

smartrail 4.0 – Questions & Answers

What is the motive behind smartrail 4.0?

Over the next few years, a large number of technical production systems that are essential for train travel will reach the end of their service lives and be replaced. Railway companies are also facing challenges presented by changing customer needs, tougher competition and increasing demand. At the same time, technology is developing at an ever increasing rate, offering railway companies new opportunities to improve efficiency and punctuality. The technical developments made over the last few years has generated huge potential to automate production processes, achieve greater capacity, increase safety and further reduce production costs. To ensure the rail system remains efficient and competitive for many years to come, the industry is making use of new technology and working together with industry partners within the “smartrail 4.0” programme to get more out of the existing infrastructure.

What is the aim of the smartrail 4.0 industry programme?

Together with the industry and the FOT, the industry programme seeks to take advantage of the opportunities created by digitalisation and new technology to develop a more efficient rail system. The digitalisation and automation of timetable creation, operations and train control allow innovative and cost-effective solutions to be developed for the digital railway technology of the future. The industry therefore uses the railway’s strengths, specifically reliability, safety, high transport capacity and sustainability, in order to bring them into intermodal competition in the future. The aim is to create more capacity while cutting costs, reducing energy consumption and increasing safety, ensuring that the railway remains appealing and competitive.

Who is behind smartrail 4.0? Who runs the industry programme?

To ensure that railway customers genuinely benefit from the age of digitalisation, the industry is taking a coordinated and collaborative approach to its work with smartrail 4.0. SBB, BLS, Schweizerische Südostbahn AG (SOB), Rhaetian Railway (RhB) and the Swiss Public Transport Union (SPTU) are working together to prepare the rail industry for the future. To derive maximum benefit for the system as a whole, the technology enhanced and used within the SmartRail 4.0 programme will be designed on a cross-border basis.

How will implementing the programme benefit the railway industry?

As well as increasing capacity and cutting costs, the smartrail 4.0 programme will also improve safety and customer benefits. Developing new systems for the rail industry will lead to a sustained improvement in results, which in turn will deliver good value for money for all services. Customers will benefit from greater frequency, fewer disruptions and improved punctuality and can also enjoy uninterrupted phone calls and higher data rates. The programme will also provide better customer information in the event of disruption, further improve safety in building and shunting processes and increase availability of safety installations by 50%.

What kind of time frame has been set for the smartrail 4.0?

The smartrail 4.0 programme is currently in the project planning phase, which involves investigating new technologies and systems in terms of their operational capability and suitability for approval. These will then be tested on pilot systems in field tests in preparation for the industrial rollout starting in 2027. The development work is being carried out in collaboration with partners from industry, universities and committees and railway companies from around the world. The industry aims to have finished implementing all of its ambitious goals by 2040. This strategy works well for customers as they will steadily begin to benefit from more trains, denser timetable intervals, fewer disruptions, faster wireless connectivity and better information in the event of a disruption.

How much is being invested in smartrail 4.0? Where does the money come from?

Financing stems from the performance agreement with the federal government and from the railway companies themselves. The programme costs amount to CHF 120 million for the first three years. By comparison, the potential cost reduction amounts to CHF 450 million per year from 2040, when the programme will have been completely implemented. However, according to calculations, the cost reduction will have a tangible effect as early as 2022, and this will then continue to increase.

What does smartrail 4.0 mean for jobs in the rail industry?

Technological advances mean that job profiles within the rail industry are changing but staff knowledge is still vital for installing and using the new technology. For that reason, industry partners communicate with their staff and all other stakeholders and support the development of new skills. It is very important to the programme partners to identify these changes early on, engage in an open dialogue with their staff, prepare them for the future, support them and develop the skills required.

How does smartrail 4.0 work together with the industry?

Within the top smartrail 4.0 programme, both the railway sector and industry will use digitalisation and the potential for new technology to steadily increase capacity, further improve safety, use the railway infrastructure more efficiently, save costs and thus maintain the railway's competitiveness for a long time to come. The railway companies are working on the system architecture and determining what they need, while industry supplies the required solutions and implements the architecture in specific products.