

From Digital Twin to Intelligent Maintenance

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Rail Live 2025



Your global
knowledge-provider

TYPSA at a Glance

#44 ENR Ranking - International Design Firms

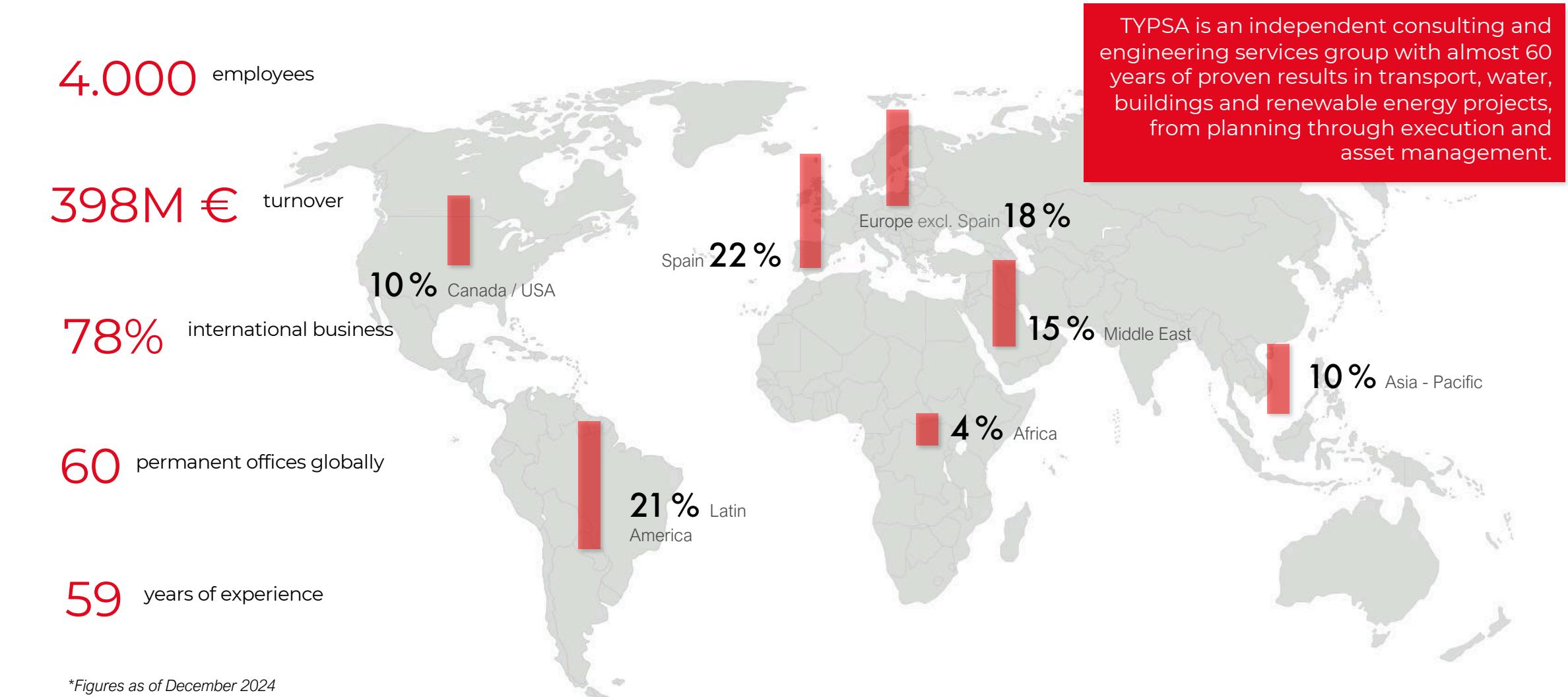
4.000 employees

398M € turnover

78% international business

60 permanent offices globally

59 years of experience

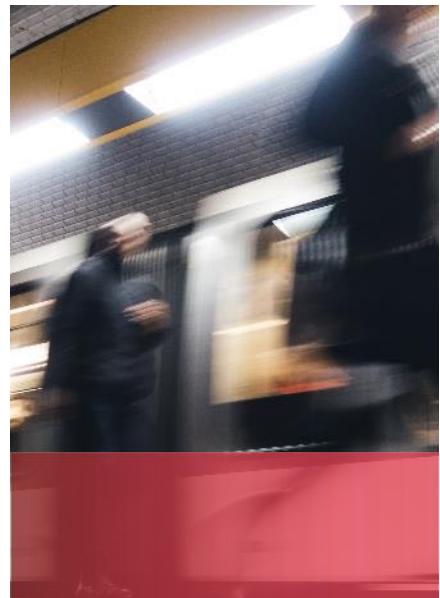


TYPSA is an independent consulting and engineering services group with almost 60 years of proven results in transport, water, buildings and renewable energy projects, from planning through execution and asset management.

*Figures as of December 2024

▪ Consulting, engineering and architectural services

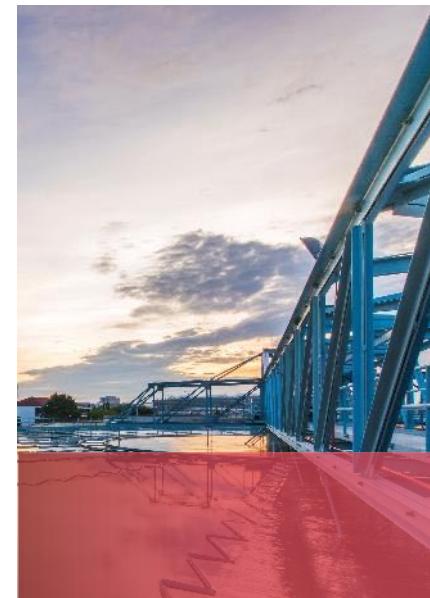
Improving quality of life through the built environment



Transport



Buildings &
cities



Water &
Environment



Energy



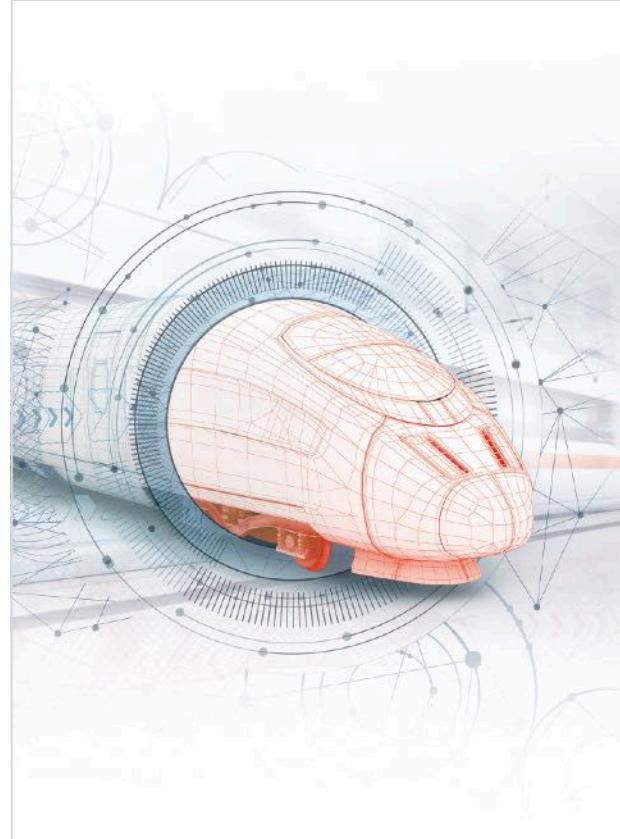
Rural

Our **areas of value creation** in knowledge and innovation

Value Engineering



Advanced algorithms in consulting, architecture and engineering



Digitalization

Implementation of new technologies streamlining work



Sustainability

Future-proofing buildings, infrastructures and cities



▪ Project De-Risking with Digital Twin



Performance Specifications

- Design parameters.
- Operational requirements.
- Maintenance standards assigned to components.
- Assets of the BIM model.



Design & Constr. Standards

- Safety regulations
- Quality assurance protocols integrated into the model for compliance checking.



Asset Management

- Digital twin of the built environment, including as-built information:
 - Maintenance schedules.
 - Operational data.

✓ Digitally-driven de-risking means greater cost and schedule certainty, lower financing costs and more value for money.



Interface Requirements

- Interactions & dependencies between:
 - Civil works
 - ITS / Tolling

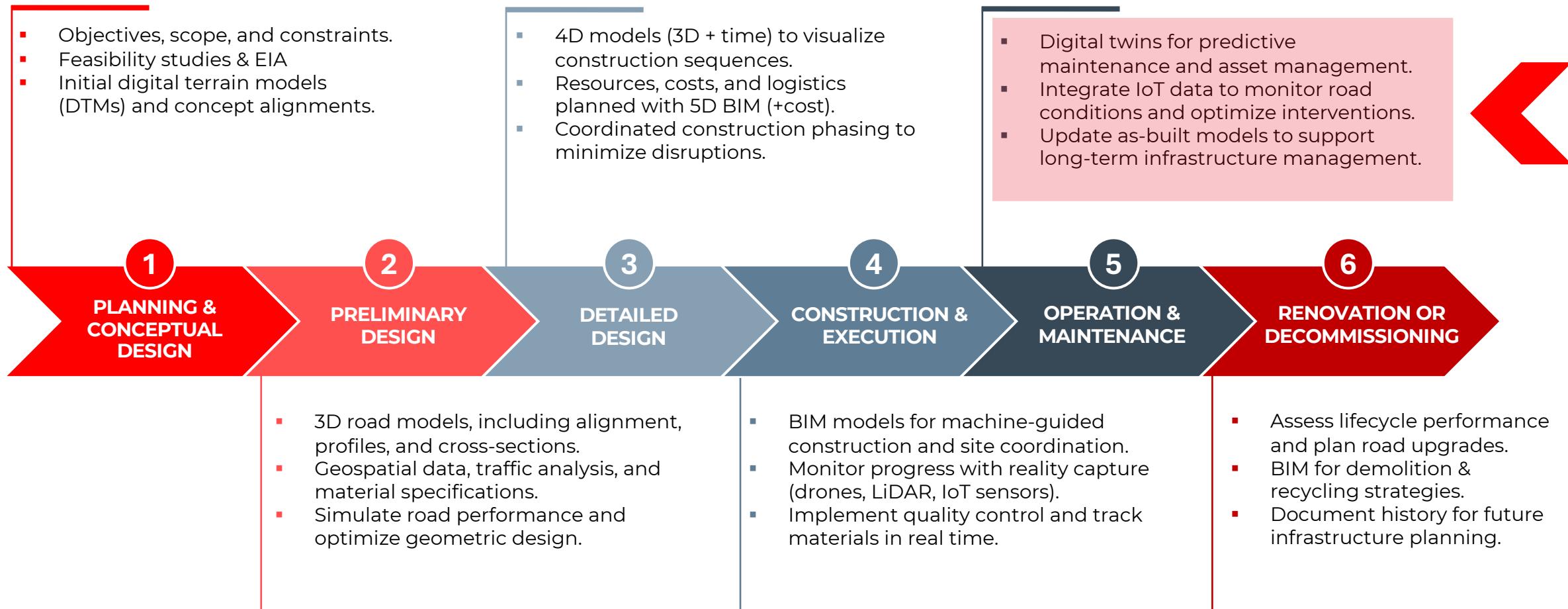


Risk Allocation Provisions

- Delays, cost overruns, and performance failures are allocated to specific elements in the BIM model as a central platform for contract management.

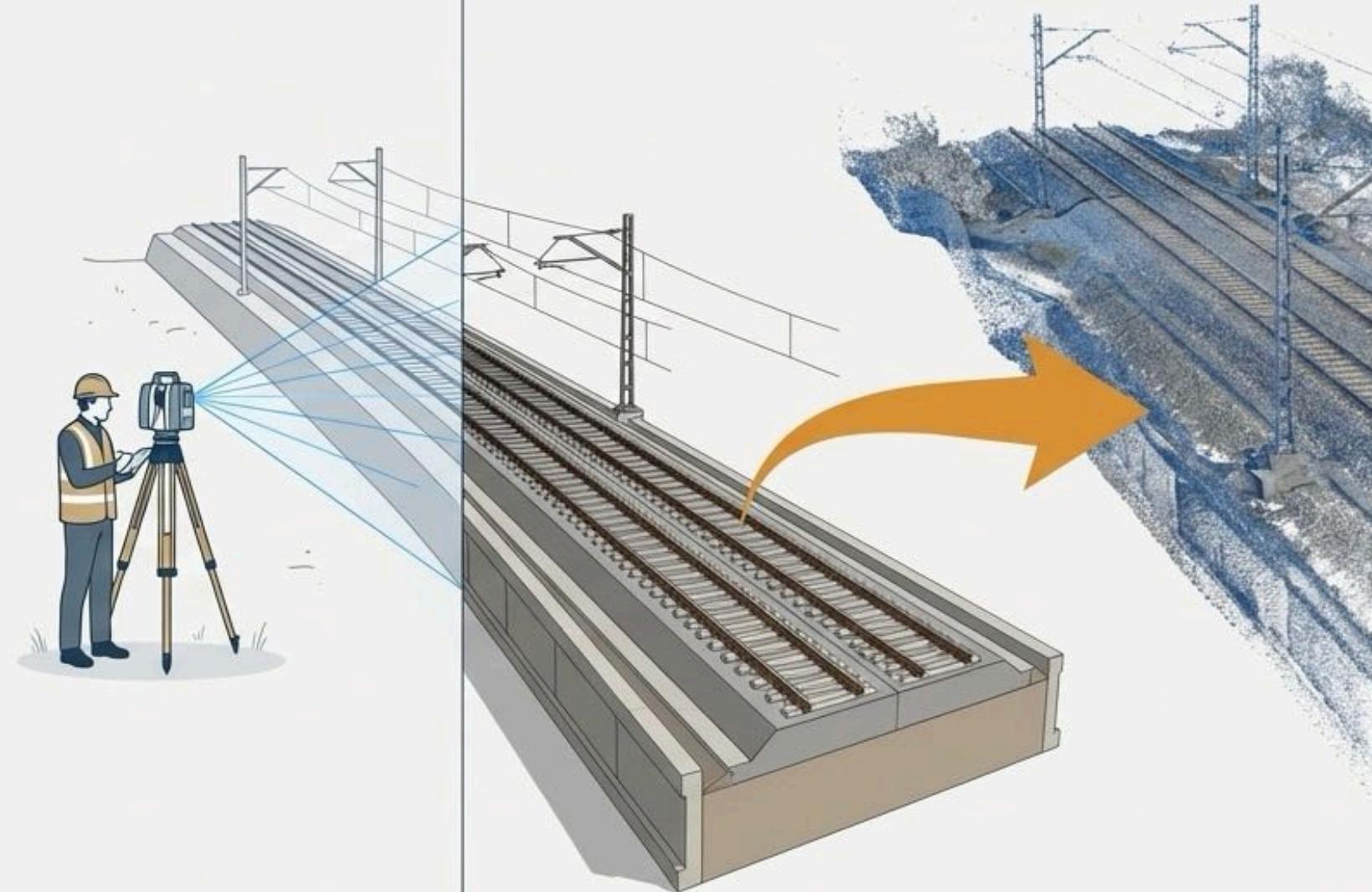


Digital Twin Life Cycle



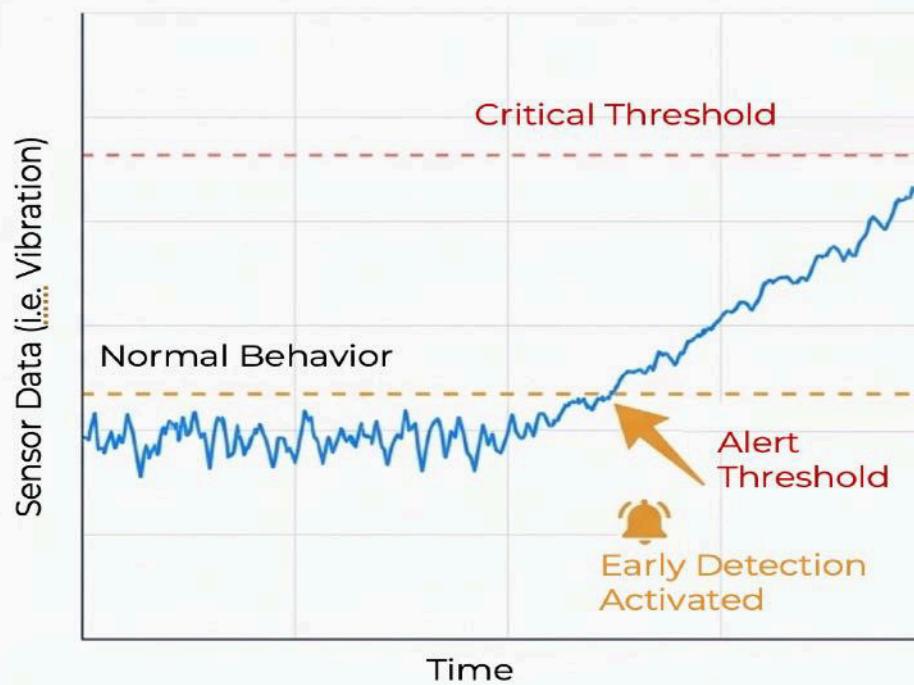
✓ Digital integration at each step enhances efficiency, sustainability, and resilience.

Digital twin is
where the
physical world
and the digital
world finally
meet



Not a static BIM model, but a dynamic ecosystem that learns from the real asset.





DISCOVERY:
REAL BEHAVIOR
VS DESIGN
PREDICTIONS



ADJUSTMENT
RECALIBRATE
WITH REAL DATA



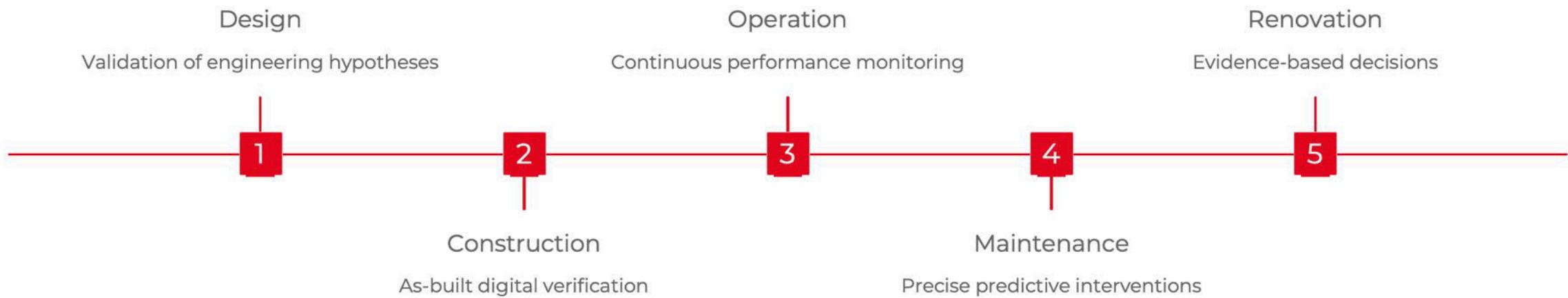
ACTION:
TARGET
PREVENTIVE
INTERVENTIONS
(NOT GENERIC)



RESULT
REDUCED
MAINTENANCE
COSTS +
EXTENDED
LIFECYCLE

From Monitoring to Lifecycle Optimization

The living digital twin transforms the entire value chain of the railway asset.



Paradigm Shift

From isolated silos (design/operation/maintenance) to an integrated continuum of continuous learning.



Talk to us:

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