



RAIL TRANSPORTATION

STATE OF THE MARKET

The increasing demand for rail transport as a reliable and efficient means of travel is steadily rising, incentivizing governments worldwide to heavily invest in rolling stock, infrastructure, signaling, and urban transit systems. In the coming years the market volume is projected to grow 2.6% per year on average worldwide, and reach about 185 billion euros in 2021.¹

Increasing population, rapid urbanization, and rising mobility have been serving as the key drivers, especially in the BRIC region, Asia and Africa. This trend is not limited to developing or emerging economies – Europe and North America continues to develop on their present infrastructure with the ultimate goal of improving passenger experience and safety.²

However, challenges within this field of operation continue to present themselves. There is a marked shortage of resources with niche skills which impedes the scope for delivering systems assurance and implementing RAMS methodologies. Additionally, fleet owners themselves exhibit noticeable resistance towards embracing modern solutions like condition-based maintenance and asset management.

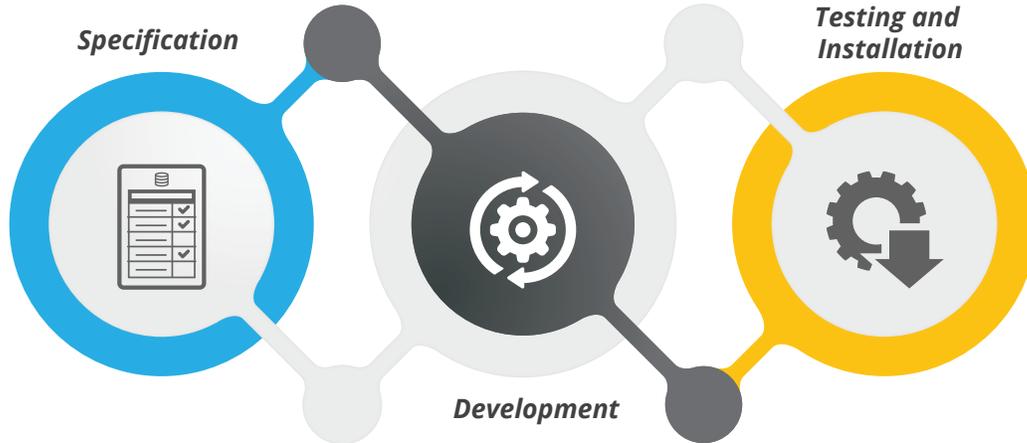
SERVICE OFFERINGS

L&T Technology Services (LTTS) offers comprehensive support for end-to-end system design and integration of locomotive solutions, customized to meet varying market requirements. Our portfolio of services includes signaling and communication engineering, simulation, automation, testing and validation support. We empower our partners with state-of-the-art prototype development, installation, testing, commissioning, refurbishment, and variant management support to help develop SME expertise for innovative design and technology development.

Footnotes:

1. Think Railways, Global rail market volume is forecast to reach EUR 185 billion by 2021, <http://www.think-railways.com/global-rail-market-volume-forecast-reach-eur-185-billion-2021/>
2. Roland Berger, UNIFE World Rail Market Study 2016, https://www.rolandberger.com/publications/publication_pdf/roland_berger_world_rail_market_presentation_final.pdf

COMPREHENSIVE 3-TIER SERVICES & SOLUTIONS FOR RAIL TRANSPORT & SIGNALING



KEY DIFFERENTIATORS

- Extensive experience in embedded systems
- Niche skills in system assurance and RAMS
- Ready to fit solutions for condition-based maintenance
- Comprehensive infotainment integration capabilities for improving passenger experience
- Matured practice in asset management

BENEFITS

- Leverage our reliability, availability, maintainability, and safety (RAMS) and system assurance support for executing independent verification of signaling design
- Train and enhance SME expertise to deliver the latest designs with the help of our installation, testing, commissioning, refurbishment, and variant management support
- Execute asset management and condition-based fleet maintenance by implementing retrofit and WAGES solutions

CASES



Designed and optimized the overall size of vertical support pan assembly as per space constraint, and customized axial damper in line with car body space availability. Delivered CAD models and assemblies, weldment manufacturing drawings, detail drawing, purchase reference drawings, and bill of material.



Designed a railway brake management system in line with SIL2. Developed and delivered the required hardware, software, and supporting application software. Executed functional and performance testing, developed multiple simulators for parallel module development, and delivered documentation in line with IEC61508 and IEEE 1558 standards

For more information visit us at www.lnttechservices.com

Reach us at info@lnttechservices.com



About L&T Technology Services

L&T Technology Services Limited is a subsidiary of Larsen & Toubro Limited with a focus in the engineering services space, partnering with over 50 Fortune 500 companies. A leading pure-play Engineering, Research and Development services company, we offer design and development solutions through the entire product development chain, across various industries such as Industrial Products, Medical Devices, Transportation, Telecom & Hi-tech, and the Process Industry. We also offer solutions in the areas of Mechanical Engineering Services, Embedded Systems & Applications, Engineering Process Services, Product Lifecycle Management, Engineering Analytics, Power Electronics, Machine-to-Machine (M2M), and the Internet-of-Things (IoT).