

# INFRASTRUCTURE manager

Journal for Public Transport and Safety



Transparent processes at Stuttgarter Straßenbahnen AG

## Complete transparency with PSITraffic/DMS

### Product Report

Managing and controlling  
on-demand service with  
**PSITraffic**  
Full-service on demand

### Product Report

**PSITraffic/TMS**: reliable  
operations, reduced costs  
Maximum efficiency for train  
operations

### Interview

Torsten Vogel in an  
interview with „manage it“  
Enjoy working with the  
systems

## EDITORIAL

Dear readers,

„Smile in the City“, the motto of this year's UITP World Congress, underlines the obligations and challenges public transportation companies face today. SMILE stands for Sustainability, Mobility, Innovation, Lifestyle, Economy – all top-priority issues, especially in the wake of increasing urbanisation. In this context, people now often speak of Mobility 4.0. This refers to new and innovative approaches to the development of digital networks, and with this the integration of public transport with sharing concepts and other modes of transportation.

Transport companies must keep pace with this rapid development in order to remain competitive; at the same time, they must not lose sight of costs.

With our products and our over 30 years of experience, we can help you to keep your company successful and uncover new opportunities.



We take innovative aspects into account in our projects. We do this while always remembering that your requirements are our yardstick for success. Because you know your business best.

In this issue, you can read about how we succeeded with the Stuttgarter Straßenbahnen AG and how the company benefits from the PSITraffic solution.

As of late, the Regionalverkehr Bern-Solothurn has relied on the

PSITraffic Train Management System. The article „Maximum efficiency in train traffic“ on page 8 provides insight into this solution

At our user and discussion forum, Stephan Preuss, CEO of HANDSPIEL GmbH, lectured on the future of the digital work. Read his guest commentary on this contemporary topic on page 10.

We are particularly pleased to present a new section to you in this issue. On page 13, you will get to know some of our colleagues. We will continue the introductions in the coming issues.



Torsten Vogel  
General Manager  
PSI Transcom GmbH

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Transparent processes at Stuttgarter Straßenbahnen AG

## Complete transparency with PSItraffic/DMS

In 2007, the Stuttgart Straßenbahnen AG (SSB) resolved to introduce a depot management system (DMS) for the centralised management of all depots, garages and sidings. This was done to make possible the creation of comprehensive depot dispatching and operational planning.

**N**After an EU-wide tender, PSI Transcom GmbH received the order to introduce a DMS based on its software platform PSItraffic. The project included the implementation of the system in all city rail and bus depots including all auxiliary installations. The ability to extend this to additional depots had to be ensured. A vehicle tracking system was also to be installed in the systems.

The project began in 2008 with the joint creation of the technical specification. Based on this, PSI Transcom continued to develop its DMS dependent upon the operational processes. Great emphasis was placed on standards, particularly with the interfaces. This eventually resulted in the definition of the VDV interface 461 between DMS and AVMS. The

software was then tested in selected pilot depots. Thomas Wimpff, Head of Control, recalls: „We then successively tested and commissioned one depot after another. Due to the relatively large cabling effort involved, installing the equipment took some time. Nevertheless, in 2010 we were still able to complete acceptance and begin operation.“

### Continuously improved

From the outset, data from the AVMS and the schedule, roster and route planning were integrated into the DMS. The system features large display monitors at the depots to provide decentralised driver personnel information. A number of additions were commissioned in Berlin to supplement the regular updates. For example, depot employees initially complained that they were too often forced to navigate to

different points in the system to find different information. „We commissioned a special query by PSI, which includes everything that the employees need. It includes a special view for buses and a view for the rails,“ explains Wimpff. Today, there is a mask for setting notifications of the number of buses required and one for the depot overview.

Of course, there is an operational picture of every depot showing which vehicles are there and where they stand. In the depot overview for rail, the actual stock and the target stock can also be seen. In addition, the schedule data and required vehicles which must be provided at certain times are displayed – both for the current and upcoming departure phase. You can display active vehicle deployments, special trips, the number of vehicles in the main garage, how many internal vehicles are in other depots and the number of external vehicles in your depot. The system indicates whether the vehicles in the main garage are ready for pickup, whether some are on

a test drive, and how many reserve vehicles are available.

### Comprehensive transparency

„Most of this information was already in the system. But it had not yet been prepared in a way that was condensed enough to meet the requirements of

Vehicle and route dispatching are based at their core on the fuzzy logic module Qualicision®, a proprietary PSI solution that has proven itself in many fields such as the automotive industry and in DMS.

Based on this, a DMS-specific implementation optimises the results of ve-

### RFID vehicle tracking

Various vehicle tracking solutions were discussed in advance. „We opted for the RFID solution because it provided the best coverage of the SSB-specific requirements,“ says Wimpff. Vehicles were fitted with active RFID tags, which are equipped with a battery and antenna. At the depot, they pass so-called exciters, which emit a permanent location identifier. They read the tags and send this location information to the DMS. „We are at 99 percent accuracy,“ says Wimpff pleased. „For vehicle tracking, that is sufficient.“ In the system, the data are automatically visualised in graphs and tables for dispatchers, and appear instantly updated in the operational picture.

„The AVMS takes care of everything beyond the front door, and everything behind it is done by the DMS,“ says Wimpff. The DMS receives important information from the AVMS via an interface. This includes all logins, logouts and re-registrations. If a vehicle logs out and back in during the day, the DMS receives a message. In this way, it is always known which vehicle is currently on which block (tour), and the schedule list for the

*The complete transparency across all depots and the relief provided to colleagues – who now have more time for their core tasks – are for me the two highlights of our successful project with PSI Transcom.*

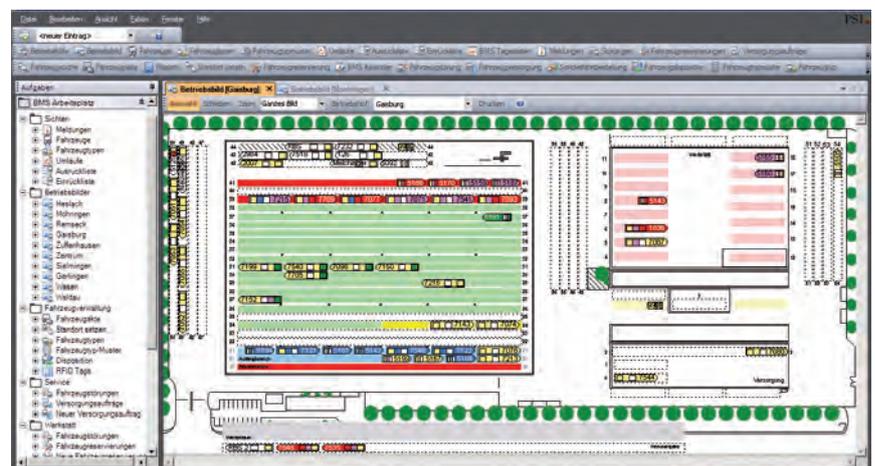
**Thomas Wimpff**

Head of Control, Stuttgarter Straßenbahnen AG

the SSB. The new features are a huge relief to us and help us to prevent errors,“ so Wimpff. This depot overview could also be used for buses, but there they restrict themselves to the bus requirement notifications. This includes the vehicle location and operational status, for example. „For buses, everything is leaner and simpler because they are very flexible. On railways, one is very limited in a depot – for example in avoiding a collision. That is effort that is not necessary for buses,“ says Wimpff, who continues: „With these new functions, we have even greater comprehensive depot transparency. We can switch to any depot at any time and immediately see the vehicle situation on the ground.“ This includes, for example, the control centre, the signal workers, the garage staff and anyone who needs the information. Because the licensing policy of PSI Transcom is not based on user seats, there are no restrictions on the number of users.

hicle disposition and routes across depots for several days in advance. All important dispositive criteria are fed into this – such as vehicle type, train length, mileage, condition and performance characteristics – and sector and depot-specific features can also be taken into account.

For example, if there are traction units, it takes into account which trains can be coupled at all, and traction formation is begun as early as possible, since individual vehicles are still easier to park.



View of depot Gaisburg.

evening reflects the actual current situation – and not the schedule according to which they departed in the morning. Another piece of information is the arrival forecast, which the DMS receives at a defined time prior to arrival. Using this information, the schedule list can be corrected repeatedly and automatically, so serious delays or shifts in the schedule are detected. Using this information, the DMS attempts to deploy vehicles optimally for the next departure.

### A clear overview

For Thomas Wimpff, the main improvement is the full transparency that has now been achieved thanks to PSITraffic/DMS. Where previously the central vehicle dispatcher did not have timely access to all of the necessary information about current states and repair status, today he has the complete overview. With this overview, he can also plan using smaller reserves, and with limited vehicle resources, the SSB AG has guaranteed almost total availability for the schedule. „We can economize significantly better than in the past. For rail, we were able to reduce the vehicle reserve to less than ten percent,“ says Wimpff, putting numbers to the savings. For buses, that is slightly higher due to systemic reasons, since a certain number must



Thomas Wimpff, Head of Control.

also be available to replace trains. The DMS eliminates a whole range of unnecessary administrative work for employees. Whereas in the past, someone would walk around the depot every morning and note down the remaining buses in order to then compare this with a list to find discrepancies, everything is now done automatically by the tracking system. In the control centre, it used to be impossible for anyone to have an overview of the situation in the garages. If they sought a replacement vehicle, all of them had to be called and asked in turn. Today, you can immediately see where the chance is greatest to find a replacement. Through the optimal positioning for departure and constantly available overview of the necessary garage servi-

ces, almost all additional shunting has been eliminated. „The complete transparency across all depots and the relief provided to colleagues – who now have more time for their core tasks – are for me the two highlights of our successful project with PSI Transcom,“ summarises Wimpff. Development of the DMS continues, and in the context of maintenance by PSI Transcom, a major upgrade is being carried out. ☺

The SSB AG is one of the largest and most modern transport companies in Germany. The total length of the 72 lines of the transport network is nearly 900 kilometres. The 17 rail lines, including a cog railway and a funicular, are traversed by 184 city rail vehicles. 253 buses are available for the 55 bus routes. There are a total of 839 stops in the network. For the buses, there are three depots, and for rail another three depots, as well as a siding.



Hybrid Bus of SSB AG.

PSI Transcom GmbH  
Sven Jürgens  
Division Manager BMS  
sjurgens@psi.de

Managing and controlling on-demand service with PSIttraffic

## Full-service on demand

Flexible service offerings in public transport – whether scheduled or unscheduled – are becoming increasingly important for the comprehensive delivery of public transport services. Here, vehicles should only be used when there is actually a need.

**E**specially in rural areas, the much-cited shift in demographics, constantly increasing cost pressure and new travel habits are causing problems for the implementation of break-even public transport that is also attractive and meets the population's needs. Older people are remaining mobile for longer with cars, and the number of students is decreasing. As a result, buses and trains are remaining empty. This also applies to certain times such as weekends or evenings, or specific lines in sparsely populated areas. The larger and less densely populated an area is, the more flexible public transport should be able to act and react.

### Time for new ideas

New ideas are needed. One solution is provided by on-demand service, which offers a number of possibilities – from buses that stop on demand, to shared and dial-a-ride buses in regular service, to fixed-run taxis or shared taxis. The basic idea is to only deploy vehicles at the places and times where they are needed. And here is where information technology comes into play. Kay Tewes, Director Sales Public Transport of PSI Transcom, knows that the digital world has a lot to offer public transport: „It starts with needs and ideas. Solutions are then created that reflect the customer's needs. They are implemented and tested in

practice for their suitability. For transport companies with large buses or for companies with minibuses or local taxi companies: It is an opportunity for everyone to improve the services for people in their region while earning money. Software that organises the on-demand traffic helps to define the collaboration, to inform customers and to invoice services.“

### Matching solutions in use

At a bus stop equipped for on-demand use, one finds a normal schedule with all offered trips. On-demand trips are indicated with a symbol – often a small telephone handset. A phone number indicates to the passenger where he can book the trip. To book from home or from a smartphone, passengers use the same web portal available to the call centre or the control centre. „What makes our



There are a number of possibilities for on-demand services – from buses that stop on demand, to shared and dial-a-ride buses in regular service, to fixed-run taxis or shared taxis.

solution special is that on-demand service is a component of the AVMS (Automatic Vehicle Management System). Using the PSITraffic platform, we have the ability to immediately deliver the on-demand service using the AVMS, or to add it later. The various modes of operation are configurable, so the right solution can always be delivered," adds Tewes.

These solutions are used by the rebus Regionalbus Rostock, a consortium of four transport companies, and the RVS Regionale Verkehrsgesellschaft Dahme-Spreewald, for example. The OMNIPART Verkehrsdienstleistungen is another. This consortium of several medium-sized bus companies uses the PSITraffic platform in over

*Using the PSITraffic platform, we have the ability to immediately deliver the on-demand service using the AVMS, or to add it later. The various modes of operation are configurable, so the right solution can always be delivered.*

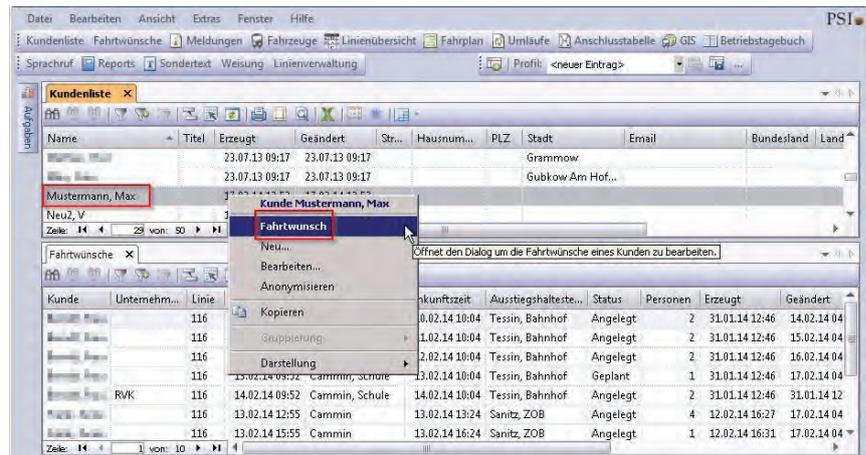
**Kay Tewes**

Head of Sales Public Transport, PSI Transcom

850 buses on 270 lines as the AVMS and for the ride request centre, which receives the trip requests from passengers and forwards them to the responsible contractor. In this way, transport companies that are part of the OMNIPART Regio-AVMS can react flexibly to any traffic and serve many routes faithfully and according to demand.

### IT has even more to offer

This results in a real benefit to the transport companies by improving their range of services at predictable costs. In cases where ridership cannot justify service on a certain schedule, it



PSITraffic mask for on-demand service.

is not necessary to send a large bus on the route every hour, but rather only if it is really needed. A certain percentage of the trips may be carried out as the need arises using smaller vehicles. Kilometres not travelled also re-

port. Package deliveries are assembled daily into organised tours, since new customers must be reached every day. Here, because PSI works within the Group across industries, we can fully exploit our advantage. For many years, we have been developing a solution with complex optimisations. We can use these flexibly in PSITraffic, allowing us to offer a proven solution for free area transport." Since a vehicle can always be operated less expensively the more passengers it carries, when no schedule and no stops are used, it is naturally important to pick up and drop off all the passengers in an optimised order.

For this reason, PSI Transcom is now working intensively to develop route optimisation and to implement this as a module in PSITraffic.

Tewes is certain: „Soon, we will be able to organise cost-effective and efficient on-demand service, even when it is not based on a schedule.“

duce costs and protect the environment. „You can therefore continue to offer an hourly schedule, but the trips are only carried out upon request," explains Tewes. And finally, billing subcontractors becomes more transparent and simpler.

„But soon, IT will have much more to offer public transport," promises Tewes, alluding to so-called free area transport. He explains further: „With free area transport, the challenge is connecting individual trips to a linked tour. This is a task which, while new in public transport, is already a standard part of logistics for goods trans-

**PSI Transcom GmbH**

Kay Tewes

Head of Sales Public Transport

ktewes@psi.de

PSItraffic Train Management System – more reliable train operations with reduced costs

## Maximum efficiency for train operations

In the future, the Regionalverkehr Bern-Solothurn (RBS) will control its train operations with the PSItraffic Train Management System (TMS). The PSI control system provides numerous functions to meet the requirements of safe, reliable and modern rail operation. This includes providing information both to dispatchers controlling operations, as well as to passengers, the customers of RBS.

The PSItraffic TMS is the essential tool for dispatchers in the control centre for monitoring, controlling and optimising operations.

PSItraffic supplies them with information – previously received through the signal box consoles – on modern screens, while also integrating fault processing and passenger information. The system assumes control of the trains and generates from the operational requirements the specifications for the signal boxes, which are evaluated beforehand by the remote operational control for their feasibility. This results in stabilised operations, fewer faults, an increase in performance by taking advantage of time reserves, energy savings through adaptive driving and high-quality passenger information. Reliable train operations are thus realised where they are needed: in remote operational control and the signal boxes. The costs incurred to ensure reliability are thereby minimised – without causing the reliability of train operations to suffer. In addition to the supply of basic data, vehicle tracking, conflict detection and routing, forecasting and optimisation are key components of the PSItraffic TMS.

### Forecast calculates arrivals

The forecasting module calculates the timetable from the schedule data and the locations drawn from the tracking



RBS train station.

module. From this, it calculates the arrivals at the following stations. If journeys have already been linked in the schedule to journey courses, the forecast is also made for subsequent trips. Parameters such as turnaround times and rest periods are included in the forecast calculation. The simulation of other itineraries is performed using a block-wise consideration of movements, i.e. a forecast is generated for the passing of subsequent track sections for each train using the method described above. Continuous checks are made whether the required routes will be available on time, or

whether they are available or will be blocked by the pre-set routes of other trains. This results in forecasted blocking time stairways for each train, which are checked for overlap. In case of conflicts, the forecast is first adjusted. In case of delays, stopping and turnaround times are shortened, as long as this is possible while still taking into account the specified minimum times for stopping and turning and connections that must be kept. The forecast for the length of platform stops is initially created using the stop times from the schedule.

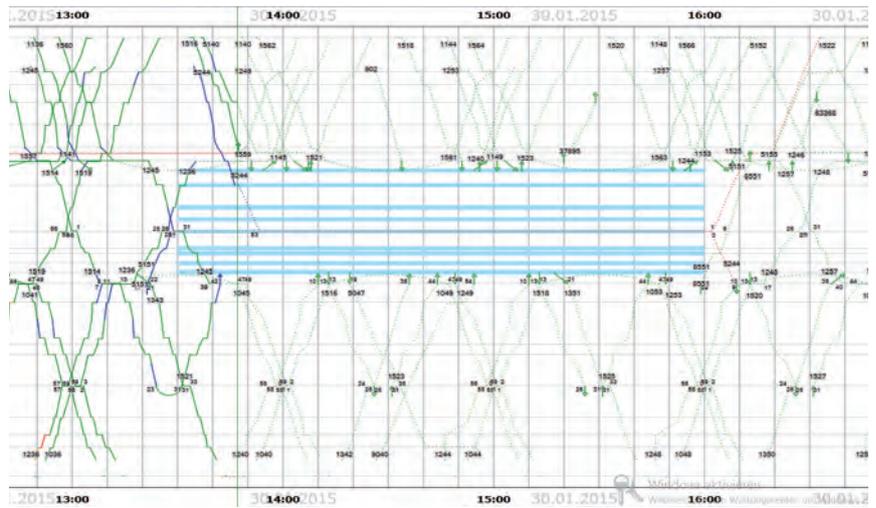
### Modern user interface

Until now, the dispatchers have worked with the signal box consoles of the stations and signal boxes. The clear working environment will be maintained by using screens. Preserving the familiar and adapting it to new technical constraints – a challenge for which PSITraffic was developed.

Workshops with IT specialists from PSI and the experts for rail operations at RBS have created a user interface which will provide users with what they need in the coming years. For example, the sequence of pre-set routes will be visualised in an operational picture with information on the associated trains and their delays or early arrivals. The operators maintain an overview and can concentrate fully on operational events.

### Conflict detection

The goal of conflict detection is to detect conflicts at track crossings or single tracks on the basis of route and schedule data and forecasts, and to visualise this for the dispatcher. He then decides upon the operational solution, for example a train cancellation, a train change or the use of additional trains. Due to the high train density, the dispatcher must respond quickly in case of a fault. He should then be supported in his decision making to the greatest extent possible by



Time-route-line diagram with disruption.

(semi)-automated functions and algorithms. This primarily concerns conflict detection and resolution, and in addition, the implementation of the dispatching decision in train routing.

### Interface train routing/ remote operational control

The train routing module includes an interface to the remote operational control system of the PSI partner LeitTec AG. The interface is bidirectional and is used to receive information on train movements in the network, to query information on infrastructure components, and to import events such as feedback on configured pre-set routes and signals turning red in the train control system. The train control commands include instructions on route configurations for the underlying remote

operational control. An acknowledgment system ensures transmission reliability.

### Summary

The PSITraffic TMS is a modern train control system developed on the basis of the requirements of our customers. The system allows the operator to manually intervene in the processes and supports him by providing information upon which he can make qualified decisions.

This creates reliability on a familiar foundation and increases the quality of the service of RBS for its customers. ☺

PSI Transcom GmbH  
Elke Frommann  
Head of Sales Rail Systems  
efrommann@psi.de



RBS train station and bus stop.

Guest commentary on digital transformation – Stephan Preuss, HANDSPIEL GmbH

## Developing digital competitive advantages in companies

In principle, it is possible to digitise everything imaginable in a company. Almost all processes can be digitally supported or fully automated. For companies, opportunities for digitalisation are particularly relevant for processes in sales, planning, quality assurance, production or training – and the list goes on. If digital innovation is then possible for every process in the company, digital transformation represents a gigantic innovation toolkit for businesses.

Digitalisation offers two relevant optimisation approaches:

1. Completely automate digital processes so that only maintenance is still necessary.
2. Digitally support processes (semi-automation). However in this case, people are always involved – whether employees or customers.

### Defining competition-related processes

The first step in the development of competitive advantages sounds trivial: Define the economically relevant processes, i.e. all processes that contribute to the growth and health of the company, as „key initiatives“. After these have been defined, they can be individually analysed for digital potential.

Take the sales process, for example: The buying and selling of shares from computer to computer can be completely automated. Likewise, industrial ordering processes can be completely automated. They merely have to be integrated into Controlling.

Of interest are all sales processes for goods and services in which people are directly involving. These can also be supported digitally. When you as

a private person search the internet for a television, an orchestrated sales process is executed. You will receive tailored advertising on different sites. From there, you may be directed to a landing page with personalised content where you then buy the product yourself from an online shop. This process is semi-automated and fully outsourced to the customer.

After you have identified the „key initiatives“, the question becomes deciding in what corporate sector the greatest effect can be achieved to develop a truly measurable competitive advantage. Here, it must be mentioned that digital transformation is an automation process, a constantly evolving change process. Decision makers should keep this in mind and not chase every new digital idea. Digital projects simply automate processes using software – nothing more and nothing less. When a process is digitised, you as a manager are faced with a classic change process. But the first rule of change management, „Turn those affected into participants“, is almost always forgotten.

### Examining digitisation potential

Every process in the company has one or more users for whom this pro-



cess is useful in some way – or at least it was originally created for this purpose. After the competitiveness-relevant processes have been defined, they can be examined from the perspective of the process customer for their digitalisation potential. At this point, do you have a process in mind which you think is most important? Then hold that thought for a moment, and consider it in terms of answering the following questions.

Through automation, can the process ...

- be accelerated or slowed down?
- be combined with other approaches?
- be simplified or complicated?
- create order? Or does it lead to variation?
- be made transparent or be hidden for others?
- process and visualise information?

The ratio of expense to the possible results of digitalisation also depends upon the innovative ideas you want to use to optimise these processes. The interesting question is now the evaluation of which of these digital inno-

vations will provide the greatest competitive advantage. In my experience, the actual expense is rarely considered in relation to the realistic result. The subsequent application by the user is often regarded as a black box with the hope: The user will somehow utilise the software as intended.

The decisive factor is always the user and the access to him as a target group.

We have used a matrix to summarise the ratio of digitalisation effort (input) and digitalisation result (output) of such processes. Digitalisation processes that can be implemented with little effort (input) while achieving maximum effect (output) are logically priority-one innovations.

We call this tool the IO matrix. It provides a compass for quickly assessing the value of projects and forms a basis for discussing them with others.

### Digitalisation must be viewed as immense field for experimentation

Due to the increasing complexity of all of processes in our daily lives, it is increasingly difficult to make predictions about customer desires. Microsoft considered the iPhone a flop in 2007, and in 2008 Oracle boss Larry Ellison described cloud computing as a „crazy fad“. In 2015, it is becoming apparent that messenger services such as WhatsApp and iMessage are the new social networks. Who could have foreseen that a few years ago?

When economic success is practically impossible to foresee, what does this mean for the demands on the competitiveness of businesses? It can clearly lie only in digital flexibility, curiosity and experimentation – properties that

German companies in particular are known for.

In my view, the development of digital competitive advantages can only be a combination of clearly calculated strategies and digital experiments. These strategies should be less static agendas and more the development of a clear digital corporate vision and an arsenal of clever tools. This includes working with prototypes and testing in real-world environments.

As a strategy method, I can recommend the free Digital Innovation Model. This tool can reduce the development of a software strategy from several months to a concentrated day.

I wish you every success in the continuing digital development of your departments and companies. 🌀

Stephan Preuss is digital researcher and Managing Director of the HANDSPIEL GmbH.

The Leipzig IT consultants help companies to plan and conceive successful software projects.

His latest book, „Software planen, die Nutzer lieben“ (Planning Software That Users Love), helps managers and innovators to develop software strategies from a user perspective.

Tip: You can subscribe to his free monthly whitepaper on digitalisation under [www.handspiel.net](http://www.handspiel.net).



Excerpt from an interview with Torsten Vogel of PSI Transcom GmbH in *manage it* magazine

## Enjoy working with the systems

*Mr. Vogel, you have implemented the PSITraffic solution at many well-known clients such as the Hamburger Hochbahn AG or Rheinbahn AG. Is your software only interesting for major transport companies?*

No. We have also established PSITraffic in many small and medium-sized transport companies. The challenges there are similar but require a more nuanced view of their complexity. For example, the precise vehicle parking at defined places is not a major factor when sufficient parking area is available. In this case it is not absolutely necessary to optimise these processes through automation.

*You serve customers all over the world?*

Our focus is currently on Germany and Switzerland. But we have also completed projects in other countries, for example in Poland. In Poznan we implemented the first automatically controlled tram depot in Poland, one of the largest such investment in all of Eastern Europe. And we are focusing increasingly on the Scandinavian and Western European markets, since we believe that PSITraffic is also relevant there.

*And there is also a large project in Malaysia?*

That's right. We have had several opportunities to realise projects in the Asian and Pacific region through foreign subsidiaries of the PSI Group. There, we collaborate with the local PSI subsidiaries. For example, in Malaysia there are now two lines for

which we delivered the management systems, as well as a multi-lingual, turnkey passenger information and communications system based on PSITraffic.

*And you already have a number of customers in Switzerland?*

Yes. In late 2014, we received an order from the Regionalverkehr Bern-Solothurn to supply a train management system. The primary challenge there is the limited capacity of the underground terminal station Bern. You need prompt and efficient management of trains to deal with the disproportionate growth in ridership needs. This project includes innovative aspects such as considering different vehicle profiles. For example, a locomotive-hauled train behaves differently in terms of speed and braking profile than a modern shuttle vehicle. Now the challenge is optimising train control under these conditions and getting the most out of the possibilities offered by the existing infrastructure.

We were able to demonstrate our expertise in the railway sector with the Rhaetian Bahn, the Matterhorn Gotthard Bahn and the Aare Seeland Bahn. The focus of the Swiss projects is usually train control and passenger information. Due to its tourist appeal, these lines require multilingual systems – not only German and English – but also Italian and Rhaeto-Romanic. And you shouldn't forget that the Rhaetian Bahn, for example, has more train journeys per day than the Hamburg S-Bahn, some of which are on single-track lines, so that the delay



of a single train often impacts the entire network.

*New developments and trends – is this also an issue for you?*

Of course. In this respect we are no different than other IT sectors. In addition to continuous optimisation, usability is also an essential topic for us. We have put our systems to the test and have had studies carried out by external experts directly at our customers. This has resulted in a number of improvements and refinements. But more than anything, we place great importance on focusing on the user when developing our systems. That's why our attention is more on usability and than on extremely lean programming or the latest technology. Users should enjoy working with the systems and experience improved flexibility and benefits for their daily work process.

*Mr. Vogel, thank you very much for the interview.*

The interview was conducted by Volker Vorburg, responsible editor for the *manage it* magazine.

PSI Transcom GmbH  
Susanne Renner  
Marketing  
srenner@psi.de

We introduce

## Experts at PSI Transcom

Starting with this issue, we will use this section to introduce to you people who work for PSI Transcom. Our employees and their experience are the lifeblood of our projects. Without them, we would not be so successful, because their knowledge is the basis for the further development of our systems. Get to know our team.



### Heimo Springmann, Project Management

As technical project manager, Heimo Springmann has been responsible since September 2013 for the planning, coordination, commissioning and documentation of the hardware delivered by PSI as part of our projects. Projects: HOCHBAHN, S-Bahn Hamburg, Rheinbahn, SSB.



### Torrens Langer, Development

Torrens Langer has developed software at PSI Transcom since 2004 for AVMS, in particular for the interface AVMS/ticket printer and on-board computer. He is also on-site during commissioning and responsible for customer support.

Projects: BNO, RVS, Omnipart, RSVG, HST, DKB.



### Thomas Breitwieser, Procurement and Controlling

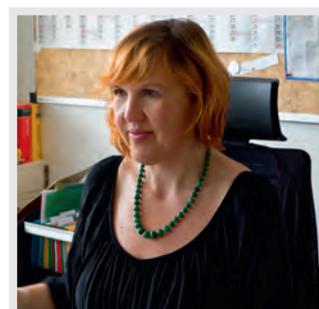
Thomas Breitwieser has been with the company from the very beginning. He is an authorised officer and responsible for Controlling and Procurement, as well as for general administration.



### Christian Kirschke, Development

Christian Kirschke has been working as a software developer at PSI Transcom since 2009. His focus lies in the area of AVMS, with some responsibility for DMS, data management and interface.

Projects: MoveOn, RSVG, HST, DKB, RVS, Rebus.



### Isabell Stadler, Assistance

As Assistant to the Executive Board, Isabell Stadler has been responsible for diverse issues relating to colleagues and management since April 2013. She also maintains contact with our customers and business partners.



User and Discussion Forum in Berlin

## Two days, many topics and lofty heights

The spectrum of topics at this year's User and Discussion Forum in the German Museum of Technology in Berlin was wide-ranging. During the two days, there were presentations on optimisation, forecasting and tracking methods, but also on eco-management for buses and quality and data management. Current project and case studies from PSI customers rounded out the program.

The supporting program was also varied: A guided tour through the historic Locomotive Hall of the German Museum of Technology provided impressive insight into German railway history. Customers, interested parties and partners had an opportunity in the evening to meet and to exchange ideas directly under the roof of the Sony Center at Potsdamer Platz. For athletically inclined early risers, there was a brisk guided tour – a good opportunity to experience Berlin before the daily rush of tourists.

We would like to thank all of you for your visit and are looking forward to seeing you again at the next User Forum in 2017. 🌀

PSI Transcom GmbH  
Susanne Renner  
Marketing  
srenner@psi.de



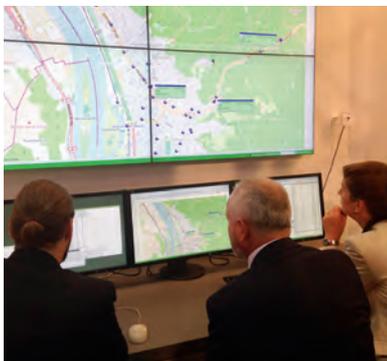
PSI Transcom and PSI Electrical Energy present projects in Milan

## UITP World Congress

The integrated **PSItraffic AVMS/DMS** was the focus of the presentation at the **UITP World Congress in June in Milan**. Again represented was also the **PSI business unit Electrical Energy with its energy management system PSIcontrol**.

**S**“MILE in the City“ was the motto of this year’s UITP World Congress. „SMILE“, an acronym which stands for the guiding principles of the congress: Sustainability, Mobility, Innovation, Lifestyle, Economy. Around 280 exhibitors presented their products and systems in this context. 15,000 visitors attended the exhibition, and 2,300 guests from 82 countries participated in the congress.

At the PSI stand, many international visitors were shown current projects.



Presentation of the **PSItraffic/ITCS**.

At the front of a well-attended auditorium and a very interested audience, Kay Tewes, Sales Manager Public Transport, presented a talk on the challenges of introducing a depot management system and on the opportunities and benefits that result for transport companies.

Overall, it was a successful appearance for PSI at which the company demonstrated that it possesses a broad portfolio offering operators efficient transport and providing an optimum range of services for passengers. ☉



Kay Tewes in a conversation.

## Rail Conferences in Barcelona and Berlin

**F**uture perspectives and options for action in the railway industry were discussed at both the **International Rail Summit** in Barcelona and at the **Railway Forum** in Berlin. At both meetings, we presented our solutions for the public trans-

port sector. Executives and managers from the Group Central Procurement and Technology of Deutsche Bahn, as well as experts from industry, business and politics, met for the international exchange of ideas. ☉

## Group News

PSI implements Gas Quality Tracking System at Swedegas +++ **PSIwms** operates automated high-bay logistics centre at ECCO-ROS +++ PSI Receives Order for **FLAixEnergy** Research Project +++ Leading Indian steel producer **Tata Steel** decides for PSI +++ New Public Utility Customer for PSI Energy Business: **Stadtwerke Münster** +++ PSI with Strong New Orders and Significantly Improved EBIT in First Six Months +++ PSI Logistics Retrofits Control Software at the Prague Airport +++ PSI Receives Order from Energy Service Provider **badenova** +++ **PSIPENTA** receives contract from **Diener electronic GmbH + Co. KG** +++

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PSI Transcom GmbH  
Dirksenstraße 42–44  
10178 Berlin (Mitte)  
Germany  
Phone: +49 30 2801-1610  
Fax: +49 30 2801-1032  
info@psitranscom.de  
www.psitranscom.com

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Susanne Renner

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**PSI Transcom GmbH**

*Dircksenstraße 42–44*

*10178 Berlin (Mitte)*

*Germany*

*Phone: +49 30 2801-1610*

*Fax: +49 30 2801-1032*

*info@psitranscom.de*

*www.psitranscom.com*