Frequentis

Digitalising French Railways

As part of a strategic development plan to transform the French rail network by 2030, Frequentis has been asked to develop and supply a customised communication system for the entire network. Thomas Karl, Frequentis Vice President Public Transport, explains what the project entails.

Thomas Karl,
Vice President Public Transport, Frequentis

Railway-News: What is the FERCOM project and how will it benefit French railways?

Thomas Karl: FERCOM is a railway communication project that aims to support SNCF Réseau, France's national state-owned railway company, in digitalising its railway telephony dispatching system and preparing its transition from Global System for Mobile Communications-Railway (GSM-R) to the Future Railway Mobile Communication System (FRMCS). FERCOM involves the development and supply of a customised communication system for the entire French rail network.

The main objective here is really to drive performance through digital innovation.

RN: How does the FERCOM project contribute to SNCF Réseau's strategic development plan?

TK: The FERCOM project will provide a modernised dispatching system for the entire SNCF network coupled with a bearer independent communication (BIC) mobile application for enhanced railway communications dedicated to train drivers and maintenance teams.

It will constitute the first phase in the transition from legacy systems to modernised communication solutions, taking advantage of various communication networks. By adopting the BIC concept, SNCF Réseau aims to enhance railway operations, improve efficiency and support its transformation plan to modernise the rail network, especially for tracks not equipped with GSM-R.

Thus, FERCOM will help SNCF Réseau prepare for its future communication and incident management needs.

Notably, Frequentis is the world's leading provider of GSM-R dispatcher systems, having delivered systems with a total of over 10,000 terminals. This track record of success aligns with our commitment to driving the evolution of rail communication systems towards FRMCS.

RN: What is Frequentis FTS 3020 and how does it support major railways globally?

TK: The FTS 3020 is a fixed terminal system used in

control rooms of major railways worldwide as part of their operational communication systems. The FTS 3020 enables communication between train traffic controllers within control centres, train drivers, service staff on trains, and maintenance staff on the track. The system is designed for high reliability and availability, featuring an IP-based virtualised core node, active redundancy and an extremely rich function set. Its architecture enables flexible interfacing between a wide range of legacy communication infrastructures and other network elements. With this built-in flexibility, organisations can deploy modern IP-based technologies and build next-generation rail services without the need to decommission their existing legacy platforms first.

RN: Can you mention any of the customers using the system?

TK: The Frequentis FTS 3020 is also used by many of the world's major railways in 25 countries as a component of the operational communication system including UK Network Rail, Deutsche Bahn (German Rail), Swiss Rail, Iarnród Éireann (Irish Rail) and many more.
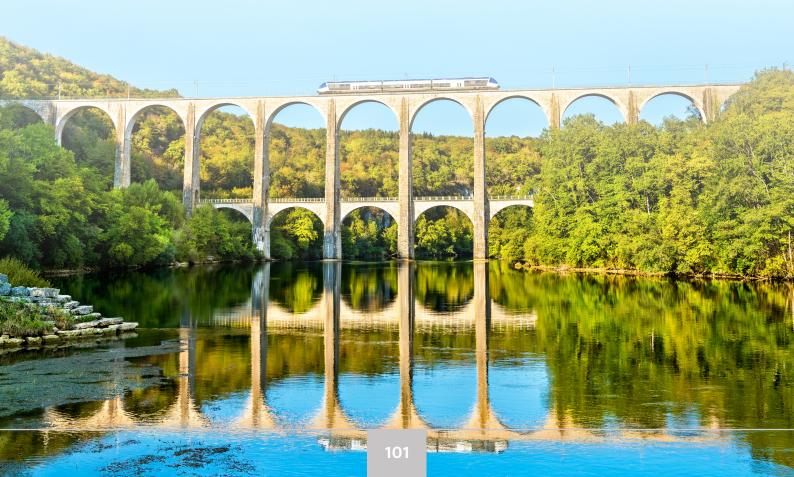
We are proud to be contributing to improved operational communication and enhancing rail operations.

RN: What other capabilities does FTS 3020 have? What makes it suitable for mission-critical use?

TK: The FTS 3020 enables seamless integration with different communication networks, including GSM-R, TETRA, LTE and future FRMCS/MCX networks, making it ideal for mission-critical use. Its straightforward user interface is designed to be convenient for controllers, allowing for efficient communication and information exchange. The role-management capabilities embedded in FTS 3020 allows organisations to maximise resources by using automated role sharing to evenly distribute workloads during peak and off-peak hours. The system is flexible and can be easily configured to support specific operational needs and dispatcher workflow patterns, therefore reducing training requirements and accelerating time-to-value. It is also scalable, capable of supporting the management of a single railway line or countrywide rail networks.

Your question also allows me to mention our MissionX solution, which is the bridging platform for the interworking of legacy communication networks like

GSM-R and TETRA with 5G MCX, making it suitable for both pre-FRMCS and fully compliant FRMCS solutions.

Our MissionX offering spans voice, data and video communication, as well as new communication features and multi-organisation networks. It provides benefits to users and consumers of mission-critical information, owners and providers of critical infrastructure, as well as control room operators. Our solutions work with all standard networks and any device that can host our services.

RN: What are some of your proudest achievements within the public transport sector?

TK: Frequentis has extensive experience within the public transport sector and has always been aiming to make the most modern technology usable. An example of this has been our work with VR, the Finnish state railway company, to implement the Unified Railway Communication and Application (URCA) system to fulfil the Finnish Transport Agency's need for a cost-saving transitional solution to the future GSM-R replacement.

This was the first railway-specific bearer independent communication solution, which allows seamless communication across different radio networks. A BIC solution therefore enables railways to run newer communication technologies alongside GSM-R during a controlled transition period.

RN: Are there any other innovative projects you are working on in the rail sector?

TK: We are also exploring the use of drones for rail track maintenance checks and are currently working closely with Austrian Federal Railways (ÖBB) on this development. This project explores the potential for drones to provide faster, more efficient, and more frequent inspections of rail tracks. By leveraging advanced sensors and imaging capabilities, these automated drones can capture high-resolution images and collect data to identify maintenance needs promptly. The collaboration between Frequentis and ÖBB aims to test the operational feasibility of hangar-based automated drone flights, paving the way for future-oriented railway operations in Austria.

Frequentis is also working on project Harmony researching the potential for sensor-based rail checks. This works by managing and analysing data from

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> **Thomas Karl, Frequentis Vice President Public Transport**

deployed sensors along the rail infrastructure to provide real-time insights into track conditions, signals, and critical assets. Automated monitoring, analysis, and visualisation will then enable proactive identification of maintenance issues, enhancing safety and optimising resource allocation for a reliable rail network.

It's an exciting time for innovation and collaboration with rail networks worldwide, supporting the digital transformation and we are looking forward to opening our new office in Lille to support the digitalisation of French Railways.

Tom Karl

With over 20-years of industry experience, and a Master's degree in communication engineering from Vienna University, Tom Karl is Frequentis Vice President Public Transport. As well as global responsibility for Frequentis railway and urban public transport business he is Board Member of the Austrian Association of Railway Supply Industry.

About Frequentis

Frequentis is an international supplier of communication and information systems for control centres with safety-critical tasks, leveraging 75 years of cross-domain experience in aviation, defence and transport.

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