

Business case for Harmonizing Railway operations in Europe

Enhancing rail safety and
interoperability across Europe

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Why Industry harmonization matters for the Industry

25 sets of National Rules

- Life extension of legacy solutions
- High engineering effort
- Complex variability
- Long certification cycles

Digitalization and Automation

- Clear regulatory pathway for DAC, FRMCS
- Future automation layers
- Focus on Integrated mobility and traffic management systems
- Data driven solutions to reduce TCO

Industry Strategic Importance

- Demand growth for rolling stock on high-speed corridors
- Strengthen European industrial ecosystem to compete globally
- Protection of strategic competencies

Competitive Solutions

- Scalability of product lines
- Replicable architectures
- Increase competitiveness
- Lower cost of sales

Single European Market

- Predictable long-term demand
- Stable pipeline for upgrades
- Less fragmented R&D
- Migration to digital new offers

Increase of Freight Solution Demand

- More efficient freight traffic will increase demand of locomotives and automation
- Need for digital platforms, logistics interoperability, multimodal tools

Replacement mechanisms

Defensive advantages vs Scale advantages

- Country specific variants
- High switching costs
- National certification hurdles

- Industrial scale and repeatability
- Lower unit costs
- Higher profitability

Market fragmentation vs Innovation leadership

- Long established players
- Captive domestic markets

- EU adoption of new technology
- Innovation roadmap around ERTMS
- Performance based environment

Bespoke engineering vs Service based business

- High engineering for country specific adaptations
- Guaranteed upgrades

- Large scale digital maintenance opportunities
- SW upgrades (cyber, data analytics, condition-based monitoring, remote operation)

Standards divergence vs Leadership in standard setting

- Influence rooted in national references
- Lock-in from proprietary solutions

- Early-shaper influence in EU
- Strategic role in Europe's rail ecosystem

Captive markets vs Global Export strength

- Strong national footprint

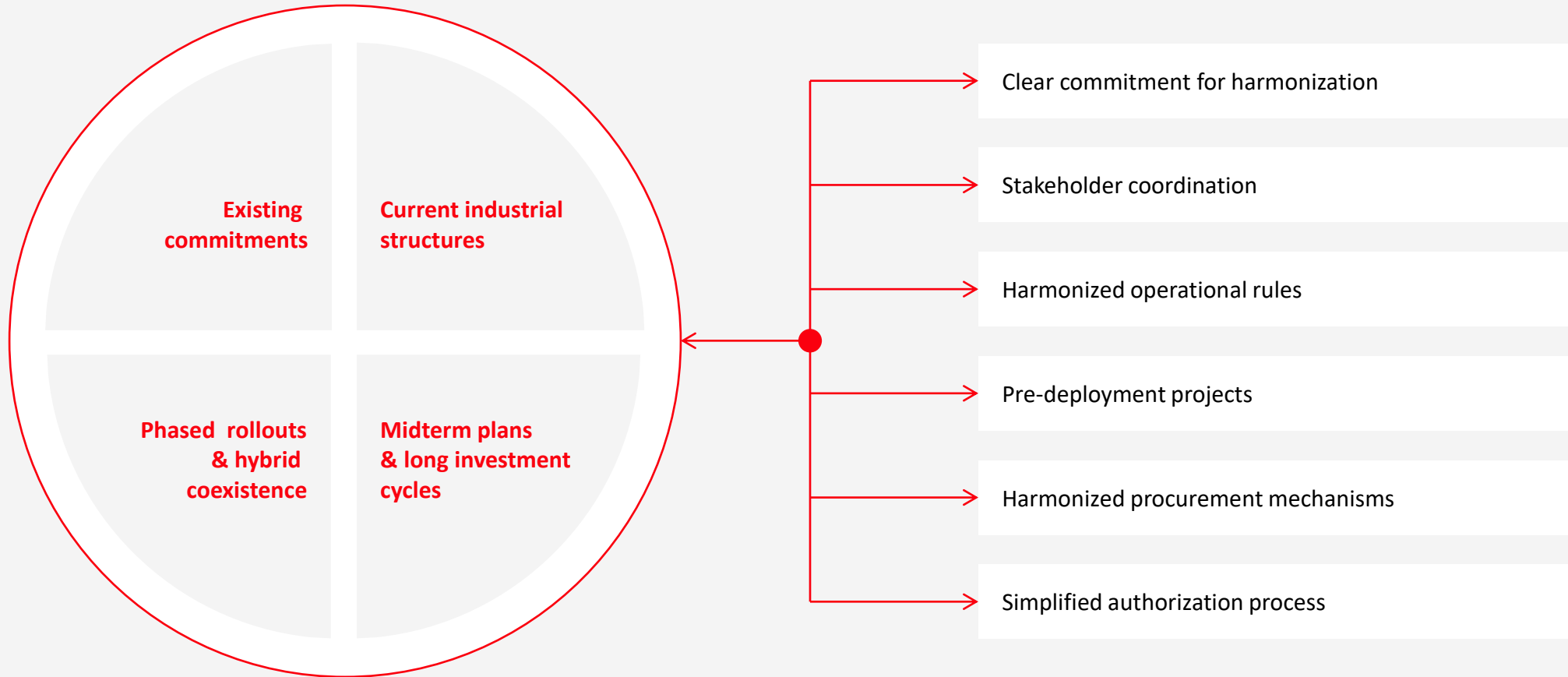
- Capacity to export interoperable standardized solutions

Isolated markets vs Multi-country programs

- Protected national programs

- Massive investments driven by EU goals, high speed and freight

Transforming headwinds for a positive Business Case



HITACHI