

First hardware independent cloud-enabled interlocking in operation

- **DS3: ÖBB and Siemens Mobility put the first digital interlocking architecture into operation in Achau, Austria**
- **Digitalisation generates major economic benefits for infrastructure operators**
- **First approval of a digital SIL4 interlocking based on COTS hardware**

Together with Siemens Mobility, ÖBB-Infrastruktur AG has put a completely new digitalisation solution in the field of safety and security technology into operation at the train station in Achau, Austria: The "Distributed Smart Safe System" (DS3) is an innovative digitalisation solution and the basis for cloud-enabled interlocking ("Interlocking in the Cloud").

"We are digitizing ÖBB's infrastructure - the digital interlocking is a component of our comprehensive digitalisation strategy. This and many other projects make it possible to increase the capacity of our infrastructure and at the same time improve safety and security, punctuality and cost efficiency," said Johann Pluy, Member of the Management Board of ÖBB-Infrastruktur AG.

Michael Peter, CEO Siemens Mobility, said: "The DS3 interlocking in the cloud for ÖBB in Achau is a real quantum leap for the railway industry. It enables the virtualisation of most signalling components, such as interlocking computers or ETCS computers. The trains send their position data by radio link to a central system which ensures safety, sets points, manages routes and sends authorisations to the vehicles. Siemens Mobility is proud to have developed this new signalling system, which will make rail operations more efficient, effective and flexible".

This technology creates various new possibilities that were either entirely or nearly out of reach until now. For example, signals and points can be smartly controlled, thus enabling innovative diagnoses, predictions of malfunctions and also predictive maintenance. This will make rail traffic even more punctual and effective, thus enhancing the attractiveness of trains as a means of transport and increasing passenger satisfaction.

DS3 makes signalling hardware independent and cloud-enabled. When switching to this new technology, infrastructure operators therefore have the opportunity to completely integrate existing installations and systems. The platform fulfills the world's highest safety standards for rail safety and security and features other advantages like cost efficiency and flexible maintenance. In addition, it contributes to sustainability, by providing savings in terms of space and energy, compared to existing systems. In the future, interlockings can be significantly reduced and combined into one data center.

Benefits for infrastructure operators and passengers

DS3 allows the ÖBB-Infrastruktur AG to benefit from a wide variety of economic advantages, such as predictive, affordable maintenance of installations, while increasing its availability. Increased cost efficiency is a particularly attractive asset: DS3 boasts lower lifecycle costs compared to other solutions that are available on the international market. Furthermore, this project presents the first-ever approval of a SIL4 interlocking on a COTS hardware and is therefore an international pilot and reference project. December 2018 already marked the start of the first joint field trials between ÖBB and Siemens, which were conducted successfully. Following approval of the system, the interlocking was able to be effectively put into live operation at the train station in Achau on the 18th November 2020, while assuming full responsibility for security and safety.

Technology in detail

DS3 is the world's first platform to securely make signalling applications functional and operational on standardised hardware. This means that unlike in the past, the need for creating special hardware has been eliminated. For the first time ever, the DS3 platform can be used on different, commercially available hardware for various applications and interfaces of rail safety technology: It can form the basis for the

digital interlocking and for the radio block center (RBC) in the European Train Control System (ETCS). Thus, DS3 represents the fundamental building block for flexible cloud solutions. It enables the centralisation of interlockings, for example at operation control centers, as well as the geo-redundant configuration of systems. Moreover, it can be centralised and scaled and is compatible with a wide variety of existing systems and supports standards such as Eulynx, Neupro/RASTA. As a universally deployable platform, DS3 can be combined with many rail safety technology products, when it comes to interlocking, train protection/RBC, signal controlled warning systems, control technology and others, and can be used in various safety levels (SIL).

This press release and a press picture is available at <https://sie.ag/3pEk1fa>

For further information about Siemens Mobility GmbH, please see:

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