ICT Innovation Project Launched

The Railway Technical Research Institute (RTRI) started the ICT Innovation Project.
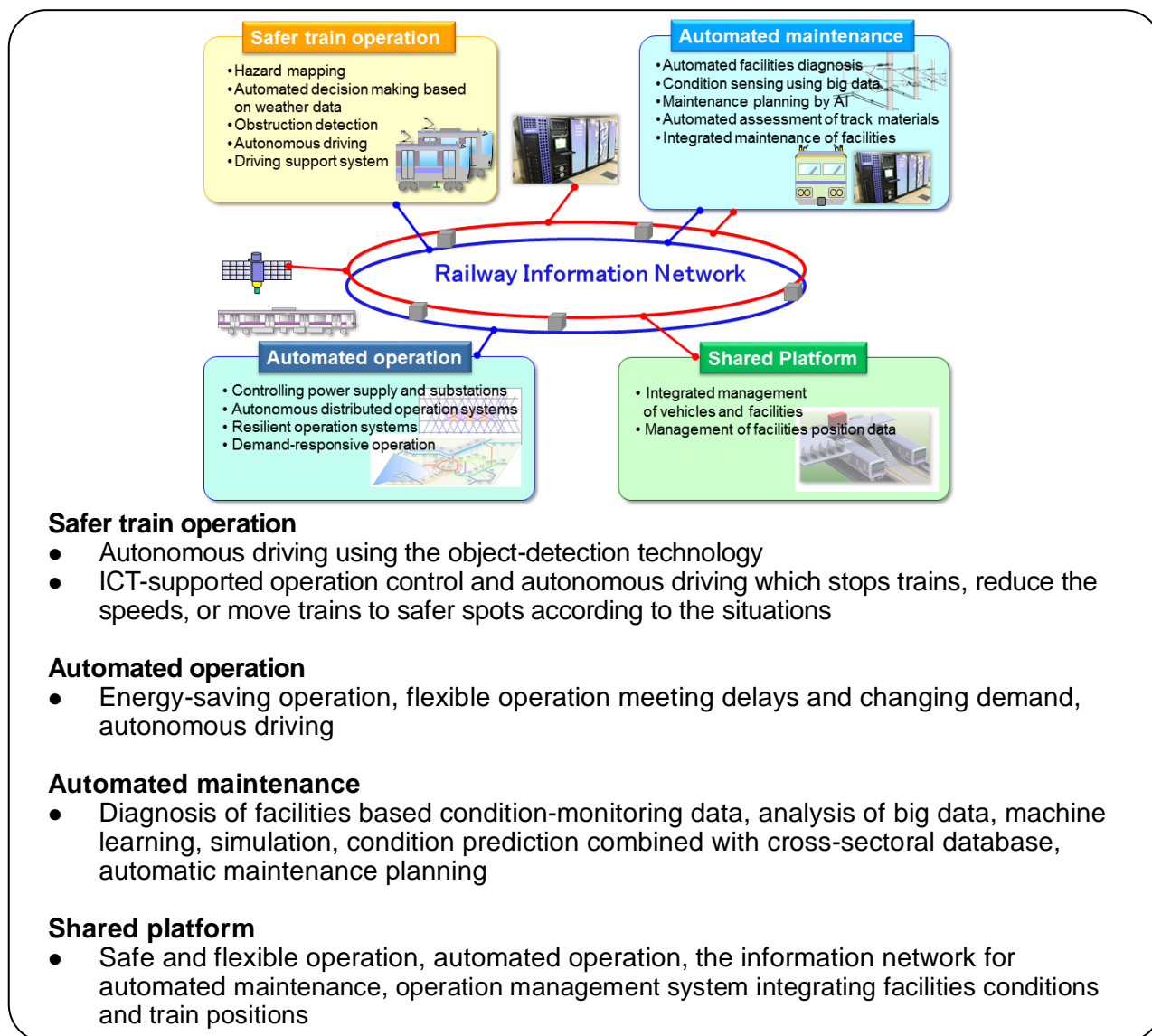
1. Purpose

According to the report by the ICT Promotion Team set up in June 2017, the ICT Innovation Project aims to implement R&D to provide solutions for railway technical issues and to promote innovation by using ICT (Information and Communications Technology).

2. Responsibilities

ICT Innovation Project will fulfill the following responsibilities.

- To set the direction of the R&D to apply ICT to railway systems
- To choose research topics regarding ICT and prepare the roadmaps
- To examine how to implement the R&D on ICT and how to use the research resource

Targeted topics for ICT application are shown in the figure below.

Safer train operation
- Autonomous driving using the object-detection technology
- ICT-supported operation control and autonomous driving which stops trains, reduce the speeds, or move trains to safer spots according to the situations

Automated operation
- Energy-saving operation, flexible operation meeting delays and changing demand, autonomous driving

Automated maintenance
- Diagnosis of facilities based condition-monitoring data, analysis of big data, machine learning, simulation, condition prediction combined with cross-sectoral database, automatic maintenance planning

Shared platform
- Safe and flexible operation, automated operation, the information network for automated maintenance, operation management system integrating facilities conditions and train positions

3. Organization

ICT Innovation Project consists of researchers in the broad-ranging technical fields under Project Manager Kumagai, President of RTRI.

Norimichi Kumagai	Project Manager	President
Kimitoshi Ashiya	Deputy Manager	Executive Director
Shigeto Hiraguri	Working Leader	Deputy Director
		Research and Development Promotion Division

Atsushi Furukawa   Director
Research and Development Promotion Division

Yuichiro Takata   Chief Manager
Research and Development Promotion Division

Minoru Kondo   Senior Researcher
Drive Systems, Vehicle Control Technology Division

Masayuki Koda   Director
Structures Technology Division

Mitsuru Ikeda   Director
Power Supply Technology Division

Katsumi Muramoto   Director
Track Technology Division

Yosuke Tsubokawa   Senior Researcher
Track Geometry and Maintenance

Kunihiro Kawasaki   Director
Signalling and Transport Information Technology Division

Masato Ukai   Principal Researcher
Signalling and Transport Information Technology Division

Hideki Arai   General Manager
Signalling Systems
Signalling and Transport Information Technology Division

Kazuki Nakamura   General Manager
Telecommunications and Networking
Signalling and Transport Information Technology Division

Nozomi Nagamine   Senior Researcher
Image Analysis and IT
Signalling and Transport Information Technology Division

Masamichi Sogabe   Director
Railway Dynamics Division

Chizuru Nakagawa   Senior Researcher
Ergonomics
Human Science Division

4. Overview of the 1st meeting

The ICT Innovation Project had its first meeting on April, 20. At the meeting, after President Kumagai's remark, the direction of using ITC was discussed and the following was proposed:

A road map of the automated train operation and maintenance needs to be prepares.

How to share basic technologies including machine learning and big data analysis should be discussed.

5. Schedule

The goals and effects of using ITC will be discussed and a research map showing the topics, processes and time schedule of the research on how to use ICT.

President Kumagai's remark

Following the report by the ICT Promotion Team, several research projects have already been started this year, and in December last year, Image Analysis and IT Laboratory was set up. I hope that this ICT Innovation Project will show the direction and schedule of research and development and the picture of future railways, and actively communicate information. We would like to have steady, open and lively discussions.

The 1st meeting