Smart Railways - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts 2019 - 2029

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Report description:

The Smart Railways Market size is estimated at USD 35.20 billion in 2024, and is expected to reach USD 56.02 billion by 2029, growing at a CAGR of 9.74% during the forecast period (2024-2029).

Increasing demand for freight transportation and urban mobility necessitates new approaches to railway operations. The worldwide rail market is predicted to continue its steady expansion, with urban transportation experiencing the fastest increase. This fast growth and a restricted network place tremendous strain on railway operators attempting to meet the next generation of passenger and freight needs.

Key Highlights
-The growing need for urban connectivity, more integration of IoT-based technology, and a strong emphasis on lowering emissions are all likely to fuel the emergence of the "smart railway" system. In addition, According to IBEF, Indian Railways is developing and creating technology in places such as signaling and telecommunication, with 15,000 km being transformed into automatic signaling and 37,000 km being fitted with 'KAVACH,' the domestically generated Train Collision Avoidance System.
-With growing numbers of railway passengers and revenue from passengers, the smart railways market is expected to grow to handle the increased rail traffic. For instance, according to IBEF, the value of earnings from rail passenger traffic across India increased from USD 2.03 billion previously to USD 4.66 billion in 2022 (till March 2022). In addition, In 2023 (until October 2022), passenger traffic stood at 3.61 billion.
-Moreover, urban passengers are more inclined toward rail commutes, as it serves as a time-effective alternative to avoid unnecessary traffic congestion. Thus, an increase in the reliability of urban passengers on railways for daily commutes significantly contributes toward the growth of the smart railway market.
-Railroads are also leveraging historical big data resources to allow preventive modeling and use machine learning to tackle

problems in novel ways. Operators are leveraging innovative technology to give integrated digital experiences, such as driver-machine interface and infotainment, to improve passenger and driver experiences and efficiency.
-The substantial initial infrastructure expenditure required stymies the development of smart train systems. Due to the employment of modern technology, the deployment of smart railway lines necessitates substantial expenditure. Cabling a train for network connectivity is expensive, especially over a wired Ethernet network, due to the high installation expenses. Additionally, rewiring may be required each time the train is modified, raising maintenance expenses. Moreover, failure of any infrastructure part after installation due to a technical error or integration difficulty can have severe effects, including loss of life and considerable replacement expenses. Hence, it is predicted that the high initial cost of implementation will limit the worldwide smart railway systems market.
-In the post-COVID-19 scenario, the market outlook was positively impacted by rising demand for biometric, integrated, contactless & mobile payment adoption, sensor-based technology, and ticketing technologies throughout public transit. Moreover, the development by various companies is also expected to boost the demand for smart railways.

Smart Railways Market Trends

Increasing Hyper-urban Population to Drive the Market

- Cities worldwide have become smarter due to the increased population of hyper-urbanization and globalization. Connected technologies and Smart services play critical roles in urban transformation by improving urban services' quality, efficiency, and interactivity, optimizing resources, and lowering costs. According to Cisco, machine-to-machine connections supporting IoT applications accounted for over half of the world's 28.5 billion connected devices in 2022.
- With the expected increase in passengers and freights, the worldwide urban population expansion is expected to enhance the demand for railways to apply intelligent solutions. According to Population Reference Bureau, in 2022, the degree of urbanization worldwide was 57%. North America was the region with the highest level of urbanization, with over four-fifths of the population living in urban areas.
- Further, according to the United Nations Department of Economic and Social Affairs, 68% of the world's population is anticipated to live in urban areas by 2050. Africa and Asia are expected to contribute to 90% of this increase. In certain countries, including India, up to 60 individuals move into cities every hour.
- Smart rail service will be critical in tackling the problems of an expanding population. A smart rail is a future-proofing option as it delivers a high-capacity, safe, low-emission alternative for urban mass transit. It not only provides a sustainable option for carrying suburban people to and from metropolitan regions, but it also frequently connects to other vital transportation hubs such as ferries, airports, and spaceports in the not-too-distant future. Smart cities may become more sustainable with autonomous, on-demand, and networked train services.
- Rail is a safe, efficient means to move large groups of people swiftly and reliably, and contemporary, sophisticated train systems are evolving to be more economically sustainable and ecologically beneficial. Innovative rail is a critical component of end-to-end multimodal service..

Asia Pacific is Expected to Hold the Significant Market Share

- The expansion of an intracity network in Asia-Pacific and digital signage, smart ticketing, and Wi-Fi connectivity stores that provide additional entertainment options or increased productivity are projected to drive the region's adoption of smart railways. Furthermore, as part of the Digital India initiative, the Indian government has planned to push IoT in the country. The government allocated an INR 7,000 crore (USD 85.32 billion) fund to develop 100 smart cities powered by IoT devices to control traffic,

efficiently use water and power, and collect data using IoT sensors for healthcare and other services.
- China's enormous railways are essential to the country's national and urban transportation infrastructures, and the country already has some world-class systems. China, for example, has the world's largest high-speed rail network, reaching over 37,000 km (22,990 miles) and accounting for 64% of global high-speed networks.
- Furthermore, in this region, the respective governments have made considerable efforts to "upgrade" and "revamp" existing lines to improve overall operating efficiency. Furthermore, the development of megacities is predicted to be strongest in emerging Asia-Pacific countries.
- According to the India Brand Equity Foundation, investment in Indian railways amounted to approximately USD 124 billion between 2018 and 2022. Such massive investment in the development of railways would further boost the demand for smart railway solutions in the region. In addition, in August 2022, the government launched Mission Raftaar for speed enhancement and to achieve a target of doubling the intermediate speed of freight trains and enhancing the average speed of mail/superfast/express trains by 25 kmph.
- In November 2022, a consortium of Japanese firms produced open-source software for private 5G networks, claiming to provide a low-cost 5G core (5GC) network that reduces the cost of private infrastructure domestically. Furthermore, in August 2022, IBM Corp. and VMware Inc. expanded their partnership to assist their customers' information technology modernization initiatives.
- In January 2022, with the opening of the China-Laos railway, China's global railway infrastructure was being built, using tracks and concrete to deliver a faster digital communications network. Huawei's Smart Railway Solutions are used in the new China-Laos rail link, and Huawei is working with Laotian telecom providers to build a high-speed network along the high-speed line. Travelers and rural residents would benefit from its reliable connectivity.
- Such ongoing investments by the government and regional players to develop and strengthen the railways by deploying innovative railway solutions would boost the growth of the Market studied.

Smart Railways Industry Overview

The smart railways market is highly fragmented, with major players like Cisco Systems Inc., IBM Corporation, ALE International, Huawei Technologies Co. Ltd, and Siemens AG. Players in the Market are adopting techniques such as partnerships, collaborations, and acquisitions to enhance their product offerings and gain sustainable competitive advantage.

- June 2022 - Huawei announced its new vision for optical transport networks. This new vision is centered on delivering the optical transport network (OTN) to edge nodes to provide all-pervasive premium connectivity and construct eco-friendly and straightforward optical networks, assisting operators in achieving financial success.
- March 2022 - Cisco and Network Rail Telecom (NRT) collaborated to provide communications and connectivity to the community by utilizing government-owned fiber running through the station and third-party radios. The United Kingdom National Health Service was able to set up telehealth pods for remote consultations, testing, and diagnosis. It is one example of how rail technology is being used for the better. In this podcast, they look at all rail technology opportunities. This includes smart rail benefits for employees and passengers and ongoing collaborations to improve rail operations and management.

Additional Benefits:

- The market estimate (ME) sheet in Excel format
- 3 months of analyst support

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