

VRM & DB Regio Bus Mitte

A Ximedes Case Study

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Securing the Deutschlandticket and Streamlining Public Transport with Smart Validators

Client: Verkehrsverbund Rhein-Mosel (VRM) & DB Regio Bus Mitte

Industry: Public Transport / Mobility

Solution: Smart Validator and Ticketing App for ticket sales and validation

The Challenge: Manual Inspections in the Deutschlandticket Era

The introduction of the nationwide Deutschlandticket (D-Ticket) revolutionised German public transport, but it created an immediate operational bottleneck for transit authorities. For VRM and DB Regio Bus Mitte, relying on bus drivers to visually inspect digital mobile tickets and chip cards as passengers boarded was no longer sustainable.

Manual checks placed a constant burden on drivers and put the punctuality of the entire fleet at risk. Visual inspections also lacked the security required to prevent ticket fraud. And because the Deutschlandticket is sold throughout Germany and valid everywhere, a further problem emerged: without knowing where tickets were actually being used, there was won't be a reliable basis for distributing revenue fairly among the various transport operators ("Einnahmenverteilung") once Stufe 3, nachfrageorientierte Einnahmeaufteilung sets in.

VRM needed a system that could automate ticket checks, relieve drivers, and provide reliable insight into actual ticket usage, alongside a modern, convenient way for passengers to buy their tickets in the first place.

The Solution: Automated, Data-Driven Ticket Control

Co-financed by the state of Rhineland-Palatinate, Ximedes supplied a network of over 2,000 smart validation devices across VRM and DB Regio buses.
Located next to the driver, the validators are built to read VDV-KA barcodes, UIC barcodes and standard chip cards, acting as an intelligent gateway for every vehicle.
Upon boarding, passengers simply scan their ticket. The device instantly verifies validity, providing a clear visual display for the passenger and a distinct acoustic signal for the driver.
The validators are complemented by the VRM ticketing app, also built by Ximedes. Passengers use the app to purchase the full range of tickets, including the Deutschlandticket, and to plan their journeys with its integrated route-planning function. Together, app and validator cover the complete passenger journey: buy, plan, board, and validate.

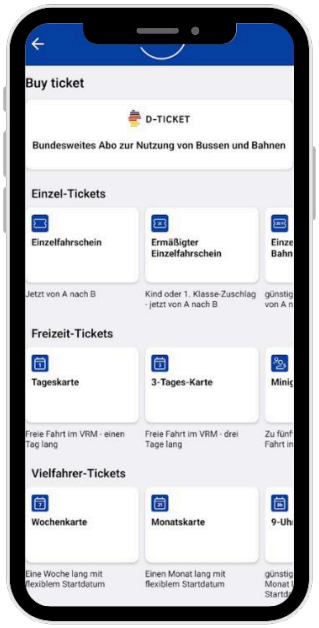

Figure 1: The VRM public transport app

The Implementation: Fast, Agile, and Collaborative

Deploying hardware across a fragmented public transit fleet can be complex, but the collaboration between Ximedes, VRM, and DB Regio Bus Mitte moved remarkably quickly. Operating with an agile, collaborative approach, the teams listened closely to the customer, reacted quickly to feedback, and made changes where needed: refining the system iteratively to ensure operational success before the mass rollout.

"From concept development in December 2023 to installing devices on 900 vehicles by October 2024 - this is the fastest implementation I've ever experienced." — Stefan Michel, Regional Management, DB Regio Bus Region Mitte



Figure 2: Dagmar Becker-Friedmann, Stephan Pauly, and Gijs ter Horst

The Impact: Efficiency and Deep Insights

The transition to automated ticket validation has significantly upgraded the daily operational reality for both transit staff and passengers.

Scale & Reliability: The network grew to 1,300 active devices in the region. It processes 1.5 million validations per month.

Driver Relief & Schedule Stability: With ticket checks fully automated, drivers no longer waste time verifying screens. They can focus entirely on safe driving and maintaining strict timetables, heavily contributing to schedule stability.

Fair Revenue Distribution & Fraud Reduction: Automated validation supported the reduction of fare evasion. Just as importantly, the devices capture anonymised, precise data on where each ticket is actually used and which operator issued it. This data enables a reliable basis for fair, accurate revenue distribution ("Einnahmenverteilung") of the Deutschlandticket across the transport network.

Trained, Happy Passengers: Frequent riders adapted to the scanning process instantly. Improved barcode readability and optimised acoustic signals for valid/invalid tickets keep the boarding flow moving swiftly.

"Thanks to our successful collaboration with Ximedes, we can now check more efficiently and at the same time significantly increase the satisfaction of our passengers." — Stephan Pauly, Managing Director, VRM

The Future: Paving The Way For Cashless Transport



The current validators also provide a foundation for further developments. VRM is already looking toward the future, with the possibility of extending the validator solution to eventually support NFC capabilities.

The ultimate goal? Eliminating expensive and time-consuming cash handling on buses entirely. In the future this could allow occasional riders and tourists to simply check in and check out with their bank cards, receiving automated best-price billing without needing to understand local tariff zones or download a dedicated app.



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Ready to achieve similar results? Let's talk.

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