

CASE STUDY

Switzerland's national railways (SBB)

“GSM-R AREAMANAGER IS THE IDEAL SOLUTION FOR EFFICIENT AND SECURE PLANNING AND COMMISSIONING OF THE MOBILE NETWORK AT SBB.”

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GSM-R AREAMANAGER HAS BEEN TAILORED TO THE NEEDS OF SBB AND IS THE FIRST END-TO-END SOLUTION FOR GEOGRAPHICAL MANAGEMENT OF THE GSM-R NETWORK.



Requirements

The switch from analogue radio to the wireless communication system GSM-R represents a milestone in the development of modern railway communications. To ensuring an efficient and effective operation, from network planning to configuring railroad-specific network services all take the highest priority.

Solution

With the Location Intelligence solution “GSM-R AreaManager” from Pitney Bowes Business Insight, network planners at SBB can establish and visualise a unique, reliable connection between the train dispatcher, the radio cell and the railway line. Taking account of geographical references, it is thus possible to use a single tool for efficient and safe parameterisation, configuration and management of numbering plans. This is a basic requirement for the optimal operation of a railway communication network.

Summary

Switzerland's national railways, Schweizerischen Bundesbahnen (SBB in short), is the largest travel and transport company in the country with around 310 million passengers and approx. 54 million net tons of goods per year. SBB is also one of the largest employers in Switzerland with 28,000 employees, and has the most dense railway system in the world.

With the installation of the digital communication network GSM-R, SBB is taking a huge step into the future, while preparing for increased demands on passenger and goods transport. GSM-R stands for Global System of Mobile Communication-Rail and is based on the mobile radio standard GSM. However, the frequencies it uses are strictly reserved for railway traffic. The digital communication platform is designed for speeds of up to 500 km/h (310 mph), and ensures complete communication throughout the railway system.

GSM-R is the successor to analogue communications, and can be integrated with railway applications, which ensure faster and more efficient communication, maximum safety and optimised railway processes. For example, the GSM-R service »Functional Addressing« can be used to reach the right driver without knowing his or her name. The train dispatcher in charge of a particular railway line can dial a number and immediately reach the driver of the train, regardless of who might be driving the train. For communication

in the other direction, i.e. from the train driver's position to the train dispatcher for the railway line, the geographical position of the train driver is decisive: »Location Dependent Addressing« ensures that the train driver can always reach the dispatcher for the line they are currently on, using one number.

Another service specific to railway traffic is »Prioritisation«, which means that current calls can be interrupted by calls with higher levels of priority – particularly in emergencies, this is an essential function. The »Voice Group Call Service« is also very important in emergencies. It establishes a connection to a group of users in a specific area and all participants are notified of the event at the same time.

The SBB Telecom project management team were looking for a solution which would enable safe parameterisation, configuration and management of numbering plans and system elements, while taking account of geographical references. They found it in Pitney Bowes Business Insight (formerly Pitney Bowes MapInfo). PBBI developed GSM-R AreaManager, which is tailored to the requirements of SBB and represents a solution to the geographical management of the GSM-R network which is unique in the industry. With GSM-R AreaManager, a unique, reliable connection between the radio cell, the railway line and the train dispatcher can be established and then visualised and managed with the central map window.

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**GSM-R AREAMANAGER
ALSO OFFERS SBB
CONSIDERABLE ADDED
VALUE IN TERMS OF
TIME, SAFETY, COSTS,
EFFICIENCY AND DATA
QUALITY.**

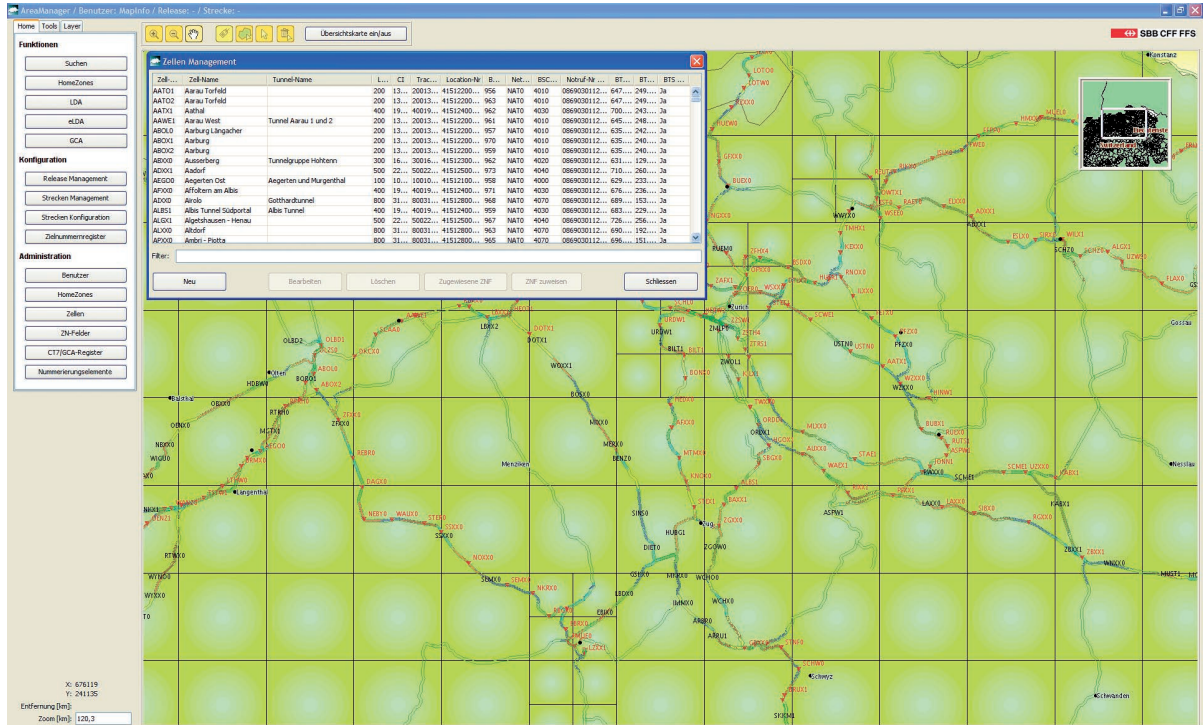
Result

Installing the GSM-R network and configuring the network services involves a great deal of technical work. Before the GSM-R AreaManager was put into operation, the creation and managing of numbering plans was very time-consuming and costly since the plans were managed manually using Excel tables. In addition, this way of working was very prone to errors and media breaks within the system, which meant that it could not be used to handle complex services such as »Location Dependent Addressing«.

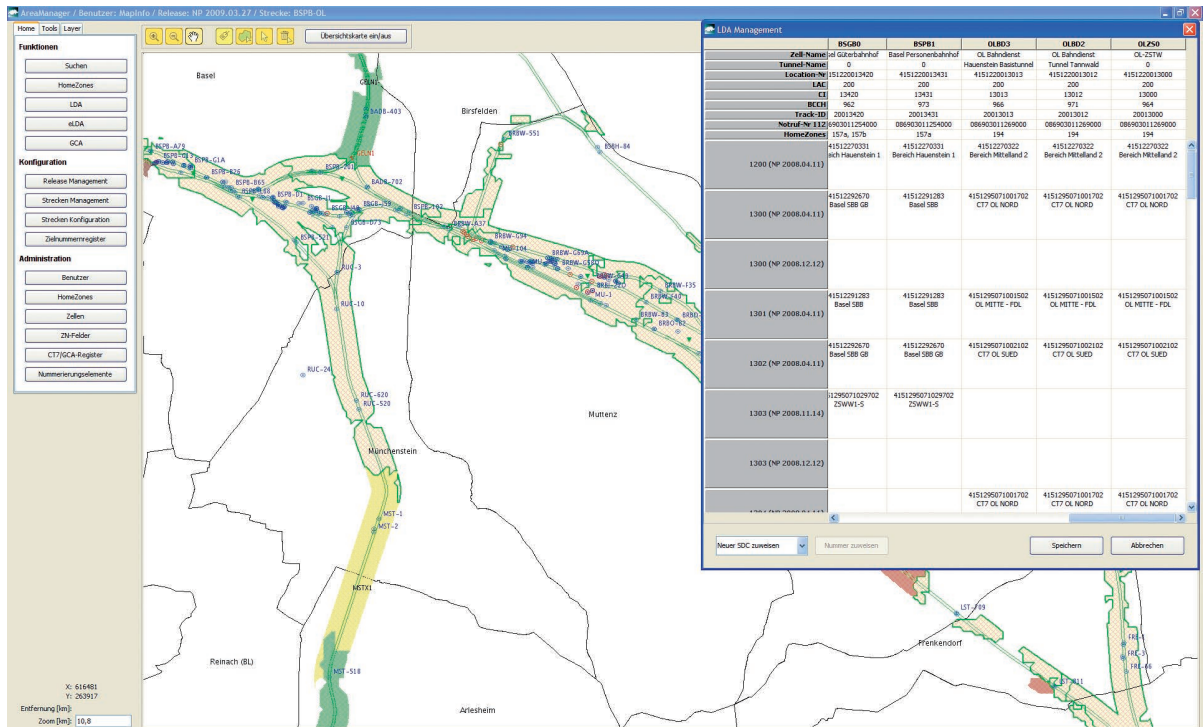
The incorporation of the geographical dimension using GSM-R AreaManager therefore offers a clear advantage. Because the parameters of the GSM-R network can be visualised on maps, creating numbering plans becomes much easier. Faulty configurations can be detected, analysed and fixed thanks to the mapping of operative processes. Moreover, the plans are created using only one tool. The configuration of system elements and the import of new numbering plans are performed completely automatically in just a few minutes during off-peak hours. No media breaks occur during the completely automatic update; the risk of errors is greatly reduced.

GSM-R AreaManager is easy to work with, since it is a rich client web application based on scalable and modular J2EE architecture. Instead of the comparison of numerous separate Excel tables which had to be performed up until now, the user now has access to a single, central user interface which prepares all essential information geographically and presents it in a clear manner.

These attributes significantly increase efficiency and quality at SBB whilst reducing risk. GSM-R AreaManager is an important prerequisite for an efficient operation of the GSM-R network and helps the organisation optimise operative processes, reduce costs, ensure maximum safety and extend the offer of services both in public transport and goods traffic.



Cell Table



LDA (Location dependent addressing) Management

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