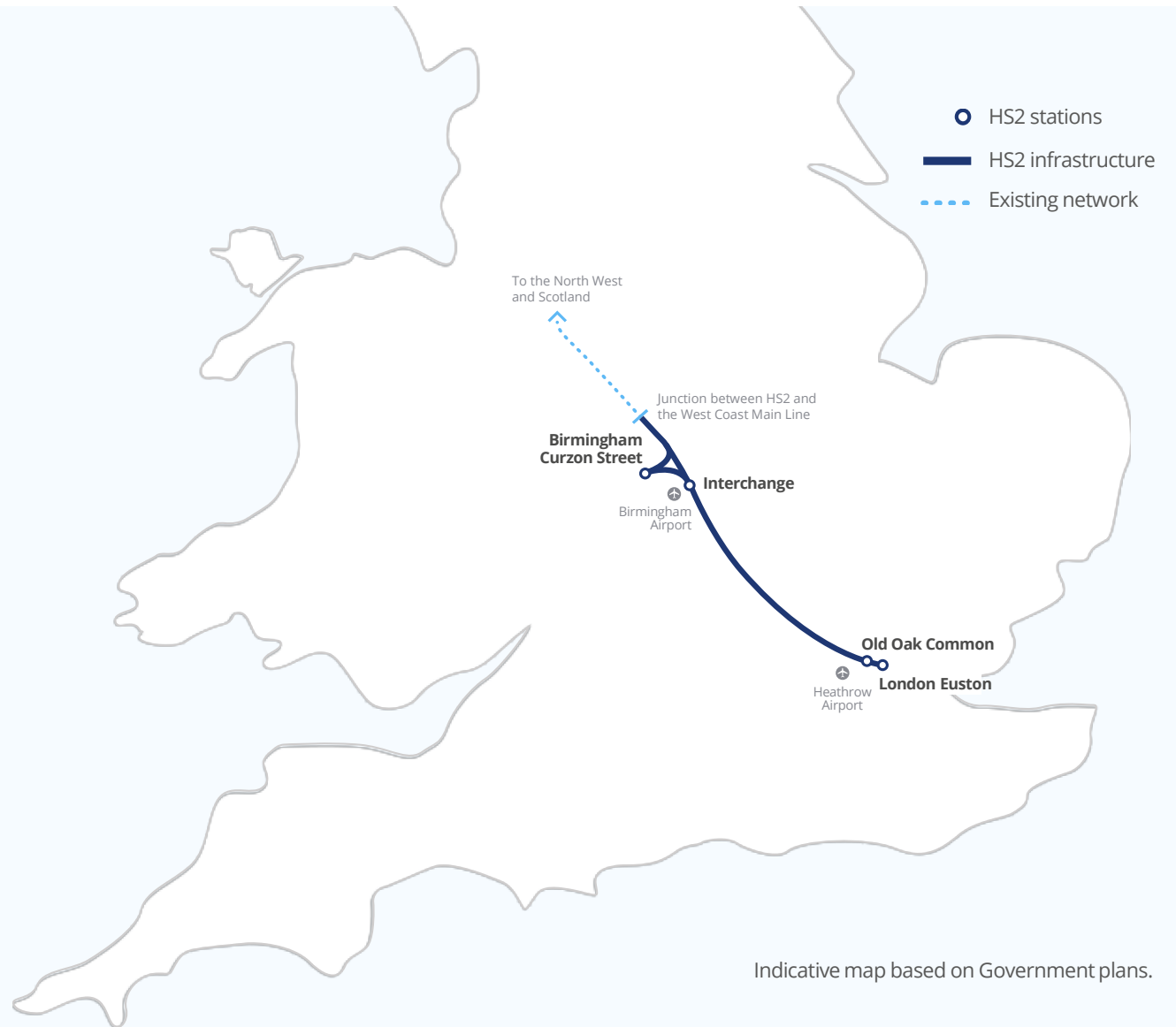
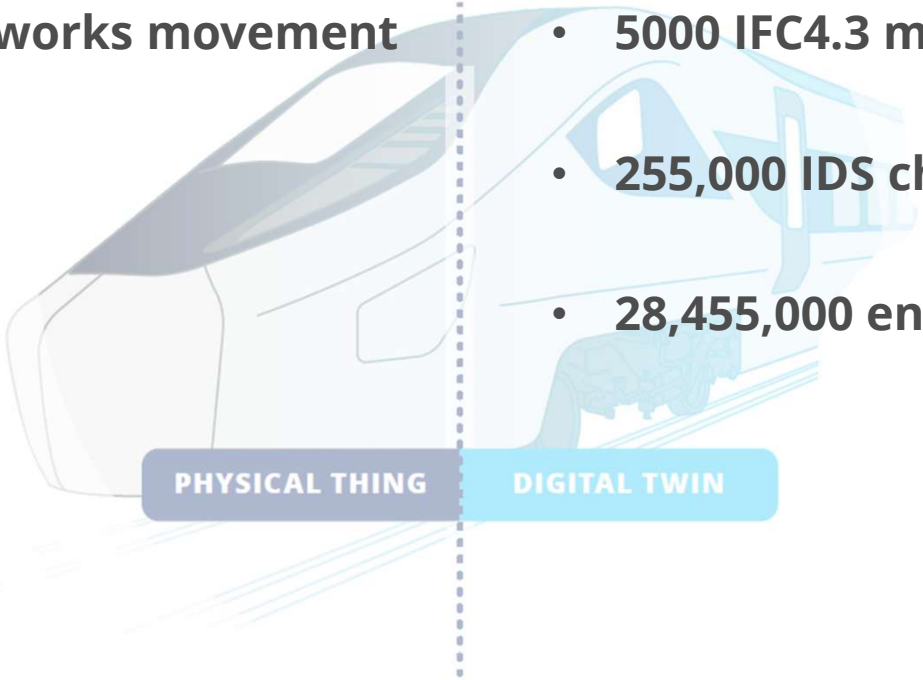


OpenBIM delivery

Date: 15th September
Time: 10:00 – 13:30
Presenters: Simon Dean
Job Title: Information Management Lead
(BIM)



HS2 Area North

- 37M m³ bulk earthworks movement
 - 12 underpasses
 - 11km of viaducts
 - 62 Bridges
 - 76 Embankments
 - 4 Tunnels (2 twin bore, 2 cut & cover)
- 
- The diagram shows a high-speed train in profile, split vertically by a dashed line. The left half is labeled 'PHYSICAL THING' in a dark blue box, and the right half is labeled 'DIGITAL TWIN' in a light blue box. The train is depicted in a light blue color with a dark blue nose. The background is white.
- 5000 IFC4.3 model deliveries
 - 255,000 IDS checks
 - 28,455,000 entity checks

The Challenge



Native CAD



Compliant asset data
ISO 16739-1:2024



Managing complex
infrastructure assets



Proprietary format

Reinforced Concrete

Concrete Grade:



Object Material

Grade:



Slab Common

Class | Grade:



Material Aspect

Grade_Concrete:



Non-proprietary openBIM



Pset_ConcreteElementGeneral
Strength Class



International
Standard

ISO 16739-1:2024

Industry Foundation Classes (IFC)
for data sharing in the construction
and facility management industries
— Part 1: Data schema

Edition 2
2024-03

Reference number
ISO 16739-1:2024

© ISO 2025

What is IFC (INDUSTRY FOUNDATION CLASS)?

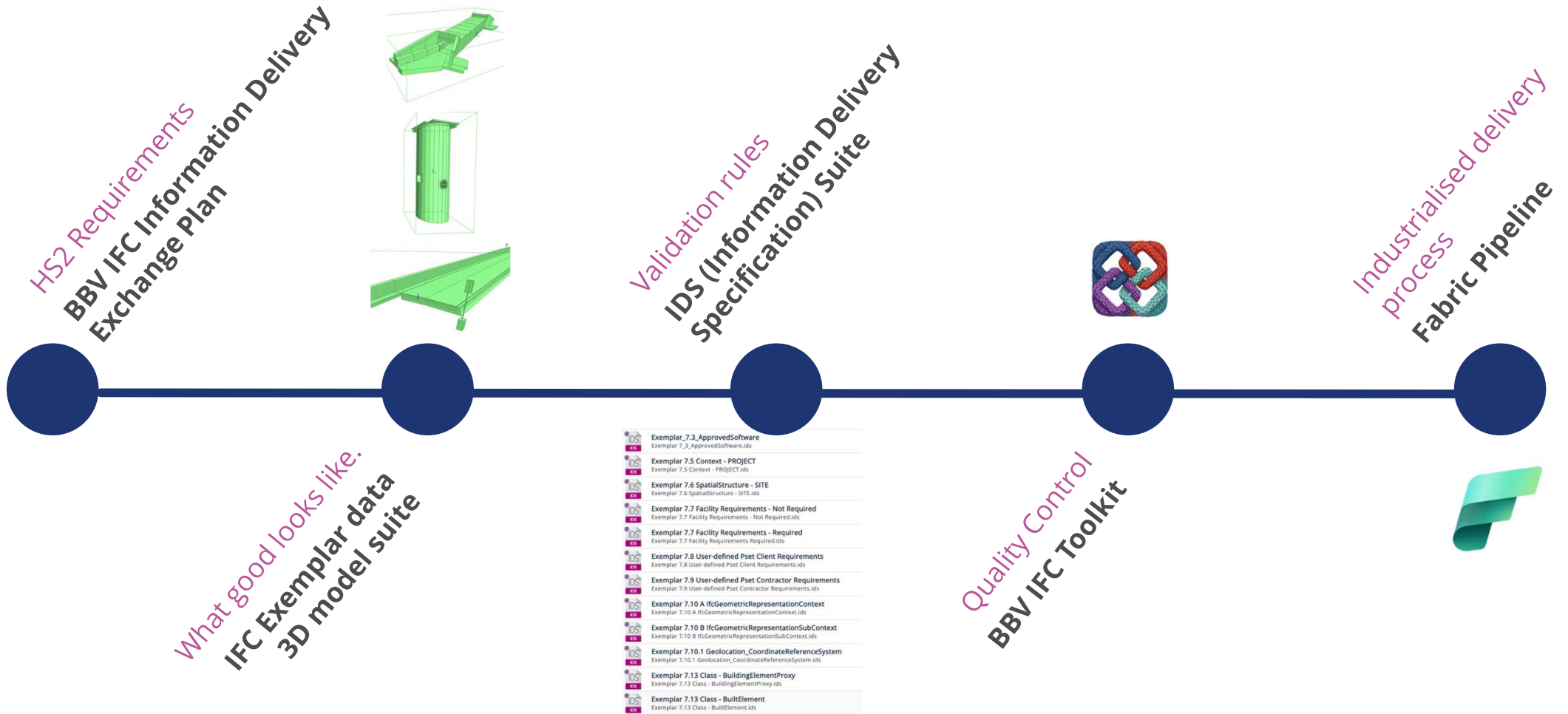
- A data model
- it's not necessarily a 3D 'BIM' model.
- helps to connect data in databases

Take-away:

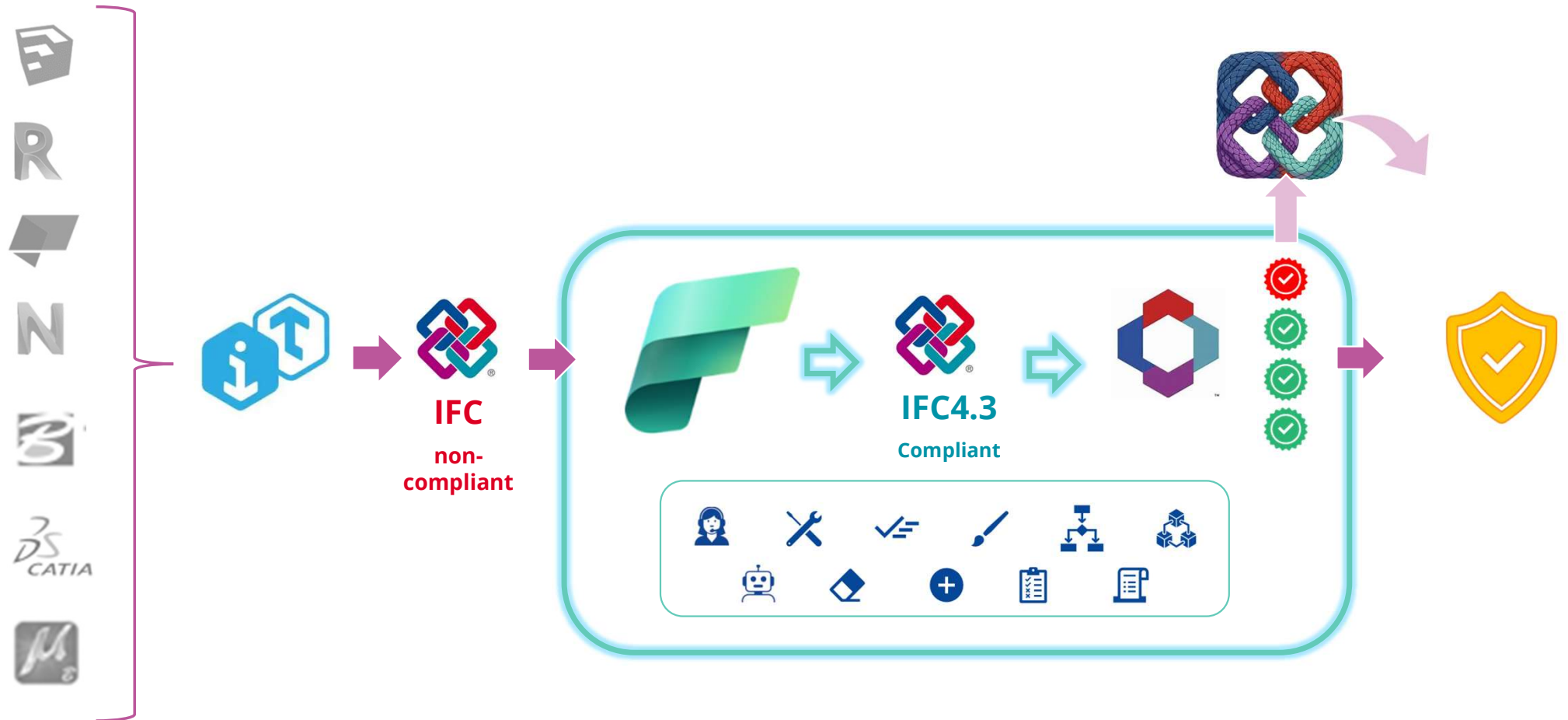
IFCs are **standardised** digital definitions of building objects
(physical things)

[Industry Foundation Classes \(IFC\) – nima \(wearenima.im\)](https://www.wearenima.im/)

BBV IFC Digital Delivery



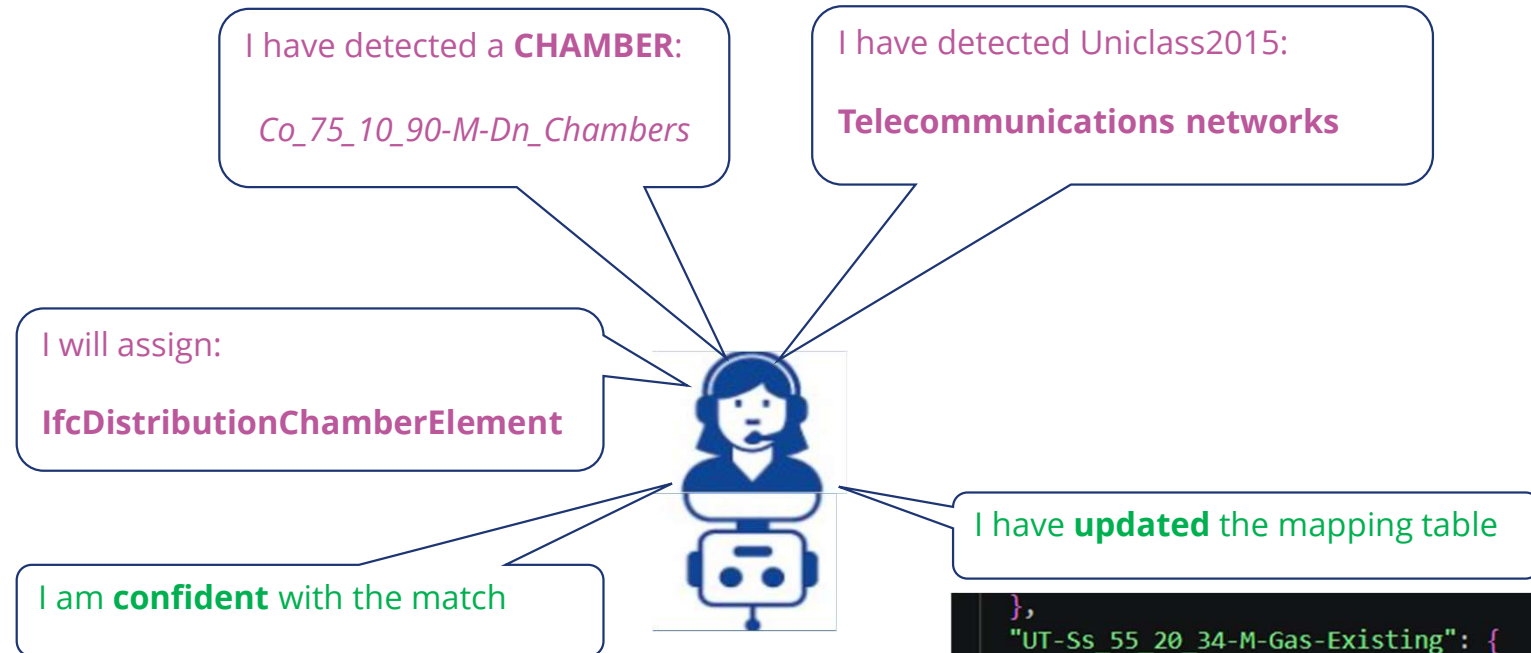
The Pipeline (process)



Assurance Pipeline



AI-Assisted Classification for Reclassifying Entities



```
},  
"UT-Ss_55_20_34-M-Gas-Existing": {  
  "class_id": "C093",  
  "class": "IfcPipeSegment",  
  "predefined_type": "USERDEFINED",  
  "object_type": "Gas Pipe Existing",  
  "ai_confidence": "MEDIUM",  
  "ai_reason": "Layer name refers to an existing gas service",  
  "source": "Copilot Layer and PredefinedType Agents"  
}  
}
```

Validation

1. IDS Validation

IDS

Exemplar_7.3_ApprovedSoftware

Exemplar 7.3_ApprovedSoftware.ids

IDS

Exemplar 7.5 Context - PROJECT

Exemplar 7.5 Context - PROJECT.ids

IDS

Exemplar 7.6 SpatialStructure - SITE

Exemplar 7.6 SpatialStructure - SITE.ids

IDS

Exemplar 7.7 Facility Requirements - Not Required

Exemplar 7.7 Facility Requirements - Not Required.ids

IDS

Exemplar 7.7 Facility Requirements - Required

Exemplar 7.7 Facility Requirements Required.ids

IDS

Exemplar 7.8 User-defined Pset Client Requirements

Exemplar 7.8 User-defined Pset Client Requirements.ids

IDS

Exemplar 7.9 User-defined Pset Contractor Requirements

Exemplar 7.9 User-defined Pset Contractor Requirements.ids

IDS

Exemplar 7.10 A IfcGeometricRepresentationContext

Exemplar 7.10 A IfcGeometricRepresentationContext.ids

IDS

Exemplar 7.10 B IfcGeometricRepresentationSubContext

Exemplar 7.10 B IfcGeometricRepresentationSubContext.ids

.Ids Filename	Pass/Fail	Pass %	ComplianceLevel
Exemplar 8.6_Retaining_Structure.ids	FAIL	75	Significant Issues
Exemplar 8.10_ApprovedSoftware.ids	FAIL	0	Critical Issues
Exemplar 7.6 SpatialStructure - SITE.ids	PASS	100	Fully Compliant
Exemplar 7.5 Context - PROJECT.ids	PASS	100	Fully Compliant
Exemplar 7.10 B IfcGeometricRepresentationSubContext.ids	FAIL	50	Significant Issues
Exemplar 7.10 A IfcGeometricRepresentationContext.ids	FAIL	80	Major Issues

2. buildingSMART Validation Service

Status

Errors

-127033.ifc

PASS

0

-127032.ifc

PASS

0

-127022.ifc

PASS

0

-127021.ifc

PASS

0

-127020.ifc

PASS

0

-127009.ifc

PASS

0

-127008.ifc

PASS

0

-127005.ifc

PASS

0

-127004.ifc

PASS

0

-100021.ifc

PASS

0

-100012.ifc

FAIL

1

-109956.ifc

PASS

0

-107006.ifc

PASS

0

Total Passed Files

14

Total Failed Files

1

Count of Errors Messages

1

Building Smart Validation Status

1 (6.67%)

14 (93.33%)

Status

PASS

FAIL

STEP Syntax

IFC Schema

Normative IFC Rules

Industry Practices

3. Bespoke quality assurance

Convert to 4.3_ADD2

Owner History

Spatial Entities

Reclassify

Edit Header

Edit Property

Owner History

View BCF

Validate

Assembly

Group

Types

Visualising IFC for Planning, Entities and Resources (VIPER)

Assurance Reporting, Audit Trail and Orchestration

ifcproperties

Showing 1000

Table view

	ABC ElementID	ABC PropertySet	ABC PropertyName	ABC PropertyValue
1	2lbM4A...	...	...	...
2	2lbM4A...	...	...	...
3	2lbM4A...	...	...	...
4	2lbM4A...	...	...	...

ifcelements

Table view

	ABC ElementID	ABC Type	ABC GlobalID	ABC ProjectID	ABC LayerName	ABC FileName	ABC SiteElementID	ABC FacilityElementID	ABC PredefinedType	ABC Name	ABC Description
1	07614vXB1B_PZCbz...	IfcDistributionElem...	2SZMNF2Zi7Gwfi28...	07614vXB1B_PZCbz...	...	1MC08-BBV_MSD-...	07614vXB1B_PZCbz...	07614vXB1B_PZCbz...	...	Extended Element	[Generic],[P...
2	07614vXB1B_PZCbz...	IfcDistributionElem...	3gvTYXZCVWl83tk5...	07614vXB1B_PZCbz...	...	1MC08-BBV_MSD-...	07614vXB1B_PZCbz...	07614vXB1B_PZCbz...	...	Extended Element	[Generic],[P...
3	07614vXB1B_PZCbz...	IfcDistributionElem...	38QwSSZULnJ8X7XL...	07614vXB1B_PZCbz...	...	1MC08-BBV_MSD-...	07614vXB1B_PZCbz...	07614vXB1B_PZCbz...	...	Extended Element	[Generic],[P...

ifcclassifications

Showing 537 rows

Table view

	ABC ElementID	ABC ClassificationSystem	ABC ClassificationCode	ABC ClassificationName	ABC ClassificationDescri...	ABC ClassificationSource	ABC ClassificationEdition	ABC RelGlobalID	ABC FileName	ABC ProjectID
1	07614vXB1B_PZCbzFEH...	Uniclass 2015	Ss_50_70_45	Land drainage systems	...	https://uniclass.constru...	V1.34	0gsw9xJ_vFOFBX_nH6nl...	1MC08-BBV_MSD-DR-...	07614vXB1B_P...
2	07614vXB1B_PZCbzFEH...	Uniclass 2015	Ss_50_70_45	Land drainage systems	...	https://uniclass.constru...	V1.34	0gsw9xJ_vFOFBX_nH6nl...	1MC08-BBV_MSD-DR-...	07614vXB1B_P...
3	07614vXB1B_PZCbzFEH...	Uniclass 2015	Ss_50_70_45	Land drainage systems	...	https://uniclass.constru...	V1.34	0gsw9xJ_vFOFBX_nH6nl...	1MC08-BBV_MSD-DR-...	07614vXB1B_P...
4	07614vXB1B_PZCbzFEH...	Uniclass 2015	Ss_50_70_45	Land drainage systems	...	https://uniclass.constru...	V1.34	0gsw9xJ_vFOFBX_nH6nl...	1MC08-BBV_MSD-DR-...	07614vXB1B_P...

ifcquantities

Table view

	ABC ElementID	ABC QuantitySet	ABC QuantityName	e* Quantity
1	35LInwm9HBLfFcKwR\$KTSF_3Zym9MGxx6GeCkAH0yrOV7	UK_BBV_Qto_CalculatedBaseQuantities	NetArea	0.325302
2	35LInwm9HBLfFcKwR\$KTSF_3Zym9MGxx6GeCkAH0yrOV7	UK_BBV_Qto_CalculatedBaseQuantities	NetVolume	1994.161553
3	35LInwm9HBLfFcKwR\$KTSF_3Zym9MGxx6GeCkAH0yrOV7	UK_BBV_Qto_CalculatedBaseQuantities	OverallLength	0.423908
4	35LInwm9HBLfFcKwR\$KTSF_3Zym9MGxx6GeCkAH0yrOV7	UK_BBV_Qto_CalculatedBaseQuantities	OverallWidth	0.414550

Outcomes

BBV BENEFITS



INDUSTRY BENEFITS



HS2 BENEFITS

