

# infrastructure manager

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## Train dispatch by video at the S-Bahn Berlin GmbH An ideal view of the platform

Who doesn't remember the man with the signalling disk on the S-Bahn platform, who dispatched the train and could also give passengers the odd bit of information? This has been done less obtrusively in Berlin for quite some time: Railway employees still stand on the platform, but now only have a radio and a signal button. This is how they inform the driver that it is safe to depart. But these railway employees will appear on the platforms of the S-Bahn Berlin GmbH less and less often. From Michael Birkner

But S-Bahn trains, which carry up to 1.2 million passengers every day, must still be dispatched safely. PSI has a solution, which has already been approved by the Federal Railway Authority: a vi-

deo-supported dispatching system – the ZAT-FM system (dispatching by the driver via vehicle monitor).

The development of this technology be-

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PSI-Newsticker

+++ PSIPENTA Presents Smart Apps for the Field Service at CeBIT 2014 – New mobile applications expand the range of ERP core functions +++ PSI receives logistics order from Latin America – Avon subsidiary in Bolivia won over by logistics optimisation software +++ PSI with One-off Expenditures and Increase in Sales in Third Quarter +++ PSI Delivers Warehouse Management System to Kärcher – PSIwms controls logistics processes in expanded logistics centre +++ Swiss GIMOTA Group decides for PSIPenta ERP System – Multi-site installation for five plants +++

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Editorial

Dear Reader,



Because of these changing needs and against the background of increasing population in metropolitan regions, transport companies face great challenges.

The new tasks sometimes require courage and readiness to assume risks. It's our mission to help you to tackle these tasks.

With our control solutions and more than 30 years of expert knowledge we ensure optimal and efficient operations in transport companies and guide you on your way to the implementation of new mobility concepts.

At the S-Bahn Berlin GmbH we implemented a video-supported train dispatching system. Since May 2012 five stations are officially dispatched with the new system. Within this project we successfully showed our competence in completing a German Federal Railway Authority approval process. Read more about this topic in our title story.

On page five you can read about how the Hagerer Straßenbahn AG establishes its sustainability by implementing PSITraffic technology. Together with partners PSI supplies a combined depot and automatic vehicle management system as well as an electronic fare management system to sell and verify tickets.

Enjoy reading this issue.

Torsten Vogel  
General Manager

scenarios for the mobility of the future are no longer fiction but existing concepts and real projects. Transport companies increasingly adopt the role of a comprehensive mobility service provider. They focus on an intensively networked local transit with different means of transport with a common ticketing platform, completed by mobile real-time information and navigation via smartphone apps. Multi-modal transport operations shall offer passengers prospectively a comparable comfort as travelling individually: getting from start to destination without any circumstances and delays.

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gan with the idea of the S-Bahn Berlin GmbH to eliminate so-called „local monitors” from platforms for cost reasons, and instead shift this dispatching responsibility to drivers, as is now common across the country. However, from the control stand of the S-Bahn, they can only verify on straight platforms when the exchange of passengers has been completed and the doors may be closed, and whether or not passengers or objects have been caught in closing doors. But it is also necessary that drivers be able to guarantee this on curved platforms.

„At the outset, many people were sceptical if it was even possible to realise this from the control stand via monitor. One concern was that drivers would be overwhelmed with observing the monitor and signalling systems,” says Dr. Ingo Abraham, responsible at PSI for the development of video-supported dispatch systems. „But it was demonstrated during technical validation and test operations at test stations that it is possible to implement verification using the new technology, and that dangerous situations can immediately be recognized,” says Abraham.

This was made possible thanks to a technology developed by PSI and its partners: The inadequate view of driver

on curved platforms is compensated by platform-mounted cameras and a TFT monitor located in the control stand. The latter offers a complete view of the platform edge – split into segments – and the boarding areas of the S-Bahn trains. „These partial images were arranged identically on each platform, allowing the driver to grasp the situation on the platforms more quickly without having to reorient each time,” says Abraham. Here, it must also be considered that such an S-Bahn train is up to 150 meters long. As a rule, ZAT-FM station equipment includes four video cameras on each

hicle. The digital video stream is decoded in the train and displayed as a quad picture on the train monitor.

„The goal was transmitting the images to the control stand with the smallest delay possible,” says project developer Abraham. „We were successful. We have achieved a maximum delay of 200 milliseconds. That's quicker than the blink of an eye. But, Abraham says, it was also necessary to prevent passenger-operated devices on the platform from causing WLAN interference or even incorrect images being sent to drivers.” This was also implemented through a



S-Bahn station Berlin-Ostbahnhof



Quad picture from platform

platform edge. Their images are transmitted via WLAN to the traction unit monitor. Their locations vary in accordance with the local situation and lighting conditions. A light sensor controls the optimal processing of daytime and night-time images. The resulting analogue quad picture is converted by an encoder into a digital video stream. Finally, the video stream is relayed to a WLAN access point and transmitted via antennas from the station to the ve-

series of security measures. Another advantage of the ZAT-FM systems is that it can be used successfully to fight crime. The recordings are to be kept for 48 hours, and Police could quickly evaluate them to find suspects. They are also good evidence when vandalism, attacks or passenger harassment occurs.

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After successfully live testing over 10 months in five S-Bahn stations involving all 650 traction vehicles of the three model series in use by the Berlin S-Bahn GmbH, the Federal Railway Authority (EBA) granted type approval in February 2013 for the new dispatching system (see page 7 for more information). With this decision, it is now possible to operate all stations of the

Berlin S-Bahn using video-supported self-dispatching by drivers. Now, cameras for the video-supported dispatching system will first be installed in approximately 80 additional S-Bahn stations. This will include equipping stations with straight platforms, although not strictly required for safe operation, in order to spare drivers constant changes in the dispatching system from

station to station.

Official ZAT-FM dispatching has been implemented at five stations since May 2012. ☺

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S-Bahn station Berlin Friedrichstraße

**New association memberships**

**Actively shaping the future**

Recently, PSI Transcom joined the Verband der Bahnindustrie in Deutschland e.V. (VDB) (German Railway Industry Association) and the International Union of Public Transport (French: Union Internationale des Transports Publics -UITP). The intensive cooperation with leading associations helps us to recognise and shape trends and structural developments. This enables us to fundamentally influence the development of control applications in public and local public rail transport with innovative approaches and strategies.



The VDB brings together the manufacturers of all rail operation products under one roof. This includes the manufacturers of vehicles, control and safety technology, infrastructure, and their associated suppliers and service providers. The VDB organizes the technical exchange between members and focuses the interests of the industry.



The UITP organises national associations and individual transportation companies, public sector institutions and transportation researchers. UITP activities include regular panels, forums, trade fairs, working groups and publications. The UITP world congress is held every two years.

**One contract - three systems**

**Efficiency in the focus of the Hagerer Straßenbahn AG**

The Hagerer Straßenbahn AG (HST) counts on PSITraffic control systems to operate their buses.

A combined depot management system (DMS) and automatic vehicle management system (AVM), and an electronic fare management system (EFM) to sell and verify tickets will significantly improve the cost-effectiveness of the operation of the HST in the future.

The Hagerer Straßenbahn AG operates a local bus service with 133 of its own and approximately 40 third-party vehicles in the municipality of Hagen and in the surrounding area. Every year, approximately 38 million passengers use the 31 city and 19 night express lines of the HST.

With the optimisation of vehicle operations by PSITraffic DMS and improved service quality through the new AVM System, cost-effectiveness can be improved and passengers provided with

better service. Modern, easy-to-use ticket printers will reduce boarding times at stops and the workload of bus drivers. Passengers receive real-time information on bus travel times via the information displays at stops. All information from the DMS and AVMS come together in the control centre.

PSITraffic supports both drivers and HST dispatchers in their work processes and provides data, which further optimise company processes.

The goal is to standardise and simplify all software components, and to create a unified system with integrated processes.

The system concept is characterised by standardised and open interfaces, so that the efficiency effects achieved can also be improved through extensions and future modernisations. ☺

**Partners for success**

PSI fulfils the project as a general contractor.

The Austrian company Zelisko GmbH, part of the Knorr-Bremse Group, will equip the buses with on-board computers. Zelisko will also implement the first coupling between the on-board computers and the depot management system. The company Systemtechnik GmbH is responsible for the entire area eTicketing. The company ITCS Service Support GmbH from Hagen is service provider and responsible for vehicle cabling.

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Hybridbus of Hagerer Straßenbahn AG

Relocation during operation: Operations and service centre now in Hammerbrook

## The new heart of the Hamburg S-Bahn



New operations and service centre in Hammerbrook

On November 13, 2013, the S-Bahn Hamburg GmbH opened its new operations and service centre.

From here, 90 employees supervise all S-Bahn traffic in Hamburg. They dispatch trains, maintain contact with drivers, and answer questions from information pillars and emergency calls. They also coordinate rescue operations, replacement service and make announcements.

With over 1,100 train journeys, the S-Bahn Hamburg GmbH transports approximately 700,000 passengers daily on six lines.

PSI Transcom was responsible for the relocation of the entire control systems from the old location Altona to Hammerbrook. The control system IMS (information and alarm system) developed and installed by PSI, and the central monitoring system with service control system, are integral components of the new control centre.

The key requirement of the S-Bahn Hamburg was maintaining uninterrupted service during relocation. This included all dispatchers, employees of transport management and operators in the control centre – a total of 18 operator stations, of which 14 are occupied around the clock.

PSI was contracted to develop a migration concept to fulfil this key requirement. The principal measures included

- Using existing high-performance network infrastructure to connect additional operator stations at the new location to existing servers
- Separating redundant servers, which involves one server remaining at the old location and an additional server being installed at the new location

- Successive testing of the complete functionality at the new location in two stages

In the future, train dispatching and platform monitoring are to be improved through the 4.5 million Euros investment of Deutsche Bahn.

In the new control centre, all systems can be operated from all workplaces. That provides more flexibility and shortens the delay in relaying information to drivers and passengers. All systems are designed with failure-resistant redundancy.

The relocation of the control centre went smoothly and without delays. A good omen for the new heart of the S-Bahn. 📍

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ZAT-system for the S-Bahn Berlin GmbH

## Approval process successfully completed

In the project "Video-supported dispatching system ZAT" (see title story), PSI Transcom demonstrated its competence by successfully implementing an EBA [German Federal Railway Authority] approval process, as mandated in the administrative regulation BAU-STE, all the way to type approval.

Working as project manager, as the entity authorized to present building documents, and as approval coordinator, an experienced team comprised of qualified engineers lead and monitored the

project, and obtained type approval for the ZAT system. In close coordination with the EBA, comprehensive tests were performed on components, system security and system availability, as well as extensive trial operation.

With the granting of type approval by the EBA, it was possible to implement



the video-supported dispatch system for the S-Bahn Berlin GmbH.

In Germany, the EBA is the responsible rail supervisory and approval authority for domestic rail infrastructure companies with federal majority ownership and for German and Germany-wide operating foreign rail transport companies. The EBA is responsible for approximately 38,000 kilometres of rail line. 📍

### Ihr Kontakt

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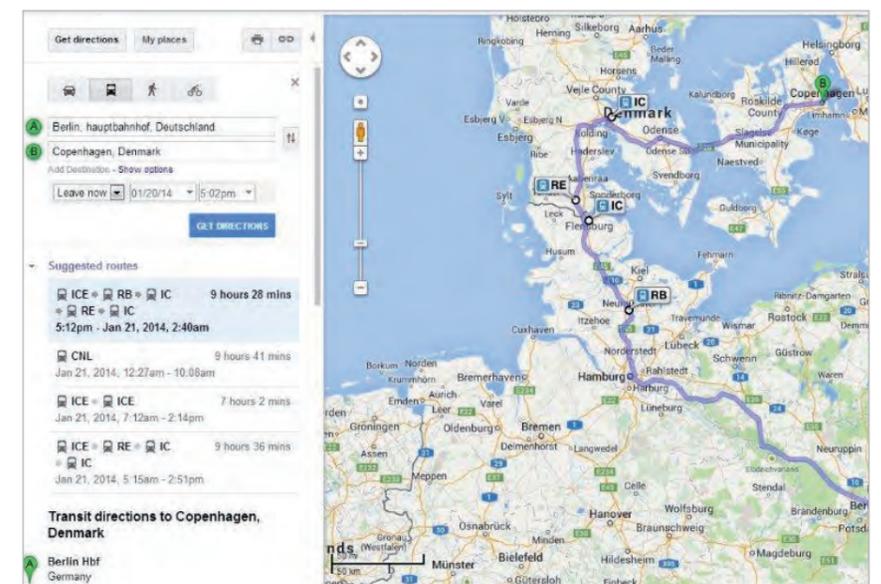
PSItraffic with interface to online-service

## Public transport route planning with Google Transit

PSI Transcom GmbH is offering its customers a new service: the visualisation of actual information on routes from its automatic vehicle management system (AVMS). Routes and the corresponding current information are presented to the passengers precisely in Google. PSI customers who use the current version of the PSItraffic AVMS solution can provide their passengers with extended passenger information at a manageable price.

Along with the conventional passenger information on displays at stops, the use of the Google Transit service provides an additional added value for many transportation companies. The data recorded in PSItraffic are made available through the special Google interface, General Transit Feed Specification (GTFS).

If real-time data are available, the visualisation in Google does not only contain the route queried by the passenger, but also shows where the vehicle queried by the passenger is at that precise moment. This way the passenger can quickly see if the connection he needs can be made. 📍

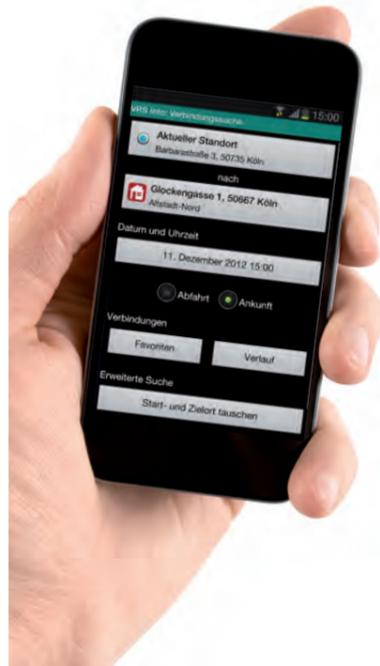


Route planning with Google Transit

PSI system delivers real-time data for mobile devices

## New generation of customer information at RSVG

From now on, Rhein-Sieg-Verkehrsgesellschaft (RSVG) passengers can receive real-time departure information for scheduled buses via smartphones by photographing QR codes at bus stops or using the new timetable app. This is made possible through the recording of current data in the PSITraffic automatic vehicle management system (AVM).



Always up-to-date with the VRS-App

The actual departure time of the buses is calculated via GPS in the board computer using the current position of the vehicle. The data is compiled in the PSITraffic AVM and fed into the central data server at the Verkehrsverbund Rhein-Sieg (VRS).

The VRS distributes them to the various information systems, from timetable information in the Internet to schedule apps and real-time displays at bus stops. About 100,000 passengers already use the real-time information in the Internet. With the VRS app, QR code or via the Internet, they now receive actual departure times for more than 2,000 bus stops in the RSVG service area.

The Rhein-Sieg-Verkehrsgesellschaft (RSVG) is the largest transport company in the Rhein-Sieg County. With about 300 vehicles, the RSVG transports more than 30 million passengers over 13 million kilometers per year.

### Your Contact

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Information from the control stand

## Mobile app for Aare Seeland mobil AG

The Swiss Aare Seeland mobil AG (asm), for which PSI Transcom is currently introducing a passenger information system (PIS), will in future use a new mobile app developed by PSI for the communication between the control centre and drivers.

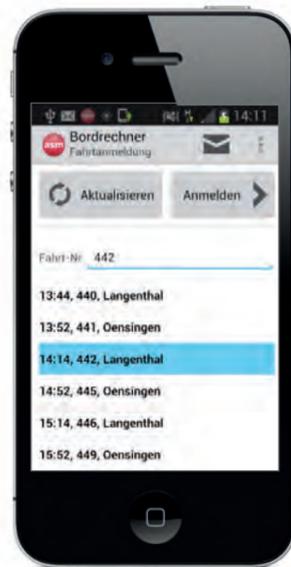
Audible signals inform drivers about incoming messages. Updates are performed automatically.

The app is easy to use and extremely inexpensive to purchase and operate when compared to an on-board computer. It therefore represents significant added value for asm.

Dispatchers can communicate with drivers through the app via text message. Future plans include voice communication. Those in the control centre are kept up-to-date about possible disruptions and are able to locate vehicles.

### Your Contact

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Start display with list of trips

All together for public transport growth

## PSI participates in global campaign

PSI Transcom will take part in the European Mobility Week from September 16 - 22, as part of the UITP campaign „Grow with Public Transport“.

The campaign is an initiative of the UITP (International Association of Public Transport), the worldwide union of public transport organisations, transport companies, the supply industry, and research institutes. The organisation has 3,400 members in 92 countries.

The campaign was launched in June 2009 at the UITP World Congress in Vienna, when UITP adopted its PTx2 (Public Transport) strategy. With this, the public transport sector sets the goal of doubling the global market share of public transport by 2025 and defining in which areas swift action is required.

To support the PTx2 strategy, the UITP created the „Grow with Public Transport“ campaign.

During the European Mobility Week from September 16 - 22, 2013, the campaign grew around the world. Cities and regions around the globe advocated for the need to work for better and increasing public transport.

The campaign slogan „All Together for Public Transport Growth“ was displayed all over – on buses, in trains, at stops, in stations, on web sites and on social media.

PSI Transcom took part in the campaign with the publication on its home-

page and on social networks, and supported the UITP in the realisation of their strategy.

### Your Contact

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### The Campaign

Goal of the „Grow with Public Transport“ campaign is to raise awareness for the importance and positive influence of a strong and good-quality public transport.

The campaign is intended to encourage those responsible for public transport to highlight those areas where immediate action is necessary to improve transport services and increase the use of public transport worldwide.



PSI Transcom supports the „Grow with Public Transport“ Campaign

## International rail infrastructure and technology summit in Berlin Expert exchange at the IRITS

The International Rail Infrastructure and Technology Summit (IRITS), which took place between November 6 - 8, 2013, in Berlin, had many high-ranking attendees. Representatives of the international rail and supplier industry and transport ministries and associations discussed future technical and strategic opportunities for the rail industry in forums and „one-to-one meetings“ against the background of globally increasing demand for vehicles, equipment and IT services.

Technical lectures focused particularly on „best practices“ in core topics like metropolitan traffic, high speed rail, in-

teroperability, security, infrastructure modernisation, securing investments and the future of rail traffic worldwide. PSI Transcom was able to establish important contacts and actively share ideas and experiences which will point the way ahead for the continuing strategic development of the PSI solutions. At the 2015 event in Barcelona, PSI

will expand its efforts, contribute current questions, and take over the leadership of workshops, among other activities. [www.irit.org](http://www.irit.org)

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## IT-Trans in Karlsruhe IT is the key!

From February 18 - 20, 2014 at the IT-Trans in Karlsruhe (booth G9 in hall 2), PSI Transcom will present its automatic vehicle management system PSITraffic for efficiently managing operational processes in transport companies.

The focus of this year's trade fair appearance is the introduction of an integrated automatic vehicle management system (AVM) and Depot Management System (DMS). As an integrated system

with seamless processes, it optimises the operational procedures in daily transport and depot operations. All information collected in AVM and DMS flows into a central control centre and supports dispatchers in monitoring the complete infrastructure and in dispatching personnel and vehicles. [www.it-trans.org](http://www.it-trans.org)

Market Update MU7  
„The Future Way to  
Ensure Efficiency“  
Mittwoch, 19.2.14  
16-17:30 Uhr



Further information  
and appointments



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## Railway Forum in Berlin

### PSI Transcom and PSIPENTA with a joint stand

At this year's Railway Forum from March 17 - 18, 2014 in the Berlin Estrel Convention Center, PSI Transcom and PSIPENTA will again be exhibiting together at the trade fair.

In the accompanying conference, top managers – together with managers from group procurement with the Deutsche Bahn – as well as suppliers and other experts from industry, business

and politics, will discuss future perspectives and options for action of the rail industry.

Topics at the focus are the globalisation of procurement and innovation management in the rail industry. Sponsor of the conference is Jörg Manegold, head of Procurement Deutsche Bahn. PSI Transcom will contribute its expertise in the workshop „Quality assurance in the procurement of infrastructure

services – managing the conflict between costs, deadlines and quality“. [www.ipm-scm.com](http://www.ipm-scm.com)



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## InnoTrans - International trade fair for transport technology in Berlin

### The future of mobility - PSI is back again

It's that time again: The world's largest rail exhibition opens its doors for the tenth time in September 2014. Well over 100,000 trade visitors from almost 200 countries will learn about innovations in the global rail industry from the more than 2,500 exhibitors.



For years, the InnoTrans has been an important platform for PSI Transcom to present their newest developments in operations control technology.

The concept of joint presentation with other PSI business units proved itself very well in 2012. In 2014, the business units Electrical Energy will be attending

with its energy management system, as will PSIPENTA with its maintenance solution.

From operation, to electricity supply, to maintenance – PSI provides complete technological know-how for rail operations.

See for yourself and join us – we'll be there for you. [www.innotrans.de](http://www.innotrans.de)



PSI booth InnoTrans 2012

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