Bridging the gap:

Digital Information Management and ISO19650 Compliance in SMR Projects

Project Controls EXPO London, UK

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PAULA MOTA

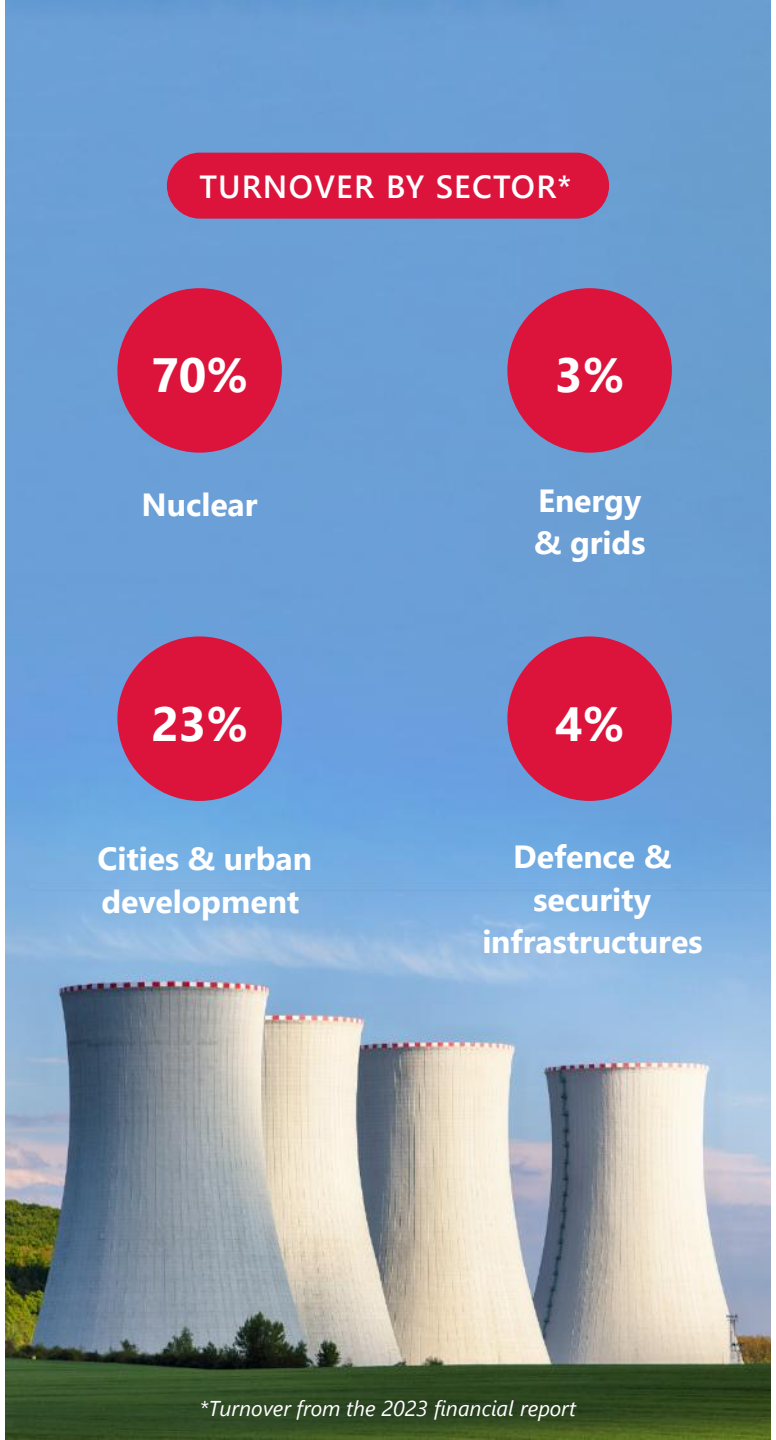
Managing Consultant
Assystem

Assystem Introduction.

OUR BUSINESS

Assystem is an independent, international company with one key mission: to **accelerate the energy transition** throughout the world.

Assystem has three core offers: Engineering, Project/ Programme Management and Digital.



€578m
revenue

7,500
employees

TOP 3
ranked in the TOP 3 independent nuclear engineering companies in the world

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ROLLS ROYCE SMR

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Assystem Introduction.

ASSYSTEM IN THE UNITED KINGDOM

Assystem is supporting the United Kingdom's switch to low-carbon energy, transport, and infrastructure.

To meet its goal of carbon neutrality by 2050, the UK is investing heavily in nuclear and renewable energies.

+25
years UK experience

700
employees

10
offices

schofield lothian + LOGIKAL Project Intelligence → assystem

ASSYSTEM PM&C

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RR SMR Introduction.

ROLLS ROYCE SMR

The Rolls-Royce SMR: designed for global success

Rolls-Royce SMR Ltd is a technology vendor offering a complete SMR power plant on a turnkey basis.

UK Government Gra Funding

UK Research and Innovation

Rolls-Royce SMR has received UK Government funding of £210m as part of Phase 2 of the Low-Cost Nuclear Challenge Project, administered by UKRI.

The Rolls-Royce SMR power plant is the **only solution that takes a fully modular approach** to deploying proven nuclear technology. A highly competitive source of 'always-on' clean energy for grid and industrial uses. Reducing project risk and providing certainty through a repeatable, factory-built product with low capital cost.

270
tonnes of hydrogen

500,000
District heating for a city of

1 million
Clean electricity to power over (homes)

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LET'S TALK ABOUT SMALL MODULAR REACTOR

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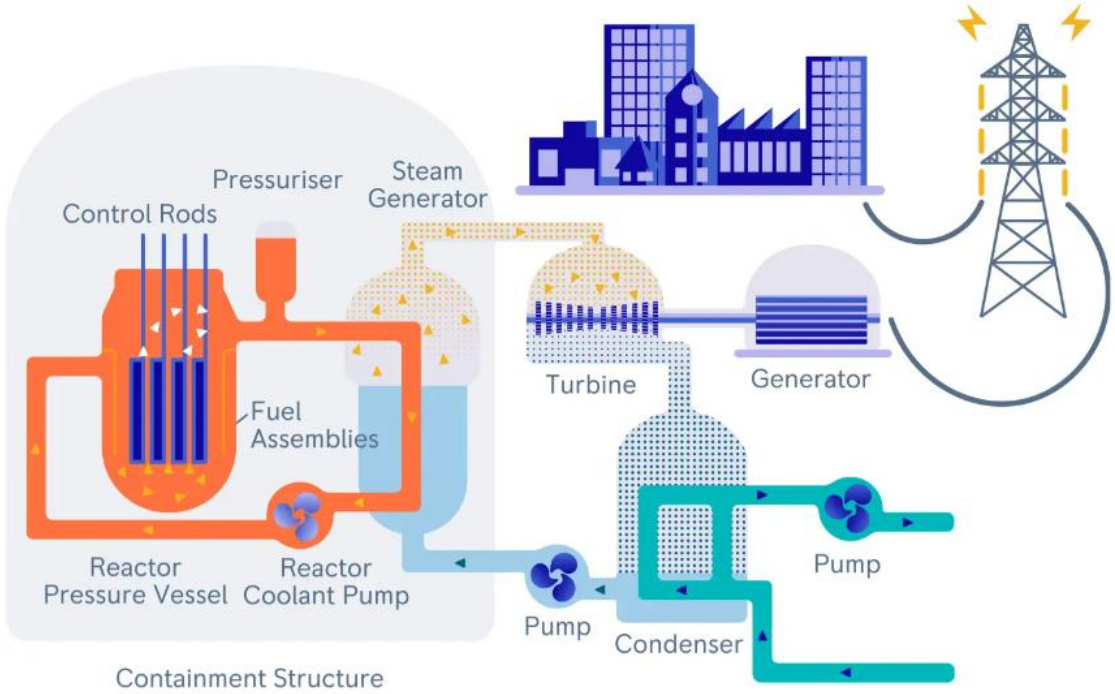
What is SMR?

- A Small Modular Reactor (SMR) is a type of nuclear fission reactor that is **smaller in size**, and output compared to conventional nuclear power stations. These reactors are **factory-built, transported to site, and assembled modularly**, allowing for quicker and more flexible deployment.
- This unique 'factory-built' approach means that approximately **90% of the plant will be factory fabricated**, tested and delivered to site as modules, where they will be assembled and commissioned by the Rolls-Royce.
- Offering a complete nuclear power station as a manufactured product delivers the **cost and risk reductions and quality improvements** associated with factory fabrication.



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RR SMR value proposition has 4 key elements for SMR success into the global marketplace

LOW COST

- A highly competitive source of always on clean energy

DELIVERABLE

- Reducing risk and providing certainty with a factory built commoditised product

INVESTABLE

- Designed to attract traditional forms of capital through a low-risk factory-based solution

GLOBAL & SCALABLE

- Making a meaningful impact across multiple countries, meeting unprecedented demand for clean energy

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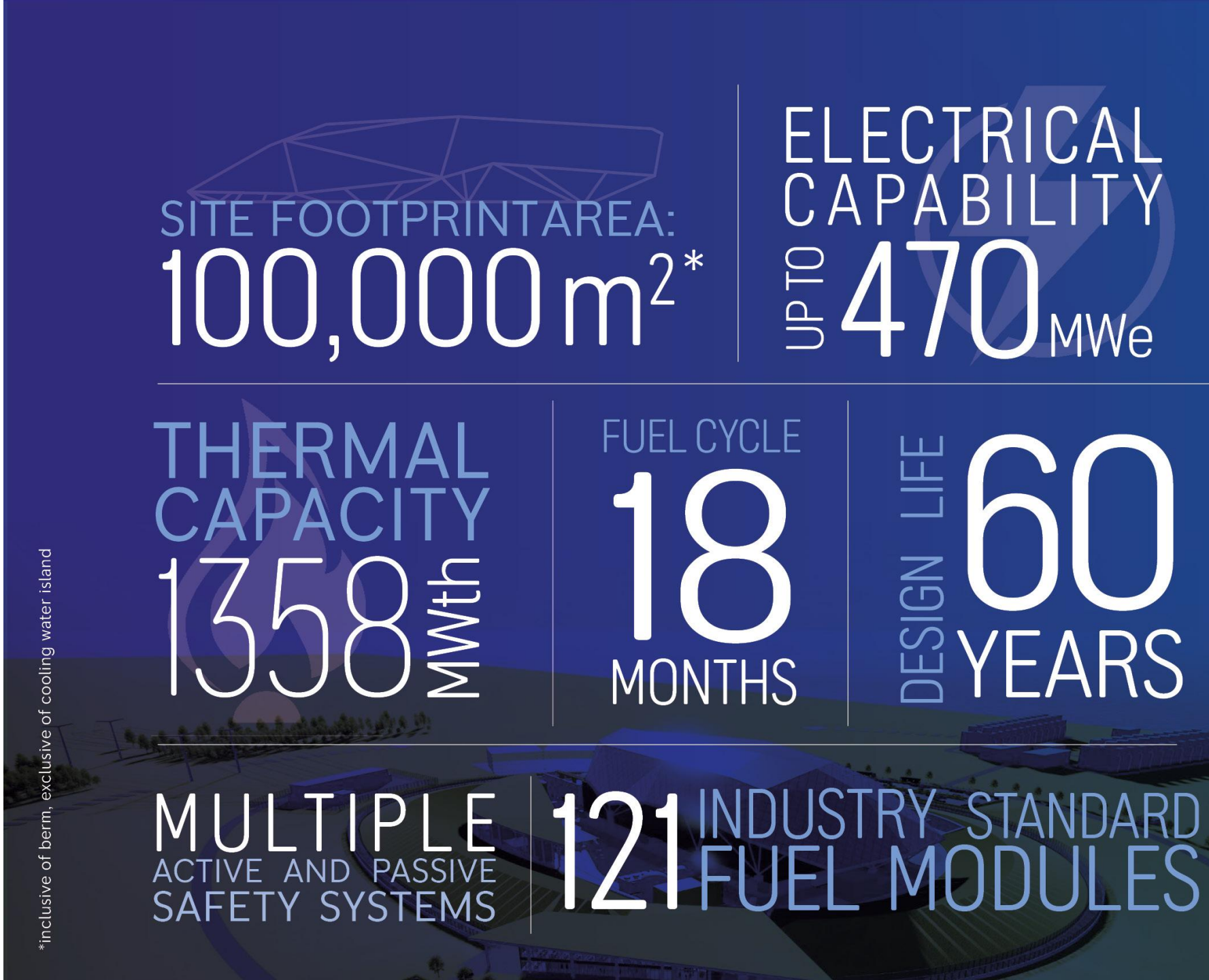
The Rolls-Royce SMR in numbers



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LET'S TALK ABOUT ISO 19650

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What is the ISO 19650 ?

- International standard for managing information over the whole life cycle of a built asset using BIM
- **Purpose:** Improve collaboration, efficiency, and data consistency across all parties involved in the project

ISO 19650 Certification

Formal recognition that an organisation or project team follows the information management principles set out in Iso standard for BIM.

Purpose

- Demonstrates that the organisation has a structured and standardised approach to managing digital information.
- Proves compliance with International BIM best practices.
- Builds trust with clients, partners and stakeholders.
- Improves efficiency, collaboration and data accuracy across project life cycle.

Accrediting Bodies

BSI (British Standard Institution), TUV SUD, Lloyd's Register (LRQA), BRE (Building Research Establishment)

bsi.

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Our main objective with ISO 19650 certification

Reinforces RR SMR's leadership in **setting high standards for digital delivery**, promoting trust, quality, and long-term value across the nuclear sector.

LET'S TALK ABOUT ISO 19650 CERTIFICATION PROCESS

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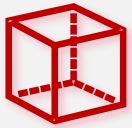
Process Assessment

STAGE 1



STAGE 2

STAGE 3

Process Assessment

STAGE 1

STAGE 2

STAGE 3

JULY 2024

Presented the documents produced for a potential client

Still in the pre-contract stage

Demonstrated proposed workflows

Process Assessment

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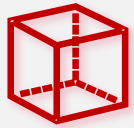

STAGE 2

SEPTEMBER 2024

Presented a simulation of the planned activities

Used Teamcenter as the Common Data Environment (CDE)

Showcased approval and revision schemes.

STAGE 3

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Process Assessment

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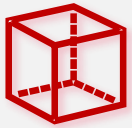

STAGE 2

SEPTEMBER 2024

Presented a simulation of the planned activities

Used Teamcenter as the Common Data Environment (CDE)

Showcased approval and revision schemes.

STAGE 3

OCTOBER 2025

Presented the updated versions of the documents to potential clients

Still in the pre-contract stage

Demonstrated the evolution of the CDE from Teamcenter to ProjectWise

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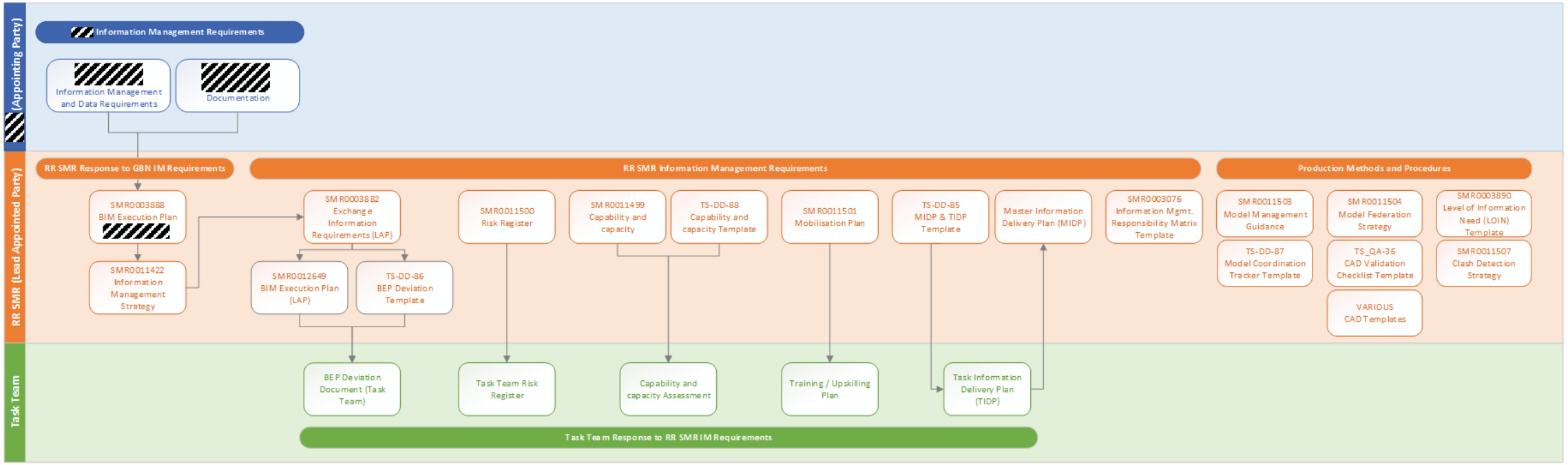
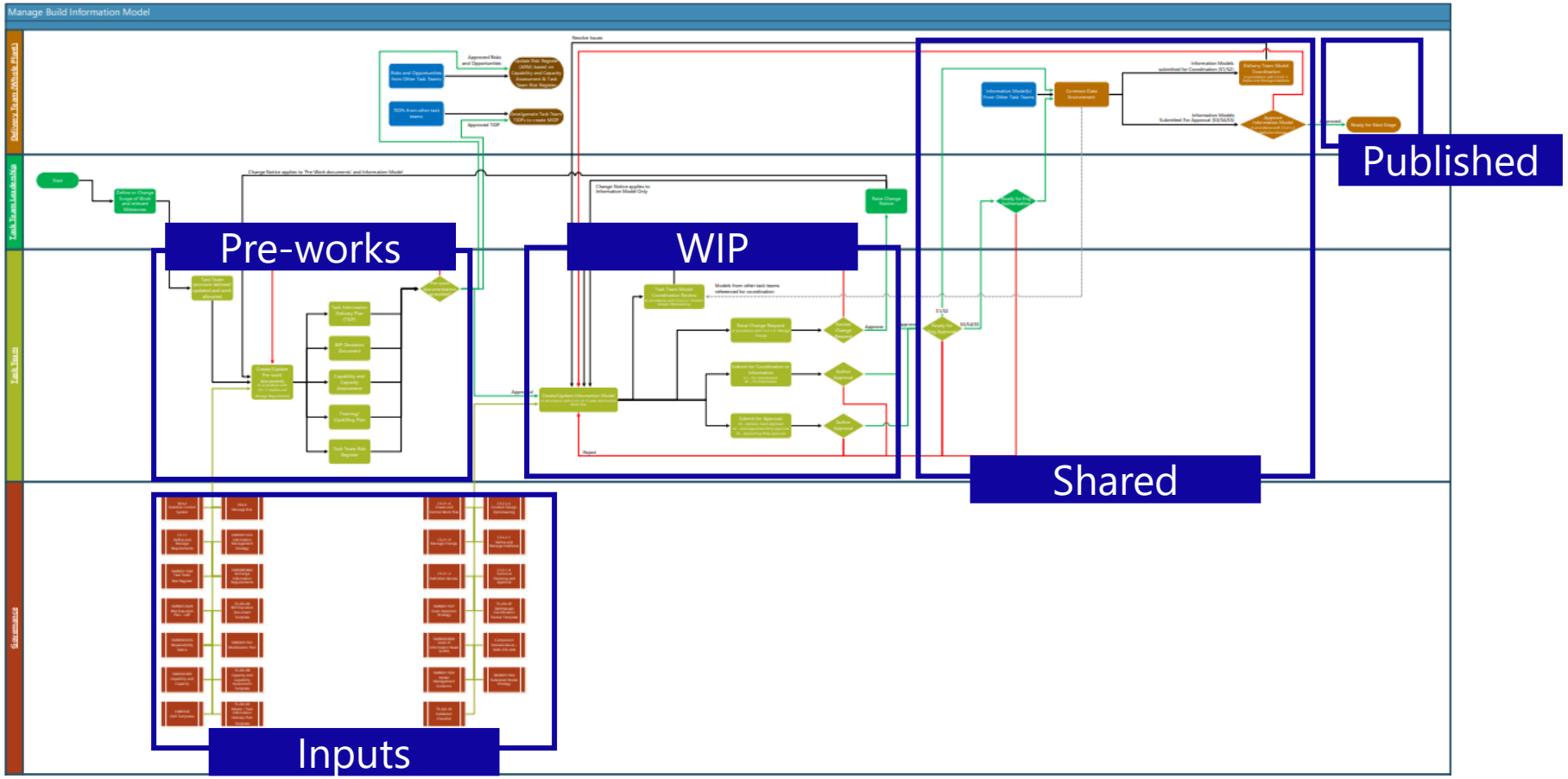
Document hierarchy



Workflow


Manage Build Information Model
Pre-works
WIP
Shared
Published
Inputs

BIM suite of documents

SMR0011422_2 - Information Management Strategy

SMR0003882_1 - Exchange Information Requirements - LAP

SMR0012649_2 - BIM Execution Plan - LAP

SMR0003076_1 - Information Mgmt. Responsibility Matrix (IMRM)

SMR0011499_2 - Capability and capacity

SMR0011500_1 - Risk register

SMR0011501_2 - Mobilisation plan

SMR0011503_1 - Model Management Guidance

SMR0011504_2 - Model Federation Strategy

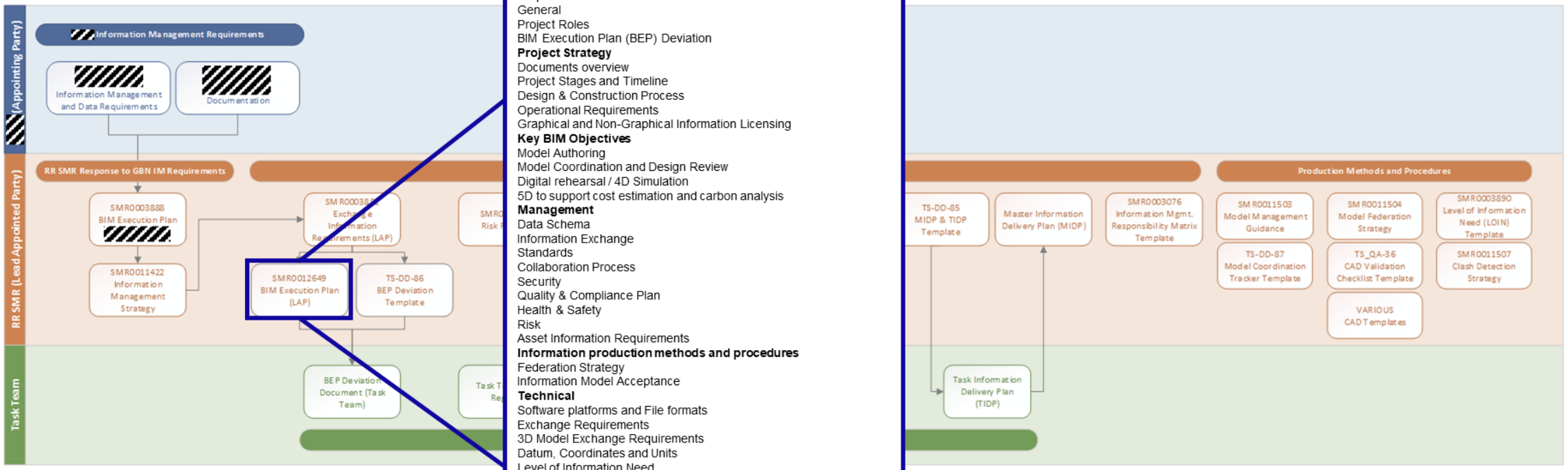
SMR0011507_1 - Clash Detection Strategy

SMR0003890_2 - Level of Information Need (LOIN)

TS-DD-85 SMR MIDP and TIDP Template

TS-DD-86 - BIM Execution Plan (BEP) - Deviation Template

BIM Execution Plan



Introduction
Purpose of the BEP
General
Project Roles
BIM Execution Plan (BEP) Deviation
Project Strategy
Documents overview
Project Stages and Timeline
Design & Construction Process
Operational Requirements
Graphical and Non-Graphical Information Licensing
Key BIM Objectives
Model Authoring
Model Coordination and Design Review
Digital rehearsal / 4D Simulation
5D to support cost estimation and carbon analysis
Management
Data Schema
Information Exchange
Standards
Collaboration Process
Security
Quality & Compliance Plan
Health & Safety
Risk
Asset Information Requirements
Information production methods and procedures
Federation Strategy
Information Model Acceptance
Technical
Software platforms and File formats
Exchange Requirements
3D Model Exchange Requirements
Datum, Coordinates and Units
Level of Information Need
Clash Detection
Common Data Environment
Training
References
Annex
Information Management Responsibility Matrix

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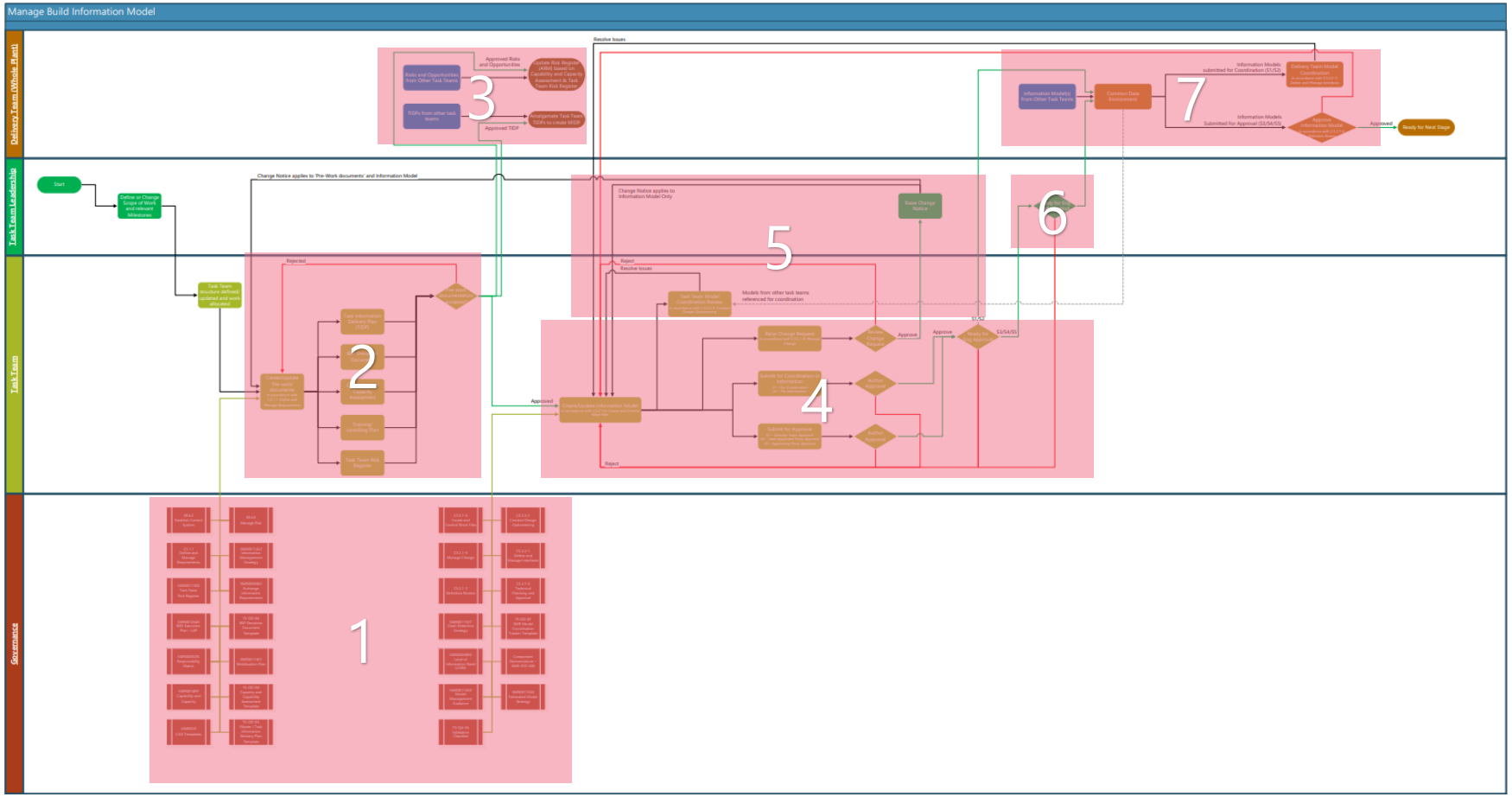
Demonstration



Demonstration Steps

- Step 1 – Submit, Check and Approve Initial Documents
- Step 2 – Submit, Check and Approve Pre-Work Documents
- Step 3 – Submit, Check and Approve MIDP and Risk Register
- Step 4 – Submit, Check and Approve Models and Drawings 001 (S1), 002 (S2) and 003 (S3)
- Step 5 – Submit, Check and Approve Change Request 001 (S1), 002 (S2) and 003 (S3)
- Step 6 – Submit, Check and Approve Validation CAD Checklist
- Step 7 – Submit, Check and Approve Model Federation

Cycles of rejection and new versions

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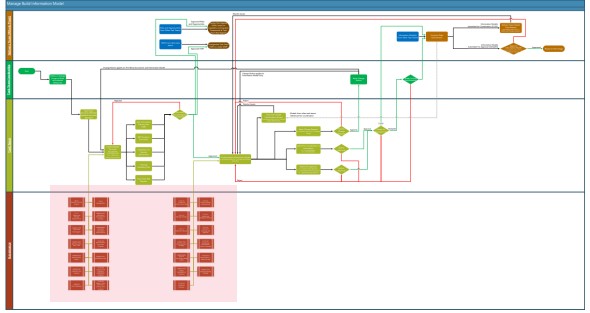
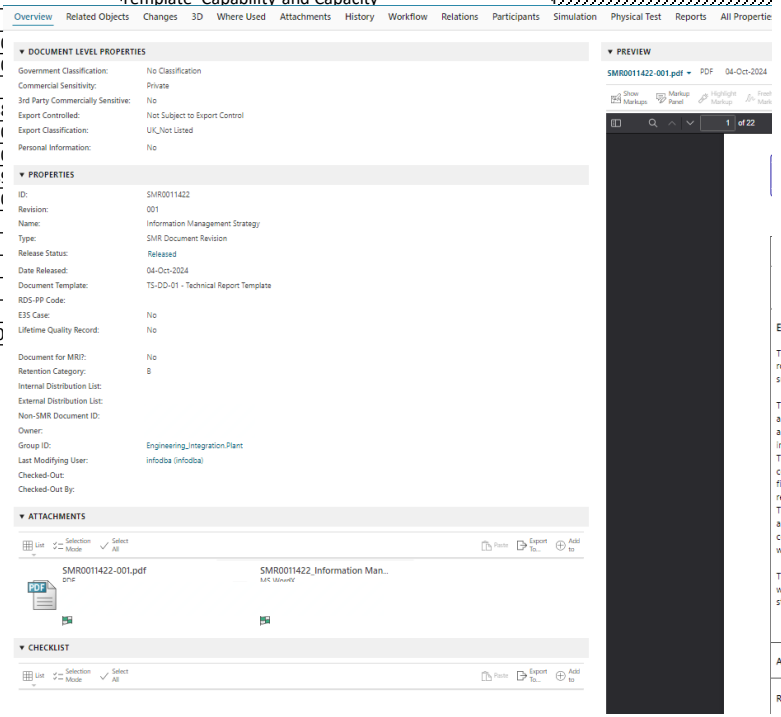
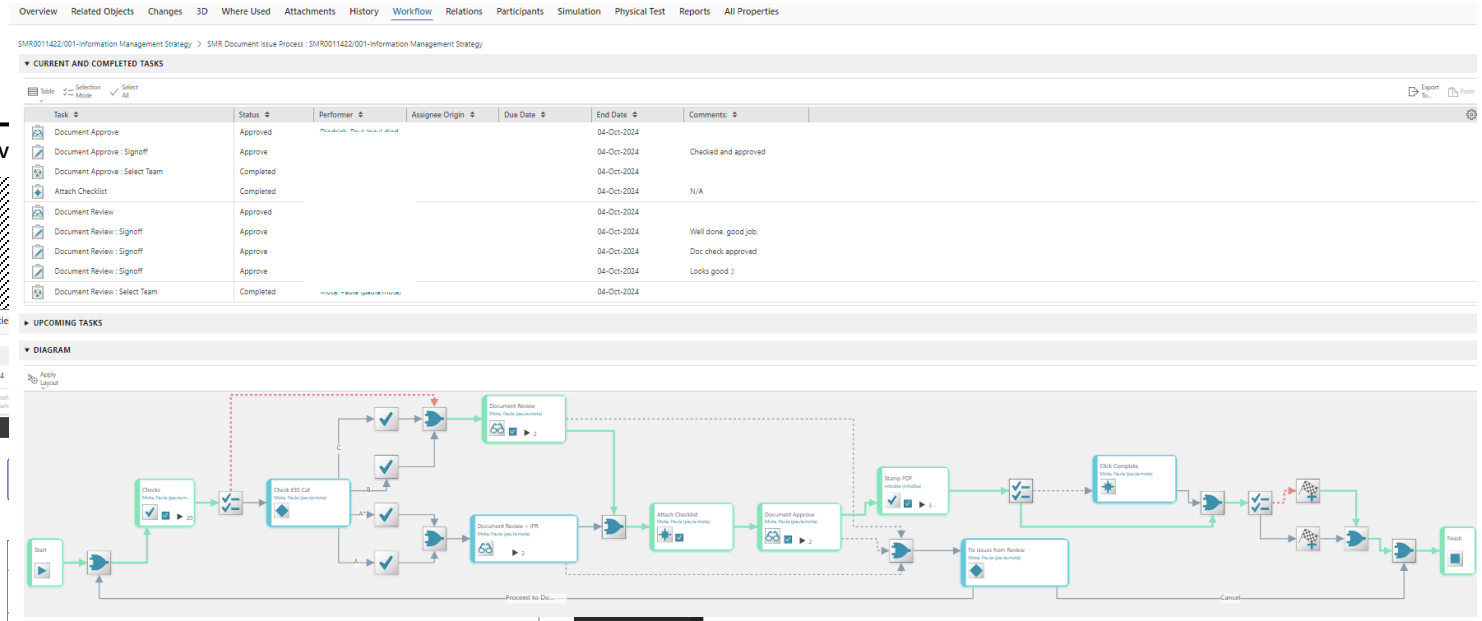
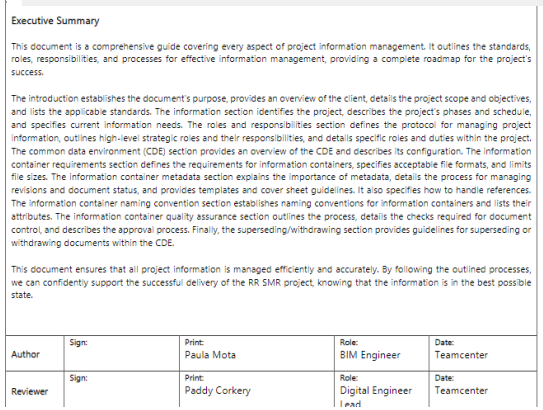
Initial Documents



	DOCUMENT NUMBER	TITLE	AUTHOR	ENG APPROV
1	SMR0011422	Information Management Strategy		
2	SMR0003882	Exchange Information Requirements - LAP		
3	SMR0012649	BIM Execution Plan - LAP		
4	SMR0003076	Information Mgmt. Responsibility Matrix - Template		
5	SMR0011499	Capability and capacity		
6	TS-DD-88	Template_Capability and Capacity		
7	TS-DD-85			
8	SMR00115(			
9	SMR00115(			
10	TS-DD-86			
11	SMR00038			
12	SMR00115(			
13	SMR00115(			
14	SMR00038			
15	SMR00115(			
16	TS-QA-36			
17	TS-DD-87			
18	TS-DD-18			
19	TS-DD-19			
20	TS-DD-20			
21	SMR-STD-0			







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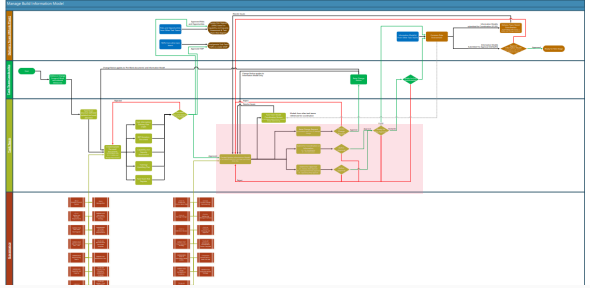
Models & Drawings



	DOCUMENT NUMBER	NAME	AUTHOR	ENG APPROV
1	DEV0000032	MODULE, SYSTEM		
2	DEV0000033	AUXILIARY BUILDING A - ARCHITECTURAL - MODEL SPLASH SCREEN		
3	DEV0000034	AUXILIARY BUILDING A - ARCHITECTURAL - GA		
4	DEV0000035	AUXILIARY BUILDING A - ARCHITECTURAL - ROOF		
5	D			
6	D			
7	D			
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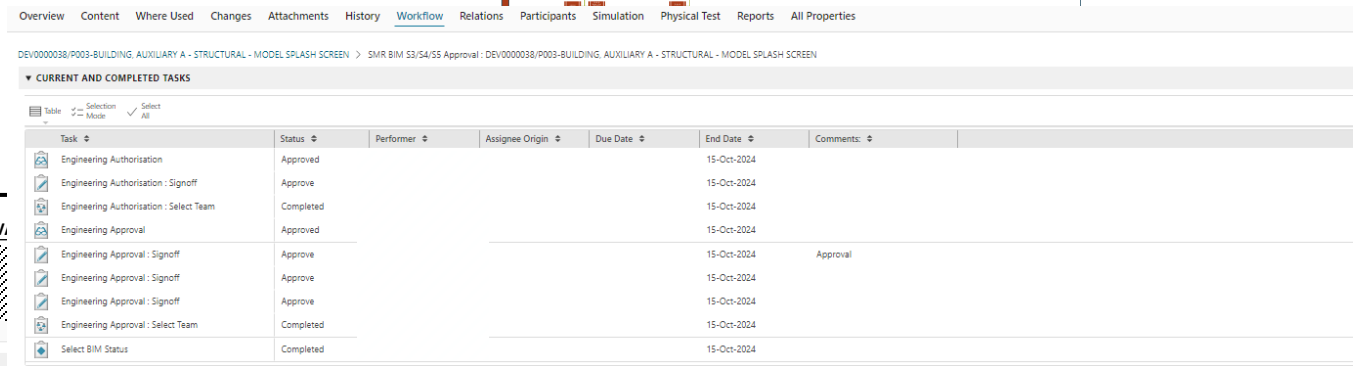

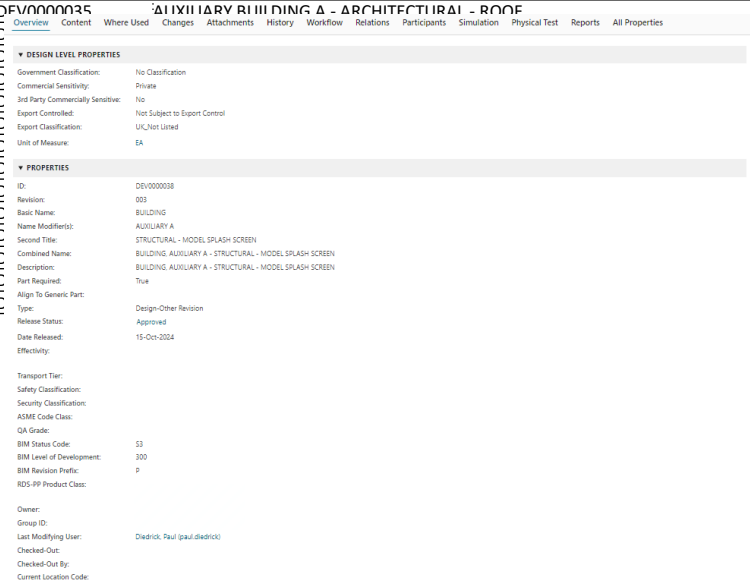

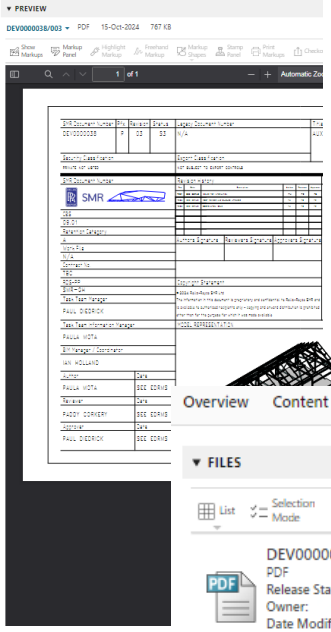

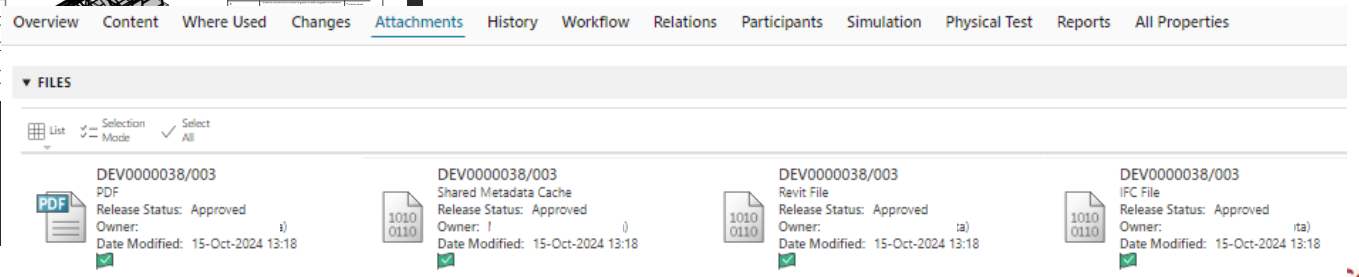

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LET'S TALK ABOUT CHALLENGES

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Implementation Challenges

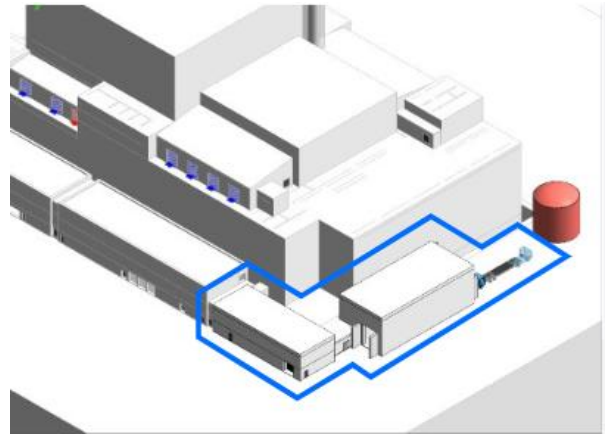
Implementing BIM at RRSMR presented unique challenges

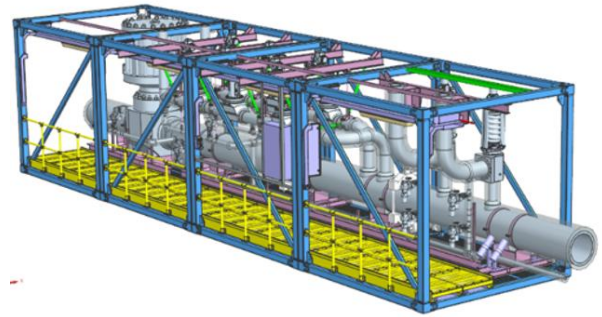
- High design complexity
- Handling of classified information
- A hybrid environment of construction assets and modular product components which were considered as products

A key complexity was the dual nature of the project

- Construction Assets: Traditional building elements
- Products: Modular components manufactured off-site with full lifecycle data

Built Asset





Modular Components

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SMR

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Modular Components

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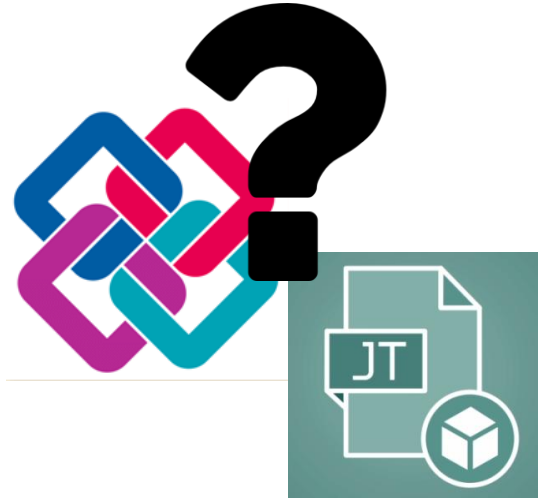
Interoperability & Format Conflicts

The coexistence of different design tools created interoperability issues

- Construction models: Developed in AEC Autodesk software
- Product models: Developed in Siemens Software

IFC was the initial choice for data exchange

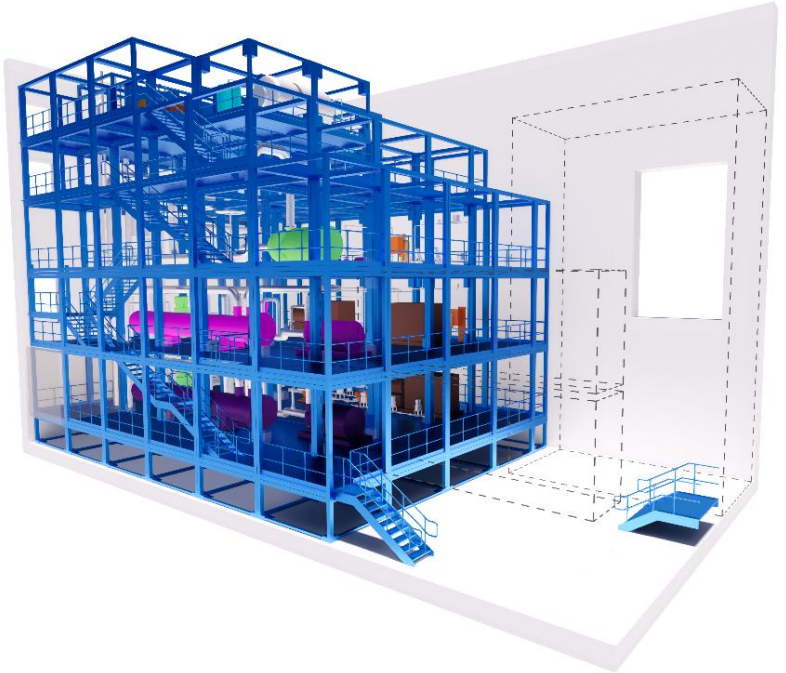
- Not ideal for product models
- STEP and JT formats emerged as more suitable for Siemens NX workflows.



Federating Modules onto single blocks

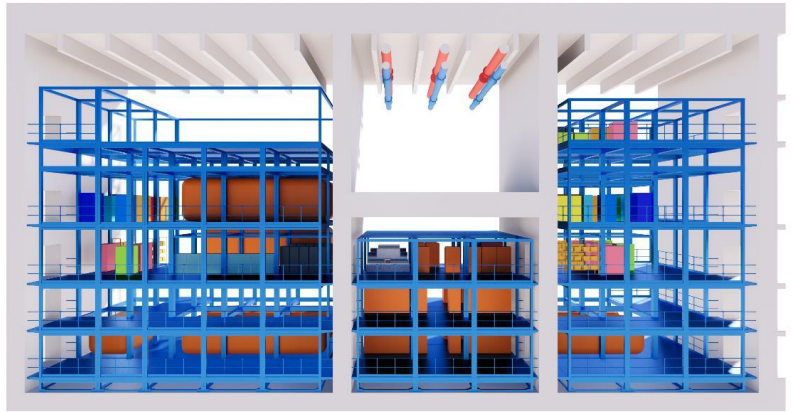
A strategic solution was developed

- By appointing a key stakeholder responsible for federating product components into a single layout model per island.
- This flow facilitated:
    - Coordination with architectural and MEP teams
    - Clash detection and accountability
- The stakeholder had access to export tools for both IFC and STEP formats, enabling multidirectional data exchange.



The strategy culminated in the creation of the Federated Model

- Integrated components from all task teams
- Supported by a series of coordination workshops
- Ensured alignment across disciplines and improved model quality



KEY
TAKEAWAYS

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Key Takeaways

Information Management

Strong Foundations

- Set up clear processes for managing project information.
- Created document and model control through the CDE.

Smart Model Integration

- Combined design data from different tools.
- Defined a clear method for sharing and checking models.

People and Process

People and Ways of Working

- Improved collaboration and understanding.
- Identified the need for more training in digital tools and standards.

Improved Quality

- Simplify model exchange and reduce rework during approvals.
- Strengthen data quality and traceability across all models.

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LET'S TALK ABOUT CONCLUSION

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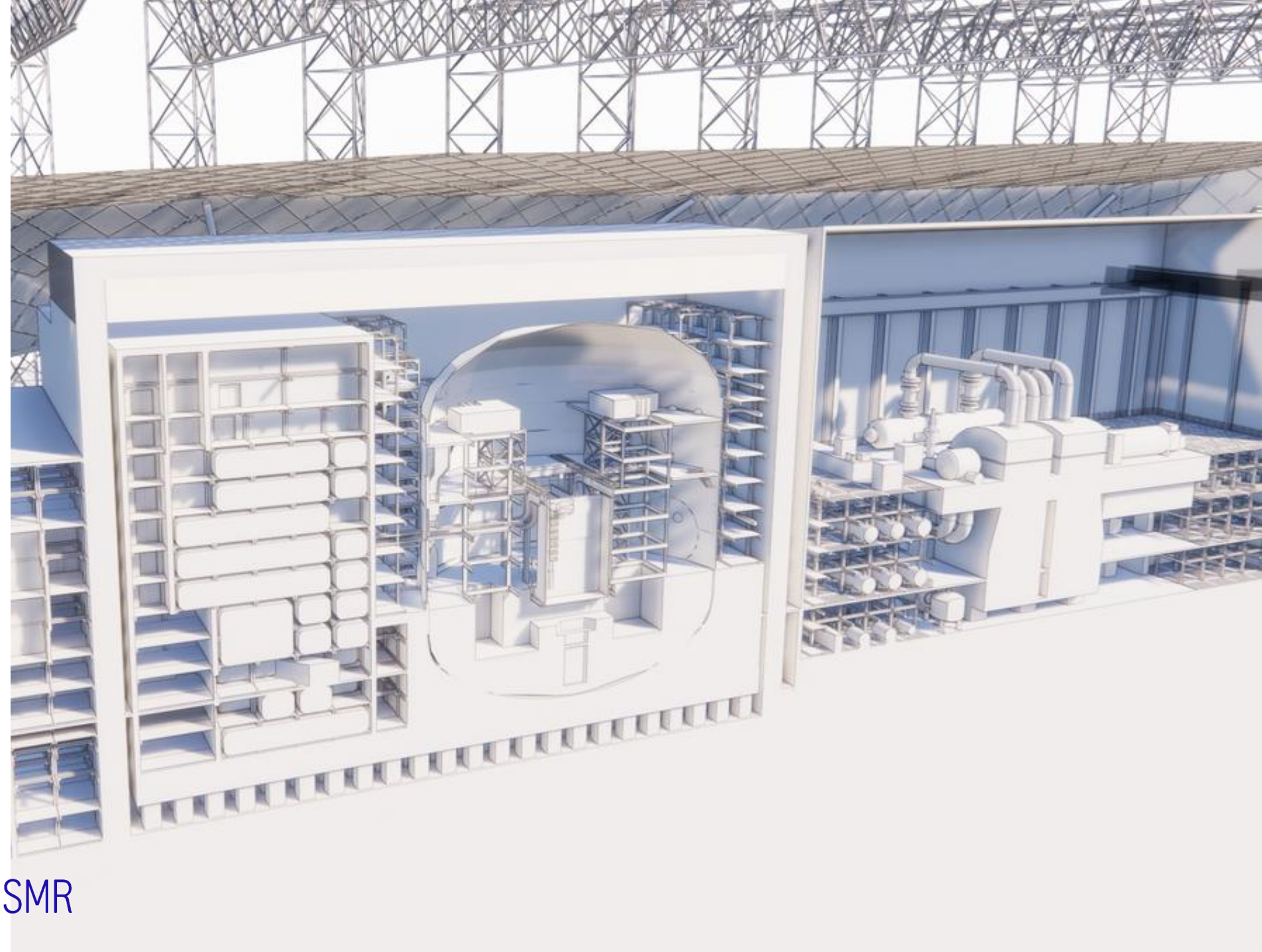
A whole power plant approach

focused on standardisation, repeatability, commoditisation where allowable



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ROLLS ROYCE SMR

Building a workforce for the future

- For Assystem and Rolls-Royce SMR, our people are our greatest asset.
- Maintaining skills and expertise across the business is vital to support the sustainable growth of the organisation.

The workforce throughout Rolls-Royce SMR and its supply chain needs to be diverse, competent and equipped with the right mix of skills, experience and expertise to safely deliver the highest quality products and services.

Developing an engaged, passionate and motivated workforce is an important part of the Rolls-Royce SMR vision - supporting continuous development and enabling people to be their best is a priority. Rolls-Royce SMR is striving to be an employer of choice, to develop a world-leading culture and be a fantastic place to work. In support of its work to deploy the technology around the globe, Rolls-Royce SMR is collaborating with other organisations to develop equivalent skills internationally.

Bridging the gap:

Digital Information Management and ISO19650 Compliance in SMR Projects

Thank You

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pmota@assystem.com

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