

Traffic complexities on the roadways are posing a major challenge in the field of ground transportation. While the rising aviation fuel costs have made air-travel an expensive affair, rail transportation could be a feasible ground transport solution to the infrastructure saturation in developed and developing economies. Rail transportation can provide a safer, more reliable, and cost-competitive option compared to road and air transportation.

The growing economy and demography have raised the demand for rail transportation. The major restraint faced by the limited infrastructure is the level of capacity tolerance for such growing demand. The recent trends in the global economy have a growing impact on the railway management practices. The main concern before the management is to make the railways sustainable and environmental friendly with the adoption of new-age innovations. As a result, every element in the value chain needs to undergo a revolutionary change and optimize the operations.

The existing rail infrastructure has proved to be inadequate to cope with the rising traffic flow. This strongly affects the overall operational efficiency of the rail network. Thus the reliability and safety standards of the rail service face constraints. The current technological implementations have become less effective to manage the expected growth scale in the near future. Thus, with the help of new-age information technology (IT) and telecommunication advancements, the rail infrastructure is transforming to provide a more advanced transport solution.

The main long-term drivers of the rail transportation are linked to economic and demographic growth in the emerging markets. In mature markets, they are related to the renewal and up gradation of existing infrastructures, as well as increased environmental and sustainability awareness.

The future of railway industry is expected to rely on innovative management practices which would leverage the information and communication technologies (ICT) over the large rail networks and conventional practices. With the help of management software, the routing and scheduling of the rail traffic would become more efficient and an untangled affair. Traffic control management systems could resolve the congestion issues over the limited rail network size. An efficient traffic flow over the network could ensure minimum time delays and curb financial losses.

The railway management systems report brings out the railway solutions business potential across different regions such as North America (NA), Asia-Pacific (APAC), Europe (EU), Latin America (LA), and Middle East and Africa (MEA). It further segments each regional market by solutions, types, and services, and forecasts the revenue for the various sub-markets. The report provides a comprehensive examination of market drivers for railway management infrastructure, including an assessment of the various approaches being taken in key countries around the globe.

Case Studies

Shift²Rail: The major focus of Shift²Rail project is to develop rail as a transport mode by promoting step-change innovations for passenger rolling stock, freight transport, traffic management systems, and rail infrastructure. It will also contribute to the paradigm for modal shift to attract the users to rail. For the EU passengers, this will mean more travel options, more comfort, and improved punctuality. For the freight forwarder/shippers, this will mean that rail freight will become more cost effective, punctual, and traceable as a shipment option.
Next-Generation of Train Control Systems (NGTC): This project focuses on developing and installing next-generation train control system solutions in the domain of urban and main line European railway systems, with the aim of satisfying the increasing market needs of both mainline and urban lines. The project aims on developing new rail control system which includes adoption of satellite positioning and Internet Protocol (IP)-based radio communication in centralized traffic control solutions system.

European Rail Traffic Management System (ERTMS): ERTMS is a major industrial project being implemented to enhance cross-border interoperability through Europe by creating a single standard for railway signaling. ERTMS is a continuous communication-based signaling system. The project is being developed by eight UNIFE (the association of the European rail industry) members with the concerted effort of EU, railway stakeholders, and the Global System for Mobile Communications-Railway (GSM-R) industry. The UNIFE members include Alstom Transport, Ansaldo STS, AZD Praha, Bombardier Transportation, Invensys Rail, Mermec, Siemens Mobility, and Thales.
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