

cn-mobility

Dynamic Schedule: One Timetable, One Source of Truth

Developed with input from drivers and operators, Dynamic Schedule aims to replace outdated processes with a single, accessible timetable – improving safety, efficiency and the user experience, writes Wolfgang Schüttler, cn-mobility.

In this era of smart phones and AI, it seems archaic that train drivers are still having to pull information from a number of different sources to create a comprehensive, reliable operational timetable.

No single seamless timetable currently exists for them because the constructed network timetable is processed into various formats for specific uses. Instead, every piece of information must be painstakingly compiled from a number of up-to-date sources such as timetable books, speed restriction lists, diversion orders, operational notices and special instructions.

These may only be available in specific formats on certain devices – and in some cases only on paper – adding an unnecessary level of complexity and mental load to drivers' work. Operating a locomotive is highly demanding: there are countless rules, complex signalling systems and technical knowledge to master. That alone is a steep learning curve, and adding the burden of navigating and reconciling multiple sources of information only makes the role more daunting. In German, there's even a word for this overload: Zettelwirtschaft, meaning a jungle of documents. Yet with infrastructure managers facing little internal pressure to innovate, this vital workforce has been left to grapple with outdated information practices that don't reflect today's digital age.

Introducing the Dynamic Schedule

In response to this, cn-mobility developed its Dynamic Schedule solution, which brings together all the relevant information from these disparate sources in one complete schedule that is updated daily.

Our application helps remove this extra weight. Instead of spending time gathering and managing information, drivers can focus on what really matters: operating trains safely and effectively. With Dynamic Schedule, all operational scheduling data, such as speed restrictions, schedule directives, future digital commands and driving recommendations can be displayed in a single, unified interface via onboard devices or tablets. This eliminates the need for drivers to switch between multiple documents on the go, plus GNSS-based auto scrolling enables them to keep focused on the route.

No other independent solution currently exists that can combine all the necessary information into a single output format, and at present, every country or network tends to rely on its own approach.

From Local Lines to International Networks

In Germany, for example, Deutsche Bahn (DB) provides a digital timetable, but it only covers the basic schedule. Drivers still need to supplement this with additional documents often in separate formats. Some parts of DB have tried to develop their own tools to improve this, but these remain limited compared to what we offer.

Austrian Federal Railways (ÖBB) is also working on a digital solution, but it will only cover their network. Our

goal is very different: to create one unified application that works across networks and borders. With this in mind, Dynamic Schedule is aligned with European requirements from the Technical Specifications for Interoperability (TSI OPE). Imagine starting a journey in Munich and travelling to Vienna. Instead of piecing together multiple sources, the driver simply enters the train number in Munich and instantly receives a complete timetable covering both the German and Austrian legs of the trip. That's our vision: a single, borderless solution for interoperable train management.

But it's important to note that this isn't just about national networks. Alongside DB in Germany or ÖBB in Austria are many smaller regional and local infrastructure managers. They also publish timetables for their sections of track, and operators frequently cross from local networks onto national ones and back again. Our goal is to provide a single, seamless timetable that covers the entire journey – from a local branch line right through to a major national network, and across borders. That's the true vision of interoperability.

Construction Impacts Made Clear

Railway operators can also benefit from integrating Dynamic Schedule with their construction management timetable, which gives planners the ability to see which trains are affected, what routes are impacted, and how travel times will change. With this, they can adjust operations in advance – from scheduling to wagon allocations – based on accurate construction data.

When a driver enters a train number, the system automatically checks whether that service is affected by construction works. If it is, the construction timetable is retrieved and combined with the basic timetable and daily infrastructure notices, producing a single, complete output file.

From Pilot to Proven Solution

Dynamic Schedule was first introduced to the industry as a prototype at InnoTrans 2022 and the system has been live since June 2025 with Arverio Deutschland. This followed an extensive two-year pilot phase with





TX Logistik, Rail Cargo Carrier - Germany GmbH, RBH Logistics and Trans Regio Deutsche Regionalbahn. During that time, roughly 50 drivers tested the software, provided feedback and helped us refine it through multiple new releases. This process made the solution safer, more stable and better aligned with operational needs.

Because the application handles critical safety data – such as maximum speed limits – every new function had to be carefully assessed and rigorously tested. It isn't as simple as adding features; each update must be validated to ensure compliance and safety integrity. This is safety-relevant software, and it must stand up to deep technical scrutiny.

To date, the feedback from both rail companies and drivers has been extremely positive. Even in the pilot phase, when the software was still incomplete, drivers were eager to use it. They told us it was already better than their existing solutions, because they had a single point of truth. That, in their words, was a game changer: it simplified daily work, reduced the mental load, and made the job easier and more intuitive.

Driving the Future of Timetabling

Having rolled out Dynamic Schedule for DB InfraGO's network, we're now implementing it with ÖBB's ZFM Interface to extend coverage to the Austrian network. A proof of concept is complete, and the next step is full integration into our application.

We're also exploring other countries, including the Czech Republic and Switzerland, but our plans don't end there. Looking further ahead, the next evolution will be to bring timetables directly from mobile devices back into the on-board driver display.

For more information visit cn-mobility.eu/en

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