March 25 ,2021

JR Kyushu and Hitachi
Launch a Joint Project to Automate Train Operation Re-planning Work by AI

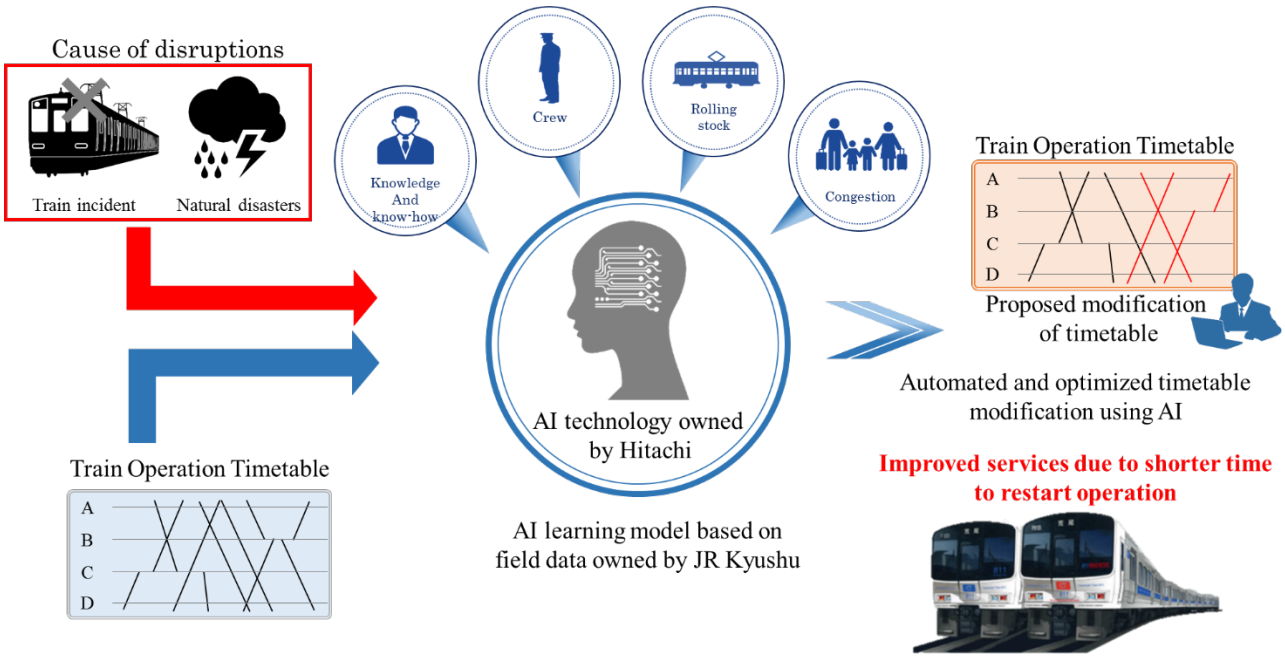
- Kyushu Railway Company (President: Toshihiko Aoyagi, “JR Kyushu”) and Hitachi, Ltd. (President & CEO: Toshiaki Higashihara, “Hitachi”) launched a joint project to automate train operation re-planning work utilizing artificial intelligence (AI) in January 2021.
- JR Kyushu and Hitachi will combine the AI Timetable Modification technology owned by Hitachi with the abundant knowledge and know-how owned by JR Kyushu and will conduct verification work for AI‘s effectiveness in real field from April 2021.
- In this project, JR Kyushu and Hitachi aim to improve train services through making train operations more efficient and enabling early recovery from disruption automating timetable modification.

JR Kyushu set "Use AI in train operation control" as a challenge for its future railway business in its Medium-Term Business Plan (2019-2021) and is considering measures to inherit know-hows and skills in train operation control and to improve services through automation.

Currently, when train operation is disrupted, for example due to a natural disaster, train operators need to perform timetable modification* manually, and therefore it may take long time to restart operation. In this project, the field data owned by JR Kyushu will be incorporated into Hitachi’s AI Timetable Modification technology, and its AI learning model will be verified for utilizing the abundant knowledge and know-how accumulated in JR Kyushu as well. By automating timetable modification, JR Kyushu and Hitachi aim to improve services by efficient work of train operators and shortening the time to restart operation.

Hitachi is challenging to solve a variety of problems in rail business. As one of such attempts, Hitachi has been developing AI technology that automates timetable modification. Hitachi’s AI Timetable Modification technology is a hybrid of the Rail Traffic Management AI that Hitachi has been providing for decades and machine learning technology, which realizes automatic train operation re-planning upon disruptions.
In this project, JR Kyushu and Hitachi will educate the AI with past timetable modifications performed by train operators, verify the capability and effectiveness of the AI for modifying timetable as skillfully as adept operators, and also for propose modified timetable quickly enough that takes complex factors too difficult for human to handle into account. Through this initiative, JR Kyushu and Hitachi aim to further improve the accuracy of this technology and to increase the work efficiency of train operators.

* Timetable Modification, for example, stop driving or turning back of trains, performed in order to recover normal timetable upon disruptions.



Conceptual Diagram of AI Timetable Modification Technology

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Information contained in this news release is current as of the date of the press announcement, but may be subject to change without prior notice.