



IS AUTOMATED AND DRIVERLESS SHINKANSEN OPERATION POSSIBLE "FROM A SAFETY STANDPOINT"?

JREU National Office

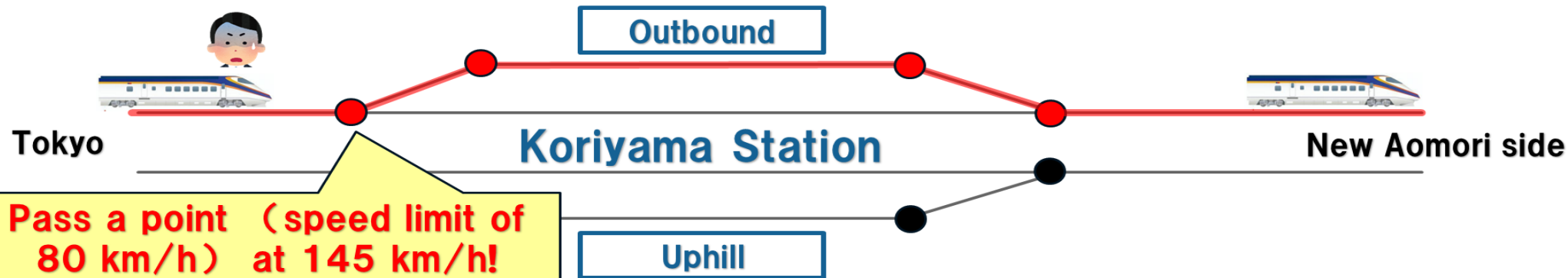
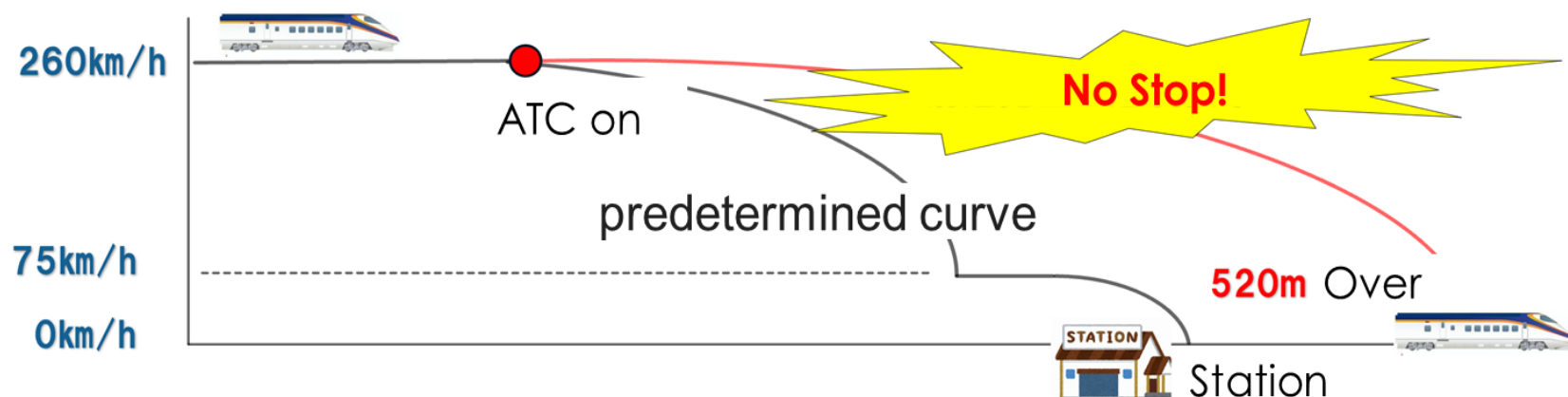
 **17-21**
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 **Vienna, Austria**
Aula der Wissenschaften

INCIDENT AT KORIYAMA STATION ON THE TOHOKU SHINKANSEN (MARCH 6, 2024)



"Tsubasa No.121 (E3 series 7-car train)" tried to stop at Koriyama Station. But the train could not slow down due to gliding and finally stopped about 520m past the stopping position.



AUTONOMOUS AND UNMANNED DRIVING IS PROGRESSING DUE TO THE DEVELOPMENT OF SCIENCE AND TECHNOLOGY



BRT will implement automated driving on certain sections of dedicated roads.

JR East Autonomous Driving Initiatives

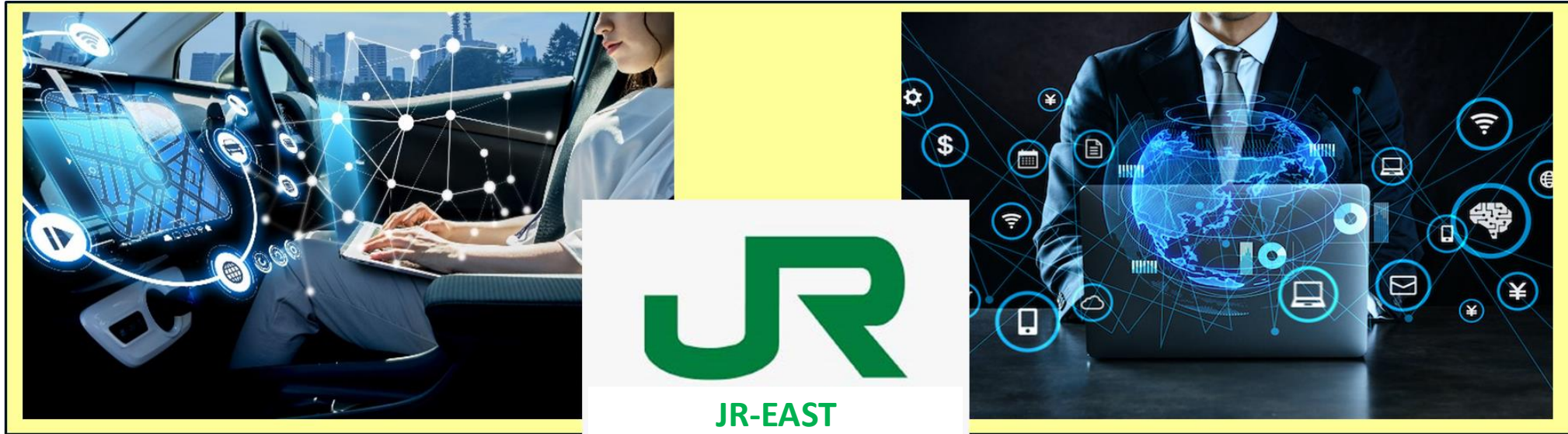


Yamanote Line to begin demonstration tests of autonomous trains on commercial trains from 2022.



The Shinkansen will conduct a demonstration run of autonomous driving on the section from the depot to the station.

AUTONOMOUS AND UNMANNED DRIVING IS PROGRESSING DUE TO THE DEVELOPMENT OF SCIENCE AND TECHNOLOGY



Risk management is necessary for safety as the top priority!



REPEATED INCIDENTS OF THE SHINKANSEN IN 2024

General Manager of the Shinkansen General Headquarters "Toward the completion of transportation during the year-end and New Year holidays" December 22, 2023

- Let us not stop the Shinkansen, not delay the Shinkansen
- Engage in structural reforms to maximize profits by continuing to increase sales but reduce costs to earn money. Let's stick to it.

○January 23, 2024: Tohoku Shinkansen between Ueno Station and Omiya Station
Occurrence of power outage accidents due to hanging overhead wires and electric shock accidents due to restoration work

○March 29, 2024: Tohoku Shinkansen Shin-Omiya Substation and Shin-Kuki Electric Classification Station Occurrence of power outage troubles

○April 2, 2024: Tohoku Shinkansen Fukushima Station and Shiraishi Zao Station
Occurrence of long-term transportation failures due to maintenance vehicle breakdowns and oil leaks

○ June 6, 2024: Due to a report of abnormal noise detection from passengers,
It turned out that there was a hole in the equipment under the floor

In the 2024 Shinkansen Headquarters Action Plan

Creating the world's safest and most on time Shinkansen

From the workplace

Voices of concern that "it is not a policy based on past events"!



THE CONTRADICTION BETWEEN SECURITY AND STABILITY

Awareness of Railway Company Employees “We will strive to operate on time from the perspective of service with the absolute condition of ensuring safe transportation.” ~No employees intentionally cause delays in trains~

However, when the company emphasizes "stability first" in addition to "safety first", In the event of an emergency, there is a risk that there will be confusion about ensuring absolute safety.



RECOMMENDATION

In "Autonomous and unmanned driving promoted by the development of science and technology " and
"Corporate culture of advocating a Shinkansen that does not lag behind in order to secure profits"

Recommendations for ensuring safety are:

1. Even if the Shinkansen is autonomously driven, it will not be unmanned, but the driver and conductor will be on board.

(1) Since the Shinkansen runs over a wide area, the distance between stations is longer than that of the conventional line, and the weather conditions are different. Manual operation is required for the occurrence of events such as gliding.

(2) Even if the development of science and technology makes it possible to operate the Shinkansen by remote control, it is not possible to detect abnormal noises, vibrations and shakings that are transmitted, it is necessary to have a driver who can feel them as soon as possible. (3) The distance between stations is longer than that of the Shinkansen compared to the conventional line section.

Since it runs on a viaduct, employees rush to it in the event of an abnormality. And it takes a lot of time to get the remedy.

Not only the driver, but also the conductor is required on board.



RECOMMENDATION

In "Autonomous and unmanned driving promoted by the development of science and technology " and
"Corporate culture of advocating a Shinkansen that does not lag behind in order to secure profits"

Recommendations for ensuring safety are:

2. Even after the implementation of autonomous driving, the driver and conductor will regularly carry out the operation before the implementation, and the driver and conductor will maintain and improve their technical skills and judgment. As long as manual driving is assumed, it is necessary to maintain and improve the technical skills and judgment of the driver and conductor.

Therefore, it is necessary to carry out manual operation on a regular basis.

3. The company should not use words such as "safe and stable transportation," "safe and not delayed," and "earning" We will stop using those words, in stead put "safety first" on the front page and educate our employees. As a railway company, in addition to ensuring safe transportation, it is important for employees to strive for on-time operation from the perspective of service.

It is a matter of course as a consciousness. However, at present, in parallel with safety, "stability" and "no delays" are being made.

The reality is that giving money or "earning" are giving hesitation and pressure to employees. In order to prevent short cuts in work process and postponement of parts replacement with an eye toward cost reduction, along with the implementation of reliable work, a promotion and corporate culture is needed to make employees aware and understand that safety is the top priority.

CONCLUSION

To ensure the safety of railways, risks arising from the introduction of autonomous and unmanned driving promoted by the development of science and technology and the pursuit of securing profits as a private company must be addressed.

The development of science and technology is remarkable, and there are many advantages in introducing it into work and life, but if there is a risk, it is necessary to collaborate with human labor and not relying only on science and technology. We believe that it is the attitude of walking together with science and technology, which is neither total dependence nor denial, to improve railway safety and create a better society.

As a labor union of railway companies, we aim to be the safest railway company in the world by exercising a check on the company's management to ensure the safety of passengers and crew, expressing opinions on what needs to be heard, and creating a corporate culture in which management and workers cooperate in the same way as collaboration between science and technology and human labor.



Thank you for
your attention!

