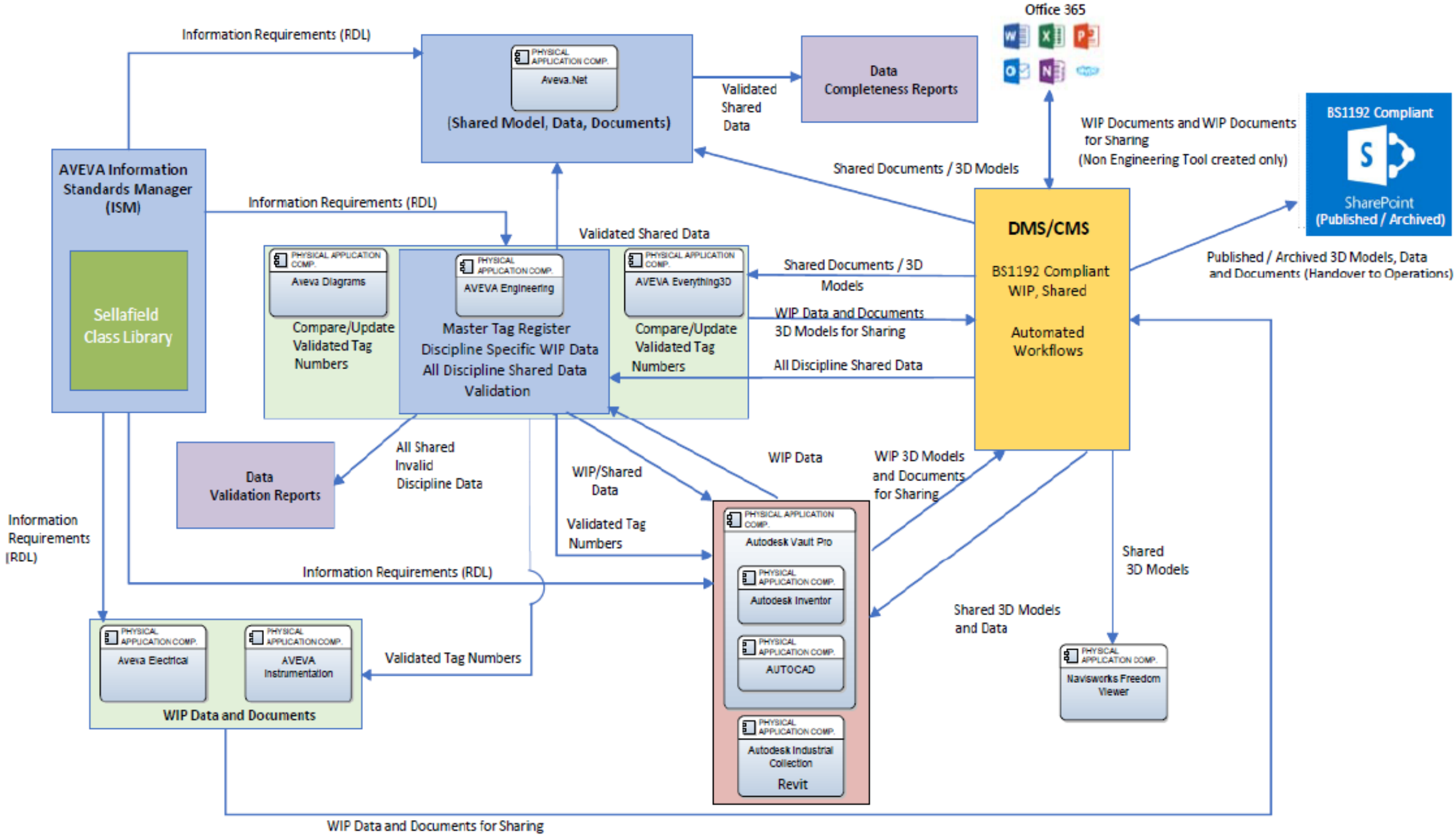
For every Physical Asset …

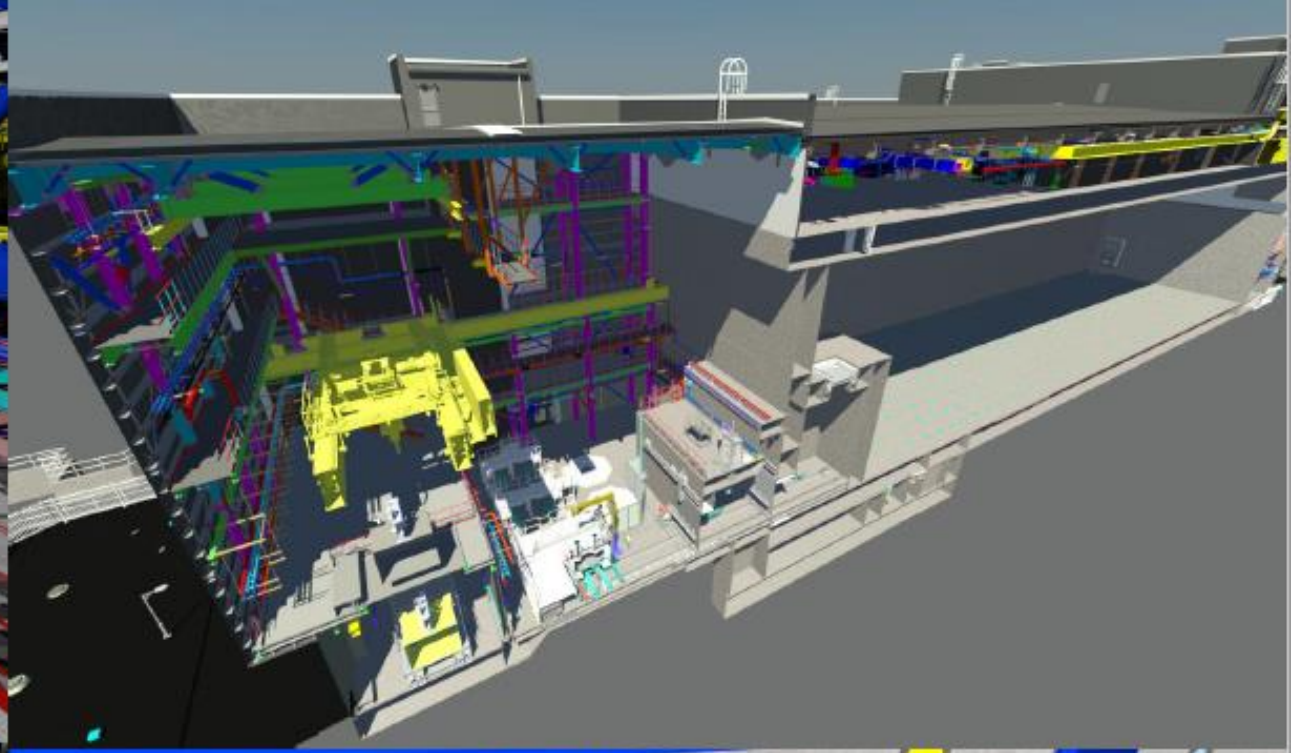
there must exist a Digital Asset …

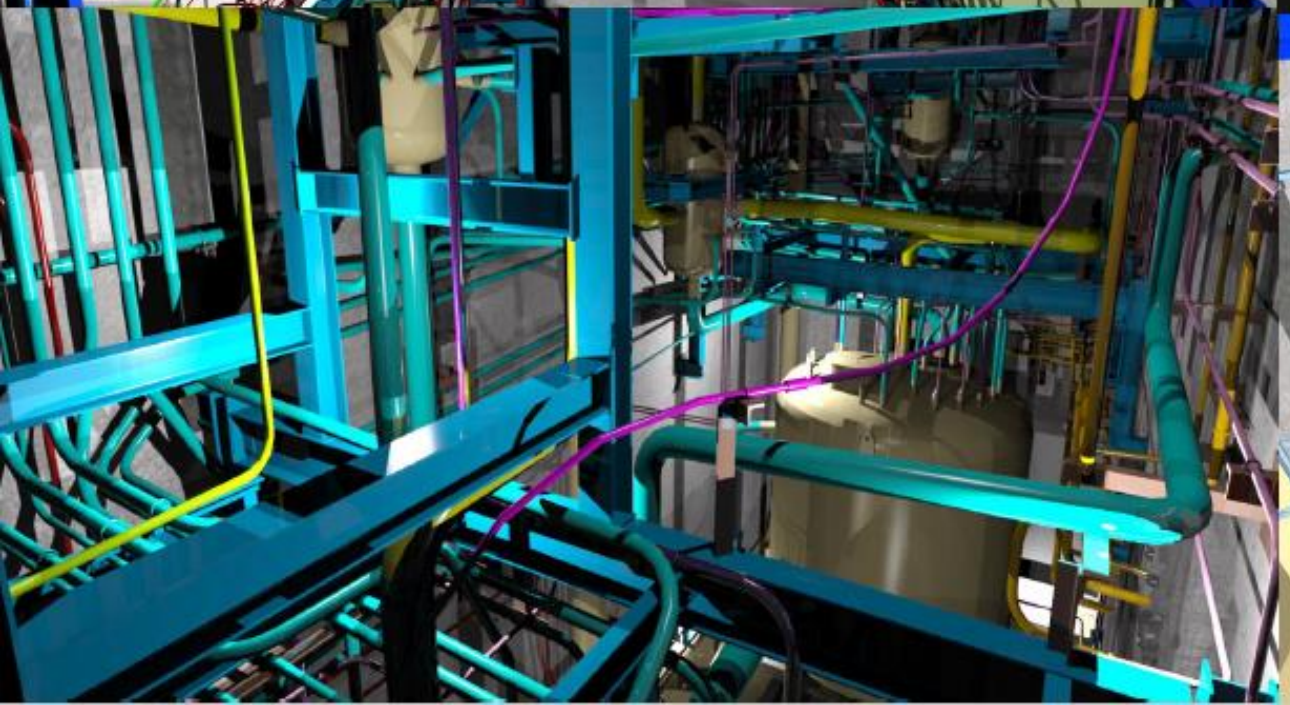
as operated & easily accessible




Organisational Information Requirements (OIR)
Asset Information Requirements (AIR) (Includes RDL)
Asset Information Model (AIM)
Project Information Requirements (PIR)
Exchange Information Requirements (EIR) (Includes RDL)
Project Information Model (PIM)
BIM Execution Plan (BEP)


Office 365
Information Requirements (RDL)
PHYSICAL APPLICATION COMP.
Aveva.Net
(Shared Model, Data, Documents)
Validated Shared Data
Data Completeness Reports
BS1192 Compliant
SharePoint
(Published / Archived)
WIP Documents and WIP Documents for Sharing
(Non Engineering Tool created only)
Shared Documents / 3D Models
AVEVA Information Standards Manager (ISM)
Sellafield Class Library
Information Requirements (RDL)
Validated Shared Data
DMS/CMS
BS1192 Compliant WIP, Shared
Automated Workflows
Published / Archived 3D Models, Data and Documents (Handover to Operations)
PHYSICAL APPLICATION COMP.
Aveva Diagrams
Compare/Update Validated Tag Numbers
PHYSICAL APPLICATION COMP.
AVEVA Engineering
Master Tag Register
Discipline Specific WIP Data
All Discipline Shared Data Validation
PHYSICAL APPLICATION COMP.
AVEVA Everything3D
Compare/Update Validated Tag Numbers
Shared Documents / 3D Models
WIP Data and Documents 3D Models for Sharing
All Discipline Shared Data
Data Validation Reports
All Shared Invalid Discipline Data
WIP/Shared Data
WIP Data
WIP 3D Models and Documents for Sharing
Validated Tag Numbers
Information Requirements (RDL)
PHYSICAL APPLICATION COMP.
Autodesk Vault Pro
PHYSICAL APPLICATION COMP.
Autodesk Inventor
PHYSICAL APPLICATION COMP.
AUTOCAD
PHYSICAL APPLICATION COMP.
Autodesk Industrial Collection
Revit
Shared 3D Models
Shared 3D Models and Data
PHYSICAL APPLICATION COMP.
Navisworks Freedom Viewer
Information Requirements (RDL)
PHYSICAL APPLICATION COMP.
Aveva Electrical
PHYSICAL APPLICATION COMP.
AVEVA Instrumentation
Validated Tag Numbers
WIP Data and Documents
WIP Data and Documents for Sharing





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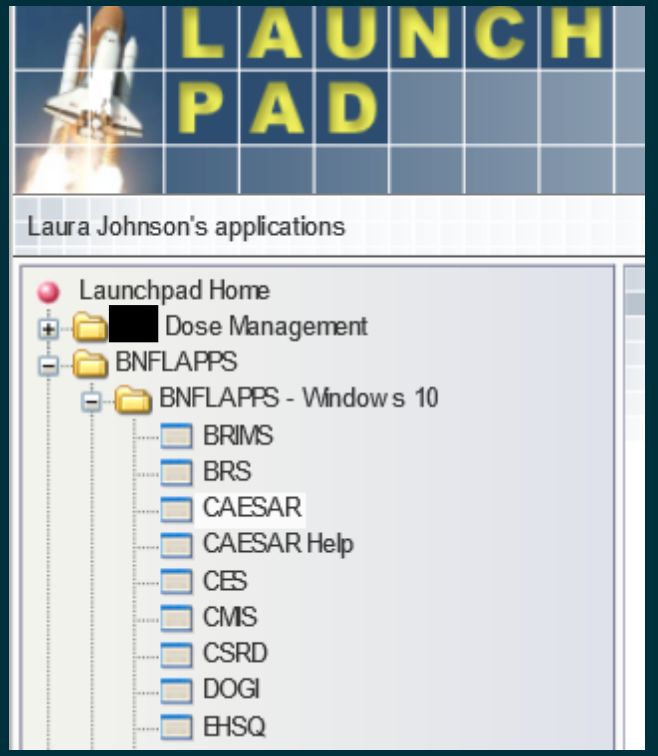
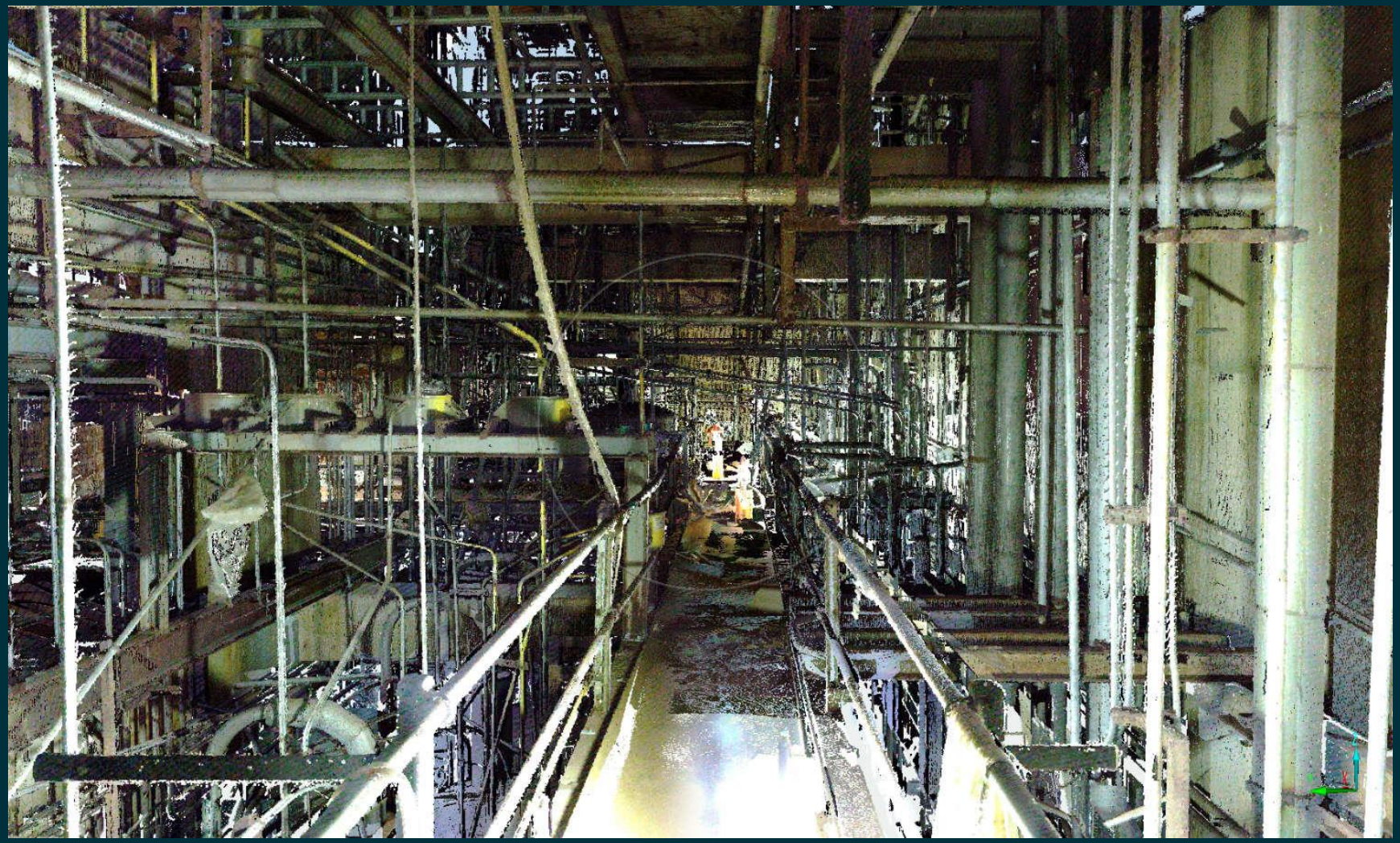
Digital in Decommissioning

- Not only do we have legacy decommissioning challenges, but also legacy *information* challenges.
- Conflicting, out-dated and duplicated information stored on numerous legacy databases as new iterations of technology have been brought in.
- Not just a digital deployment fix (unfortunately).
- Sometimes the most advanced and newest toolkit won't always be the best solution – if a facility is due to be demolished, the most expensive solution may not be the most palatable one. Every penny spent on deploying a digital solution is money out of in-year funding for decommissioning & waste management.
- There are 50+ Databases/systems containing information used in decommissioning & waste management.
- Even if we did solve this overnight, bringing the people along is key.





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Key Learning

- Define what Digital means for your organisation.
- Transitioning away from Digital = IT was a lengthy discussion. It's a way of doing things, no specific activities.
- Digital for Project Delivery has made great advances – that could be considered the easy bit – but even here we still have lots to do.
- People, process and data management are the core aspects – not technology.
- Covid has enabled an acceleration of our implementation.
- Don't underestimate the level of business change required to introduce new solutions.
- We have much more work to do in order to deploy at scale and pace.