

# Railways Solutions

## Making trains the first choice for 21st century travel

Nokia Siemens  
Networks



In response to rising fuel prices and growing environmental concerns, governments and travelers around the world are taking a renewed interest in railways as a primary mode of local and regional transport. Authorities in the European Union, for

example, have indicated a preference for all inter-city journeys of 1000 km or less to be made by train within the next ten years. Over the same period, their stated goal for railways' share of the total EU passenger travel market is 30%, up from around 10% today.



If you're a railway infrastructure operator, achieving these objectives will require significant increases in capacity, speed and security. If you're a train operator, you'll want to attract new customers by offering an on-board traveling experience that compares favorably with that offered by alternative carriers.

### Meeting the challenge of change

Telecommunications can help you meet these challenges by resolving a number of specific business and operational issues:

- Communication between drivers and controllers, especially for cross-border services, has historically required multiple analog radio systems that reduce operational efficiency and add unnecessary cost.

- The additional safety demands of high-speed train travel cannot be fully met without accurate, real-time positioning information and faster, more reliable and better integrated communications with on-board systems and personnel.
- Repair and maintenance operations cannot be optimized as long as inspections can only be carried out at dedicated locations when the train is stationary.
- Business and leisure travelers are demanding communication and entertainment facilities equal or superior to those available on the road or in the air.
- Travelers increasingly require real-time information on delays or alterations to their journeys, and the ability to amend their itineraries accordingly.

Using two complementary wireless communications platforms, Nokia Siemens Networks is directly addressing all these issues and more.

### Platforms for innovation

If you're a **railway infrastructure operator**, we can offer you solutions based on GSM-R, the proven global

digital platform for railway voice and data communications. As well as providing standardized operational and safety features for existing national and cross-border interoperable rail networks, GSM-R also enables the seamless integration of new regional services and applications such as the European Train Control System (ETCS).

Our GSM-R applications include:

- Train driver talks to Train Control and vice versa
- Emergency calls involving all trains and staff in the danger area
- Data transfer between train and Train Control
- Group communications for track-side teams and shunting teams

If you're a **train owner or operator**, we can offer you solutions based on WLAN on Trains, an on-board broadband platform that supports a suite of customer and staff applications. Working with third-party specialists, we can help you deliver a range of information and entertainment services that will enhance your customer experience.

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## Railways Solutions at a glance

Our **GSM-R** solutions can help:

- reduce costs by replacing multiple analog systems with a single streamlined digital system
- reduce idle time and increase capacity utilization
- meet the increased signaling, safety and security demands of high-speed travel.

Our **WLAN on Trains** solutions can help deliver:

- enhanced ticketing and seat reservation services
- improved security through remote security monitoring
- an unlimited range of Internet-based information, news and entertainment services for business and leisure customers.

Our WLAN on Trains applications include:

For passengers

- Internet and corporate VPN access
- video streaming
- online gaming

For staff and operators

- fleet and freight management
- video surveillance
- remote diagnostics, maintenance and system configuration

### You win, your customers win

Nokia Siemens Networks GSM-R solutions can provide a single streamlined digital radio system to replace all existing communication systems, thereby helping to reduce costs, improve interoperability and enhance safety. They also allow maintenance data to be transmitted to the depot on the fly to reduce idle time, increase capacity utilization, and ultimately reduce OPEX.

Looking to the future, GSM-R also offers a standardized, cost-effective communications platform capable of supporting the increased signaling, safety and security demands of high-speed travel.

Complementing these functions, WLAN on Trains also delivers a number of valuable operational benefits such as remote security monitoring, enhanced ticketing and seat reservation services. But the additional bandwidth also opens the way to an almost unlimited range of information and entertainment applications that can be used to attract new customers and improve the on-board travel experience.

### A partner who knows your business

We are one of the few players in the world who can deliver a true turnkey solution with total dependability over an extended geographical area for long periods of time. And of those few, we are the only one whose heritage in railway engineering is as strong as our credentials in advanced communications technology.

In the GSM-R domain, we were one of the platform's founding partners, and have actively contributed to every major revision of its features and standards in response to evolving market and regulatory demands. Combining that expertise with our

carrier-grade GSM network equipment, global support services and selected 3rd party products and services, we can deliver fully flexible and scalable Build-Operate-Transfer solutions to meet your individual needs.

In the WLAN on Trains domain, a similar combination of technical integration skills and specialist products and services is supplemented with a full remote operations capability provided by our dedicated Network Operations Center. This allows us to monitor services across the entire train fleet on your behalf, and carry out remote software upgrades and repairs to onboard systems as required.

These solutions can be delivered via a variety of business models including joint ventures with national telecommunications carriers. But in every case, the objective is to give you the freedom to focus on your core businesses, while we take care of the enabling technology.