



Meeting the Challenges of Sustainability in Critical Transport Infrastructures :

How does SYSTRA address digital continuity with PLM throughout the built assets lifecycle?

Etienne PANSART
 Head of Digital Engineering Services,
 SYSTRA Group




PLM Road Map™ & PDT Europe 2023
 The Digital Thread in a Heterogeneous, Extended Enterprise Reality
 A call for PLM Professionals to share their knowledge & experience
 November 15 & 16
 CIMdata 







SYSTRA
A global leader for transportation solutions


Etienne PANSART
 Head of Digital Engineering Services,
 SYSTRA Group
 epansart@systra.com

SYSTRA is one of the world's leading engineering and consulting groups specialised in public transport and mobility solutions

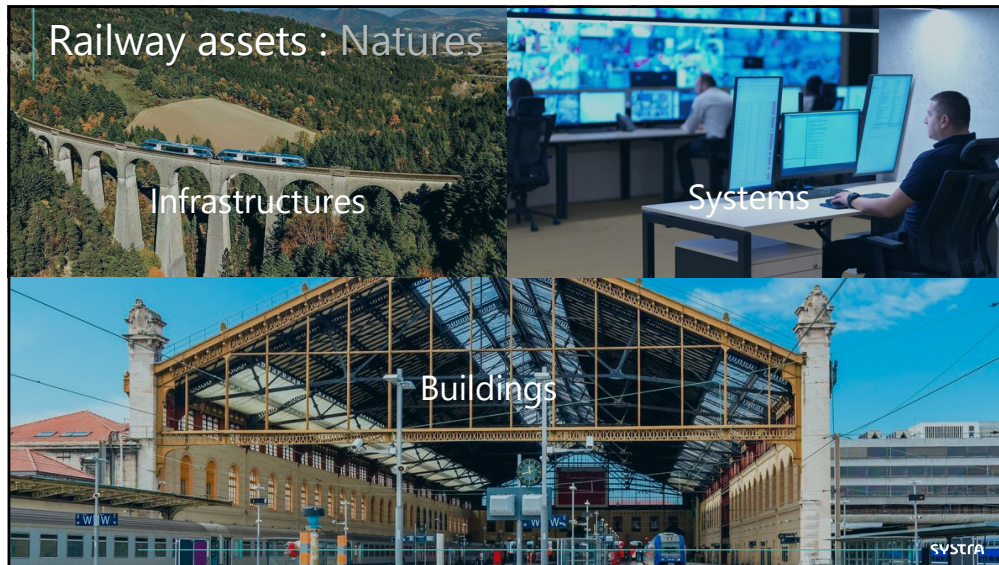
 **65 YEARS**
 expertise in transportation

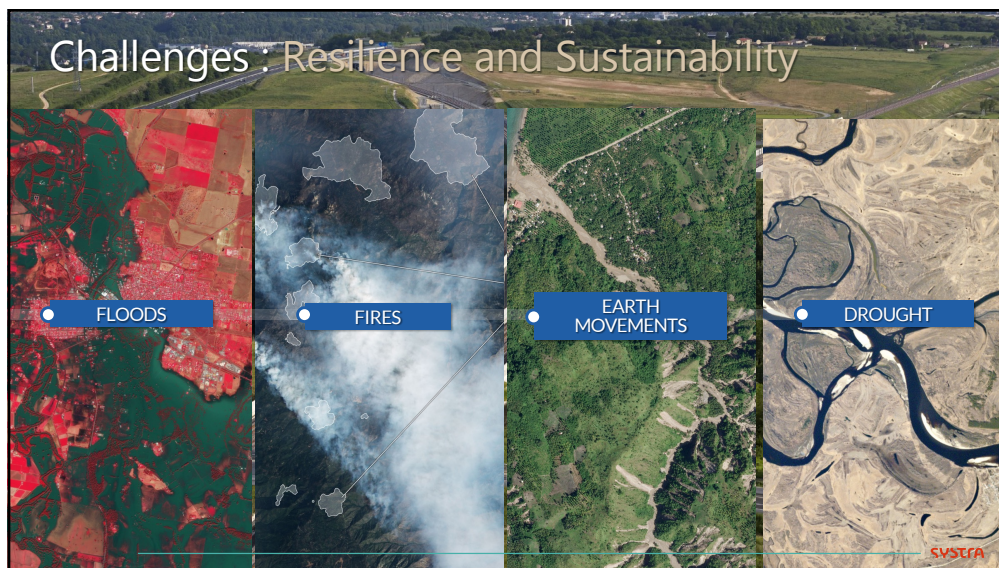
Figures as at end of 2022

 A turnover of €902M	 76% of turnover achieved abroad	 Orders of €1.6 Bn
 An operational presence in 80 countries	 SYSTRA has contributed to 1 in 2 High-Speed lines in the world (>250 kph, outside China)	 SYSTRA has designed 1 Metro network in service out of 2 in the world

PLM Road Map™ & PDT Europe 2023
 The Digital Thread in a Heterogeneous, Extended Enterprise Reality
 A call for PLM Professionals to share their knowledge & experience
 November 15 & 16
 CIMdata 












Solution(s) ? Industry Consensus

Example : Collaborative Project on French Railways Sector




Main Challenges :








-  **Digitalization** of the railway infrastructure construction and O&M activities
-  **Digital continuity** over the entire asset lifecycle
-  Development of Technologies and Processes to support **Collaboration** around Railway assets
-  **Environmental transition and decarbonization** of the Railway sector

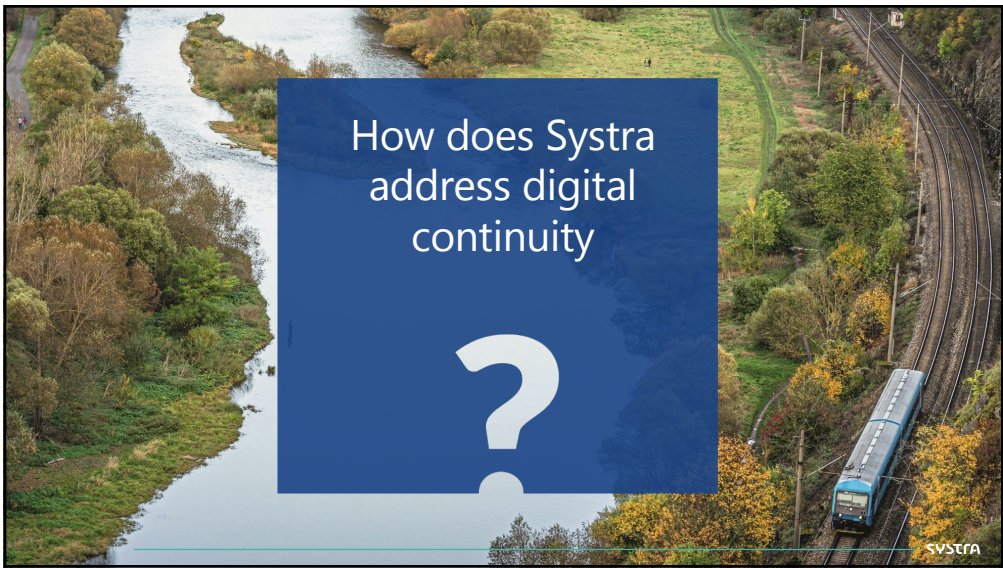
Proposed Solution :

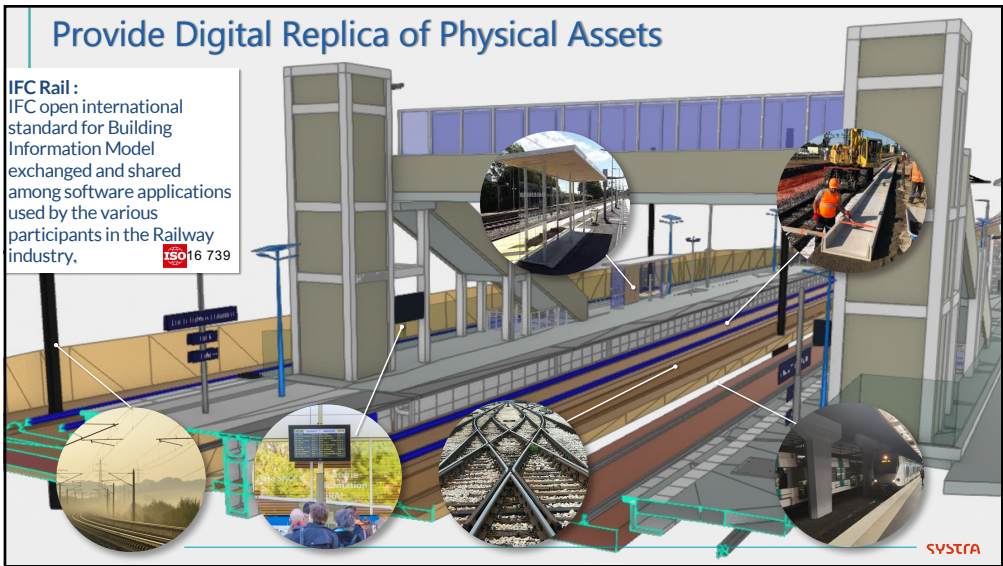
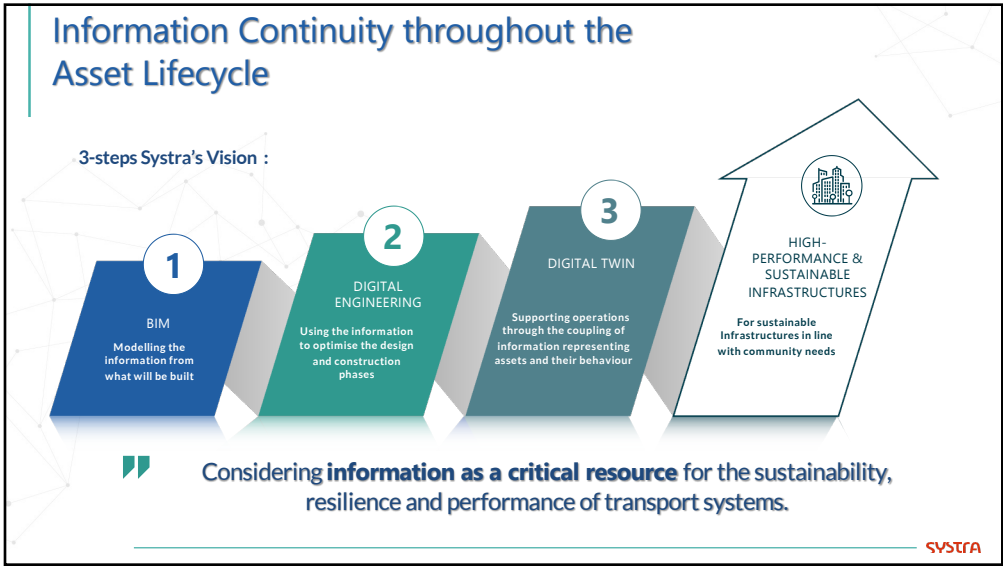
Develop **Railway Digital Twins** to better:

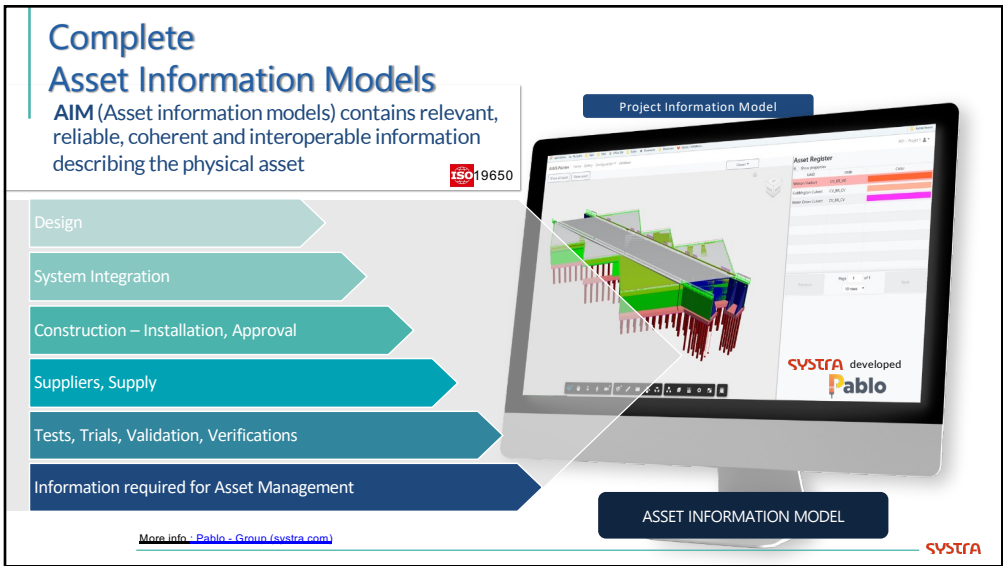
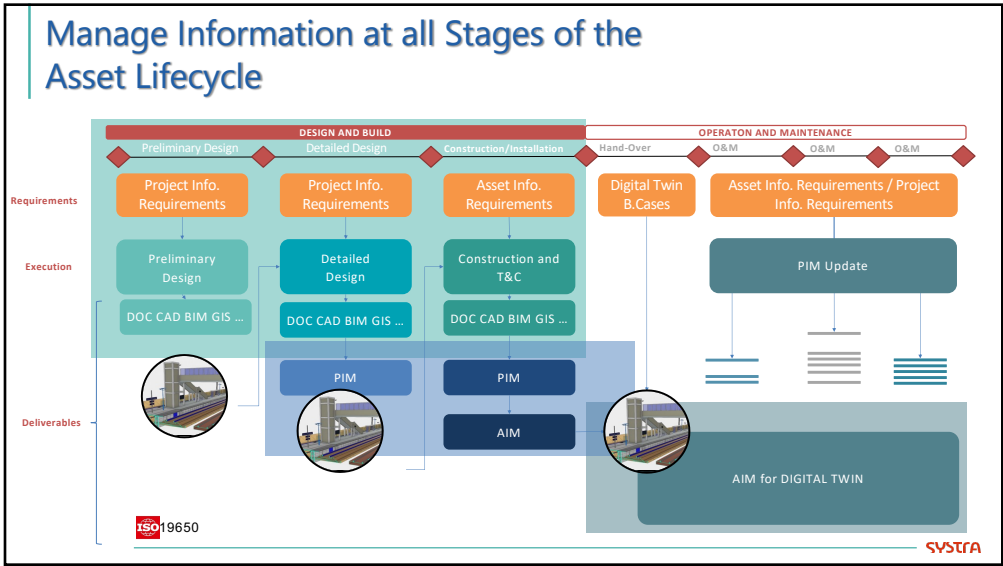
- **Manage Asset Values**
- **Plan Maintenance**
- **Mitigate Operational Incidents**
- **Anticipate Consequences of Climate Change**

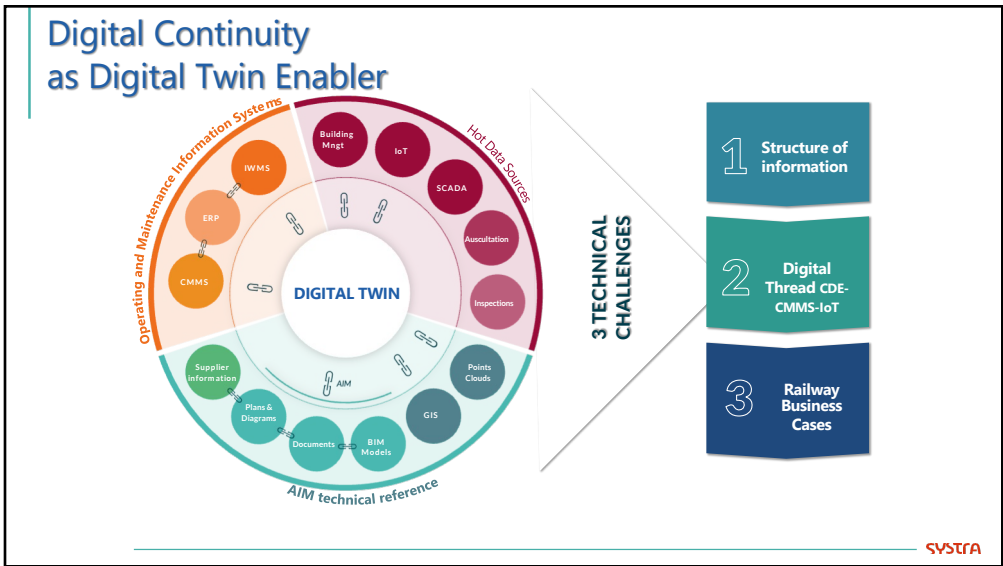
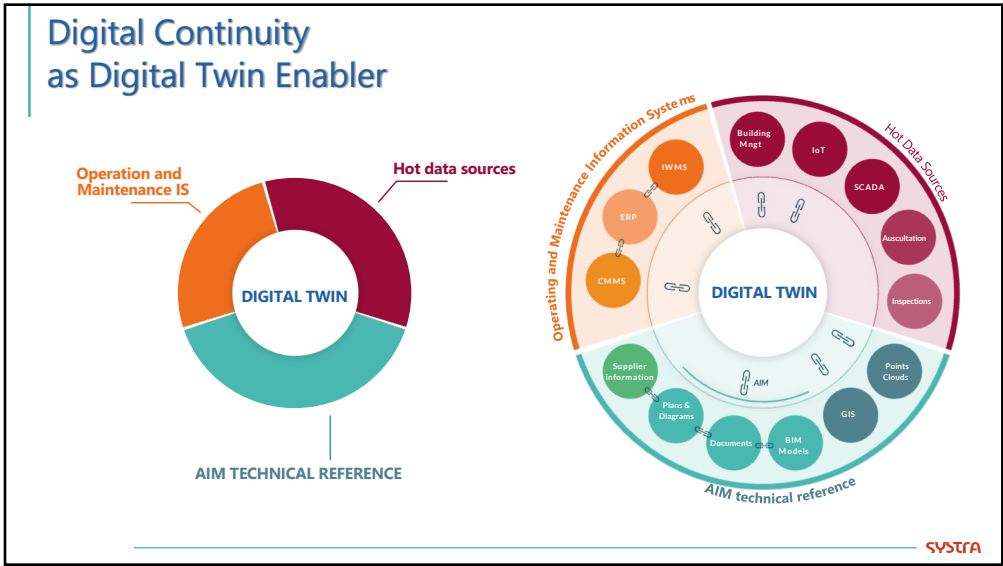
Founded by  **bpi france** The MINERVE project is financed by the French government within the framework of France 2030

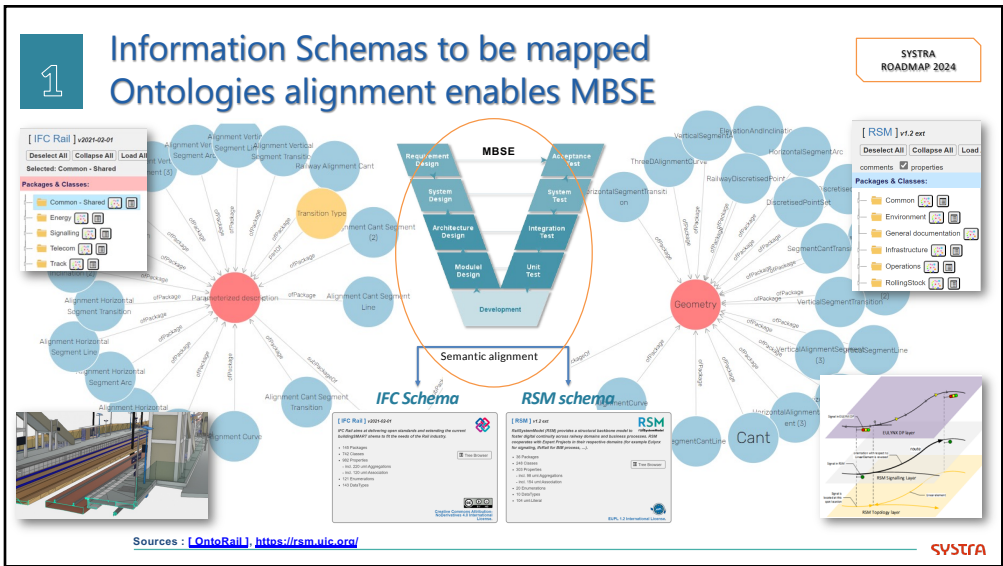
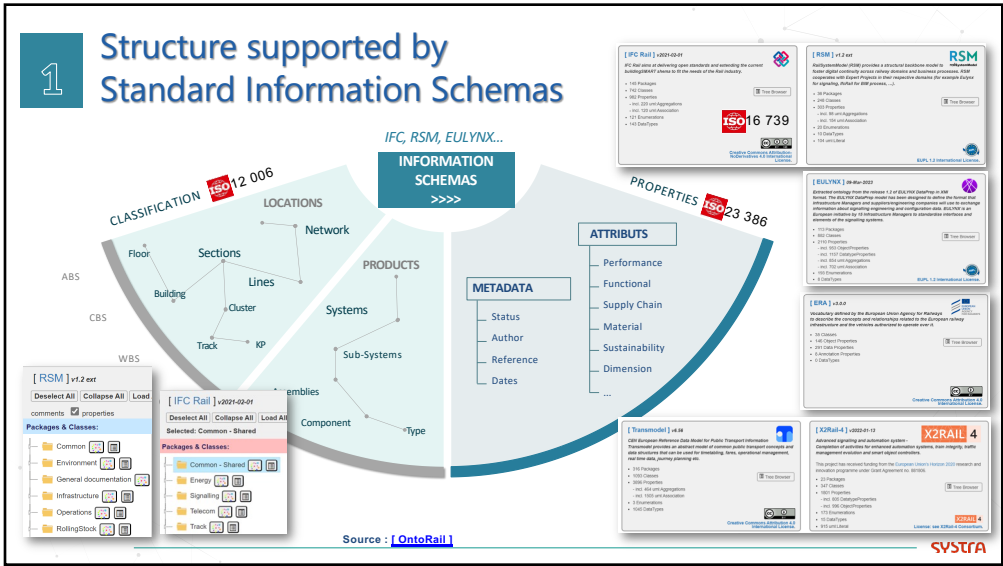
Partners       **SYSTRA** +4 Engineering Firms, +2 Constructors +2 Academic 

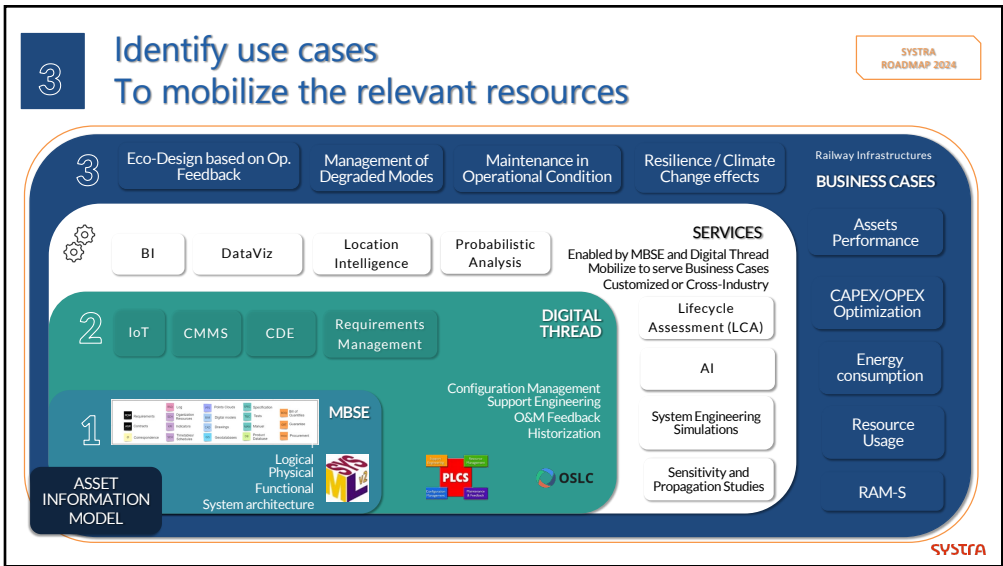
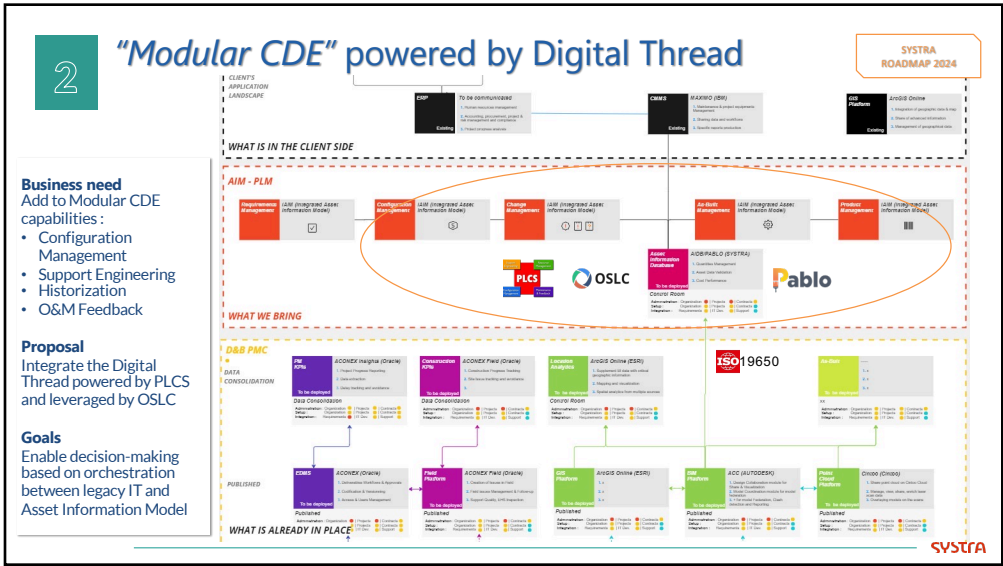














Meeting the Challenges of Sustainability in Critical Transport Infrastructures :

How does SYSTRA address digital continuity with PLM throughout the built assets lifecycle?

SYSTRA



Meeting the Challenges of Performance and Sustainability in Critical Transport Infrastructures


Railway Stakeholders see the digital twin as a vector for performance, sustainable design and resilience in the face of the impact of climate change.

Systra implements solid information management in its projects through Modular CDEs (adapted to needs), OpenBIM principles and industry classes.


Systra is now exploring the alignment of ontologies in its field of expertise to develop MBSE and experiment with the use of OpenPLM to provide the key components of digital twins fit to serve the use cases of efficient and sustainable Transport infrastructures.

Considering **Information as a Genuine Asset** in the same way as a Physical Asset

SYSTRA



Etienne PANSART
Head of Digital Engineering Services
SYSTRA Group
epansart@systra.com



Meeting the Challenges of Performance and Sustainability in Critical Transport Infrastructures


PhD

INSTANCIATION OF A DIGITAL TWIN ARCHITECTURE TO THE CASE OF AN EXISTING RAILWAY INFRASTRUCTURE

Development and boundary analysis of a Digital Twin Architecture for the optimized management of the existing rail infrastructure

- PhD student : Hibat Allah BABTY
- Period: Nov. 2023 - Nov. 2026 (3 years)
- Academic supervision : UTC (B. EYNARD)
- Technical supervision : SYSTRA (E. PANSART) and IREX
- Research framework: MINERVE (Financed by the French government within the framework of France 2030)

Keywords : #asset information modeling, #Digital Twin architecture based on #PLM services, #concurrent engineering, #MBSE, #ontologies for #Railway Domains and use cases



SYSTRA