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Mission Critical Services debut on Austrian Railways

Public Transport

FREQUENTIS

FOR A SAFER WORLD

Rail digitalisation at 1,800 metres

A major technological driver in the rail sector is the transition to Future Rail Mobile Communication System (FRMCS). Lower Austrian Public Transport Network (NÖVOG) seized the opportunity to become an early adopter by transitioning to the MCX system for safety-critical operations - the technological foundation of the future FRMCS standard.

As a self-contained line operating exclusively between Puchberg and Hochschneeberg, without connection to the broader rail network, the Schneeberg Railway was ideally suited for just such a lighthouse project.

Having already worked successfully together in the past, NÖVOG and Frequentis completed the implementation of Frequentis MissionX, an integrated solution based on MCX-technology for safety-critical operations, within just a few months. MissionX integrates voice, video, and data into a single application.

It is user-friendly and tailored specifically to the safety-critical requirements and operational processes of rail transport. The solution enables NÖVOG to provide seamless and optimised safety-critical communications across public mobile networks for all end users. In addition to excellent voice quality, MissionX offers improved interoperability and numerous additional features designed to optimise workflows and increase operational efficiency. Future expansions, such as using this forward-looking system on additional lines like the Mariazell Railway or the Wachau Railway, are under consideration.

“This is the first time MCX has been implemented solely for railway operations in Austria. By using the same cutting-edge technology that forms the basis of the Future Railway Mobile Communication System (FRMCS), we aim to position ourselves as pioneers.”

Philipp Hammerl, Head of Technical Operations, Lower Austrian Public Transport Network (NÖVOG)

Customer profile

Lower Austrian Public Transport Network (NÖVOG) is a company owned by the Provincial Government of Lower Austria. With six railway lines, two cable cars, 578 regional bus routes, and 14 on-demand transport services, the company provides a comprehensive public and tourist mobility network throughout Lower Austria. The railway lines include the metre-gauge Schneeberg Railway, the narrow-gauge Mariazell Railway, Citybahn Waidhofen, and Waldviertel Railway, as well as the standard-gauge Wachau Railway and Reblaus Express.

Starting point

As Schneeberg Railway operates under train-control mode, regular communication between the control centre and the trains is mandatory. The existing communication system had reached the end of its lifecycle. Spare parts were increasingly difficult to obtain, and the voice quality no longer met NÖVOG's standards.





A future-proof solution

The MissionX solution from Frequentis integrates voice, video, and data into a single, intuitive application. It is tailored to the specific needs of safety-critical rail operations.



Innovative and future-proof

Deployment of MCX as the technological base of FRMCS



Cost-efficiency

No additional infrastructure required, thanks to the use of public mobile networks



Interoperability

Enhanced functionality such as direct calls from train to train or to mobile phones



Optimised operations

Transmission of train numbers; and differentiation between types of calls

“The Schneeberg Railway is proud to be driving digitalisation in rail communications with this lighthouse project. The new solution has not only massively improved announcement-voice quality but also streamlined our operational workflows.”

Dominik Wanzenböck, Technical Manager, Schneeberg Railway

Schneeberg Railway sets course for FRMCS

This lighthouse project demonstrates the operational readiness of MCX technology – a cornerstone of FRMCS.

In Austria, the distinctive green and orange “Salamander” train on the Schneeberg in Lower Austria is very well known. This cog railway has been a memorable part of Austrian history since 1897, transporting passengers and goods up to seven times a day to Hochschneeberg station – the highest train station in Austria.

Operations are conducted using four trains designed in the image of the native fire salamander. Although impeccably maintained, the unique units manufactured in Scotland and their technology are over 25 years old. The existing radio communication system had become outdated and increasingly difficult to support due to lack of spare parts.

Train services in control mode require clearance from a central dispatch. In the past, communication was challenging, with poor voice clarity. Alongside outdated equipment, sub-standard audio quality was a major motivator for replacing the system.

Frequentis delivered a comprehensive MissionX system, including application and management servers, control centre software, mobile devices, and recording capabilities. The system was integrated with public mobile networks based on the safety-

critical 3GPP-standard, ensuring seamless, optimised communication for all safety-critical users – from dispatchers to train, service, and maintenance staff. The significantly enhanced audio quality, proven in rigorous testing, is complemented by additional features such as clear display of train numbers to help dispatchers quickly identify trains. The control centre can now distinguish call types – such as whether it’s an emergency call from a passenger compartment or a routine call from the train driver. The solution also enables reverse communication, enabling announcements from the control centre to passenger carriages. The user interface is designed with dispatchers’ workflows in mind, ensuring intuitive operation.

The system also offers future scalability. Furthermore, passengers benefit from extended network coverage, enabling them to share their impressions in real time or requesting help immediately in an emergency using their own mobile phone.

With MissionX on the Schneeberg Railway, the project partners have successfully proven that MCX – as a mission-critical cornerstone of FRMCS – is already ready for deployment today.



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