



Newsletter on the  
Latest Technologies  
Developed by RTRI

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# Railway Technology Avalanche

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## Support for the Safety of Train Operation

**Atsushi KAWAI**  
Executive Director

The railway network in Japan covers a total length of approximately 27,500 km, over which about 200 railway operators run passenger and/or freight trains on a daily basis. These railway operators are extremely diversified in scale and corporate power; as an example, JR East (the largest railway company in the country) claims a mammoth-size network of approximately 7,500 km, while one of the smallest railway companies in Japan operates a route length of just 2.7 km in a rural area.

To ensure the safety of train operation, safety devices, such as the ATS system to prevent trains from passing red signals, have been installed on all railway lines except tramways in Japan. Furthermore, installation of new systems is now being introduced at terminals and at locations with sharp curves to prevent trains from exceeding speed limits. It becomes therefore now a major issue for railway companies who lack adequate funding for investment.

RTRI is now making efforts to develop not only high-level safety systems for Shinkansen and high-density train operation lines but also low-cost safety systems that are appropriate for railways with lower levels of traffic.

As enhancement of safety systems alone is insufficient to eliminate all train accidents, RTRI is also promoting R&D on human factors related to train drivers and staff closely involved in railway operation.

It is also developing new aptitude tests for those engaged in train operation, techniques to enhance safety awareness in the workplace and methods to evaluate work schedules that take into consideration the issue of long-term accumulated fatigue among operating staff. At the same time it is promoting research themes over a wide range of areas.



RTRI welcomes requests for consultation on routine problems from railway operators who cannot employ sufficient numbers of engineers, and it makes available advisers to them to provide support for troubleshooting. Consequently, RTRI's mission is not only to promote the most advanced technological developments within its organization, but also to offer technological services to railway operators based on its wide-range of knowledge in order to offer comprehensive support for the safety of train operation by railways across the country.