

1 / 2010 infrastructure manager

Journal for Traffic,
Telecommunications and
Security

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Greater mobility and efficiency thanks to PSItraffic/ITCS

Operations control technology and passenger information

Optimised transport operations at MoveOn

MoveOn Telematik Service GmbH is a subsidiary of Bayerische Oberlandbahn (BOB) and Bayerische Regiobahn (BRB), both of which are part of Veolia Verkehr GmbH.

The BOB modular train concept, in which multiple linked trainsets leave Munich together only to arrive separately at their individual destinations, offers passengers regular, non-stop connections to all parts of the network. BOB transports around 15,000 passengers every day and covers some 1.7 million kilometres every year. BRB is responsible for the majority of the commuter railway sys-

tem in and around Augsburg and the trains travel around 2.7 million kilometres per year.

In spring 2009, MoveOn Telematik Service GmbH commissioned PSI Transcom GmbH to supply a client-capable operations control system (ITCS), which integrates BOB and BRB as equal clients in a single system.

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News ticker

+++PSI awarded major contract from Swiss Federal Railways (SBB) — new network control systems for a secure rail power supply +++PSI wins contract for important follow-up project of TNB in Malaysia — introduction of new distribution network control system and backup control centre +++PSI gains additional new customers in Brazil's steel industry — Vallourec & Sumitomo Tubos do Brasil opt for PSImetals +++PSI implements new warehouse management system for Görtz — supplier of shoes and accessories optimises business processes with PSImms +++PSI receives follow-up order from Austrian Teich AG — PSImetals automates production processes in new foil rolling mill II +++PSI Logistics offers freight cost check-up — cost structure transparency ensures rapid savings +++PSI supplies software solution for new Berlin Brandenburg International airport (BBI) — PSIAirport controls baggage handling and sorting system +++

Imprint

Publisher

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Editorial



Dear readers,

This year, we again witnessed an auction for mobile frequency bands. Looking back, it is clear to see the changes experienced by the telecommunications industry in particular. Precisely ten years ago, the first auction for UMTS licenses was held, fetching a total of EUR 50.8 billion. The whole industry was on the move. The sky was the limit and the prevailing mood was one of sheer euphoria. But as the saying goes: what goes up must come down.

The rapid growth market became a highly competitive battleground, which today is characterised by extreme price erosion, massive pressure to innovate and ever decreasing innovation cycles. In Germany, for example, mobile communication prices have fallen by over 62% since 1995. As a direct result of this development, classic business models are increasingly giving way to new approaches.

Due to the migration of networks to IP technology, the convergence of mobile and fixed line communications, the creation of value-added services and the emergence of new market participants, such as cable network providers, the telecommunications industry is facing ever greater challenges.

We at PSI are convinced that the underlying networks continue to form the foundation of all telecommunication activities. Thanks to our well-developed, sophisticated products and solutions, we are ready to support our customers and tackle the next ten years and beyond.

I hope you enjoy reading this edition of infrastructure manager.

Stephan Weber

Head of Telecommunications

PSI Transcom GmbH

PSI at InnoTrans in Berlin

From 21 to 24 September 2010, PSI Transcom GmbH will be attending InnoTrans, Europe's largest trade fair for transport technology, where it will showcase its control technology solutions and meet with like-minded exhibition visitors (Hall 2.1, Stand 225).

In addition to its client-capable control systems with real-time passenger information and monitoring of infrastructure components as well as the established depot management system, PSI Transcom will also present a maintenance solution for the field of workshop management. The latter focuses on time-saving features and the minimisation of downtimes.

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A possible enhancement for the bus network is also in the planning and is supported by the PSI solution. To enable non-discriminatory inclusion of external (bus and rail) companies within the model, the solution and its interfaces were designed to be open, thereby supporting future enhancements.

The introduction of the new PSI control system will allow the companies to achieve continuous improvements in

the operation, all railcars must be supplied with up-to-date data and passenger information, tailored to their individual destinations.

PSI Transcom GmbH worked with the customer to gain an accurate insight into the operation of the participating railway companies and to establish the required definitions. A further aspect of the MoveOn project was the coordination and documentation of other important

The installation of the system in the MoveOn vehicles has already begun and, in keeping with the requirements of the MoveOn project, is already helping to improve passenger information. The newly equipped trains are fully compatible with the existing system when in linked mode, thus enabling problem-free migration to a computer-based control system without operational restrictions. The setup



Complex operational procedures as focus of PSI solution concept

the flow of information, both internally and to their passengers. All operational facets will benefit from the solution: passenger information is greatly facilitated by an error-free data supply, while punctuality is supported by comprehensive monitoring of the traffic situation and rapid response times in the case of disruptions. A well-planned and coordinated connection system will greatly improve transport reliability and widely available infrastructures will enhance overall communication.

Thanks to its extensive functionality, the disruption management system enables rapid response times and ensures that all passengers are well informed — both on the train and via Bavaria's integrated passenger information and connection system (DEFAS).

A particular focus of the PSI solution lies in the complex operational procedures of regional railway companies. Throughout

details, such as the vehicle equipment, the configuration of the IT systems and a detailed description of the control centre functions. A comprehensive overview of the journeys, routes, vehicles, drivers and their statuses was defined on a planning table.

The planning table is now a central element in the live depot management and operations control system and allows highly complex operations to be performed with simple Drag&Drop movements. The information displayed by the planning table is supplemented by disruption monitoring and simulations of the control operations. This allows train routing or scheduling conflicts to be displayed and corresponding solutions offered. The control centre employees also receive real-time updates on telemetric information concerning the individual train statuses, e.g. passenger numbers and train ranges.

times of vehicles have been optimised such that daily operations can be completed without the need for reserves. The transportation companies in this region share a common goal: homogeneous and faultless provision of passenger information and connection reliability. With systematic monitoring of train, schedule and passenger information, potential connection problems can be quickly identified, communicated and rectified.

Thanks to optimised planning and scheduling as well as targeted interlinking of the various transport means, passengers can enjoy straight-forward connections and combined usage of all modes of public transport.

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Common configuration management for transmission networks

TCCM – The universal data network solution

Vodafone D2 favours the PSI solution TCCM to safeguard the configuration of its transmission network. After being created by planning, new configuration data is imported by TCCM and transferred to the network (provisioning).

TCCM also reads inventory and configuration data for the network elements and transfers it to data warehouse systems for further processing (reconciliation).

The transmission network is the part of a mobile communications network in which the individual antennas are connected with the exchanges and the exchanges themselves are interlinked. In the case of a major network operator, many thousands of network elements come together at this location; these elements are spread all across Germany and require constant monitoring and configuration. Yet it is not the number of network elements or the transmitted data volumes that dictate the complexity of the exercise, but the numerous device types from different manufacturers and the multitude of technologies that are employed.

Due to its widespread use, the transfer protocol SDH (Synchronous Digital Hierarchy) continues to form a solid foundation for the transmission network. As a third generation transfer protocol, ATM (Asynchronous Transfer Mode) is already well established as a separate network, but is also partially based on the SDH network. The most powerful protocol, DWDM (Dense Wavelength Division Multiplex), plays a significant role in the transmission of larger data volumes in the backbone. It goes with saying that IP (Internet Protocol) is the most widespread of all, be it in the form of



Vodafone OMC tower in Ratingen

a separate network or even based on the SDH network, where this offers an appropriate solution to the relevant capacity situation. These networks are planned, and TCCM represents the cross-technological and manufacturer-independent link between planning and the network itself.

This factor makes TCCM one of the components in the chain of operations support systems (OSS) with the most interfaces to third-party systems.

And that is the strength of TCCM: The operations employee, who is responsible for the functioning of "his" network, is relieved of his tiring and error-prone routine activities, whilst still retaining full control of the provisioning process. He can monitor the progress of the process at all times, and thanks to the integrated tests and the transaction mechanism, he can rest assured that the new configuration will be available in the network as planned. The condition of the network also remains consistent in the case of a fault: TCCM only performs configurations if all necessary resources are available. The data upload for the reconciliation process is fully automated.

TCCM has been in use and under constant development since 2004. The greatest praise we can receive from our customers is the continuous call for further enhancements — be it to the technology, functionality or usability.

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International research programmes

Safety research at PSI Transcom

The PSI subsidiary PSI Transcom GmbH has successfully acquired three projects in national and international research programmes. The launch of the EU-level INDECT project in 2009 (see *infrastructure manager* 2009) has now been followed by the approval of the "LAGE" and "InfoStrom" projects from the safety research programme of the Federal Ministry of Education and Research (BMBF).

The focus of the research activities is on IT innovations for civil security. In the research field "Protecting people and saving lives", PSI is involved in the project "Integration of existing information systems for a common approach to crisis management (LAGE)", specifically in the development of a standardised data exchange concerning the overall situation of the participating law enforcement and emergency services (BOS — "Behörden und Organisationen mit Sicherheitsaufgaben"). A specific scenario is used as the basis for establishing how information management between the various organisations can be improved.

PSI is also a partner in the "Infostrom" project, which is part of the research area "Protection against the failure of supply infrastructures". The aim of this

project is to develop a communication and information platform that will improve cooperation between electricity suppliers, the fire brigade, police, counties and citizens in restoring the power supply.

The research activities were initiated in response to the finding that the flow of data is not adequately controlled in the case of a crisis and that information may be lost. One possible reason for this is that information is transferred via "third parties" or to many different recipients via various different media. This greatly hinders the recipient's ability to assess the quality of the information. This ultimately results in different situation assessments by the management and crisis committees of the relevant organisations, which in turn leads to different response and deployment scenarios.

Over the three-year duration of each project, PSI Transcom intends to apply and develop its extensive expertise in the fields of telecommunications and transport technology. The business continuity managers of the critical infrastructure operators are devoting great time and effort to the subject of internal information management and external communication in crisis situations. In response, PSI is working with its project partners from the fields of research and industry to develop the solutions of tomorrow.

The projects described in this article are being funded by the Federal Ministry of Education and Research under references 13N10585 (LAGE) and 13N10713 (InfoStrom). The author bears sole responsibility for the content of this article.

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PSI wins contract from Rügenger Personennahverkehrs GmbH (RPNV)

Operations control system to enhance VGN telematics system

PSI Transcom GmbH will be the general contractor in the implementation of a computer-based control system (RBL) for Rügenger Personennahverkehrs GmbH.

The new system will take the form of a client-capable enhancement of the PSI telematics system already in use at Verkehrsgemeinschaft Nordvorpommern GmbH (VGN). The aim of the PSI system is to improve overall

efficiency, provide up-to-date passenger information, deliver reliable connections to bus services and manage important transfer points to regional rail and maritime transport. In addition, the integrated traffic telematics

system will enable further development of the public transport facilities in the district of Rügen.

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Optimised processes at the depot

Depot management system for Stadtwerke Augsburg

With a current fleet of 95 buses and 85 trams, Stadtwerke Augsburg Verkehrs-GmbH (STAWA) is responsible for public transport throughout Augsburg and the surrounding area. Every year, STAWA transports some 53 million passengers to their chosen destination. Their partners in city transport are AVG Augsburg Verkehrs-gesellschaft mbH and Stadtwerke Gersthofen as well as Augsburg Verkehrsverbund GmbH (AVV) for regional transport. Over 70 million passengers use the AVV trams, buses and regional rail services every year.

In June 2008, Stadtwerke Augsburg Verkehrs-GmbH commissioned PSI Transcom GmbH with the implementation of the depot management system (DMS) PSITraffic/Depot.

The contract comprises the delivery, installation and commissioning of the DMS with the aim of networking all data exchange in a bus and a tram depot.

To increase the capacity and performance of the depot management, the PSI DMS was integrated in a cross-system control and monitoring structure. For the first time, all facets of the operation were

interlinked in an integrated network: Interfaces were implemented with the SAP system, which manages the workshop and supply for the depot as well as transport disruptions; further interfaces were created for the schedule and service systems, while an online link was established with the ITCS (Intermodal Transport Control System) to enable the exchange of data with network operations.

The requirements of STAWA primarily focused on the following specifications:

- Integration and enhancement of existing vehicle location systems

- Online link with ITCS based on new VDV461 interface
- Bi-directional data exchange with SAP based on Web services and SAP PI/XI as well as integration of SAP WebGUI in the DMS
- Complete planning of berth allocation upon vehicle entry and assignment of vehicle routes
- Integrated automation of all depot-related processes
- Provision of all information in a central system
- Embedding of additional peripheral interfaces with gates, barriers and fuelling depots as well as contacts for washing and sanding
- Direct interaction with drive and point control for tram operation

The integration of a mobile service based on the SMS standard is also in the planning stages. This will provide STAWA employees, specifically in the workshop area, with simplified access to the DMS with fixed workstations, regardless of their location. Mobile DMS operation will be supported by modern Smartphone technology and a special Android application to be developed by PSI. Thanks to more efficient processes in the depot and constant updating of the relevant planners on the status of vehicles, up to the workshop area, STAWA will continue to realise additional savings potential.



PSITraffic/Depot: Holistic approach as a recipe for success

Photo: STAWA

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Turn-key communication package

PSI wins contract from Malaysian railway

The PSI subsidiary inControl Tech has been awarded the contract to supply a turn-key passenger information and communication system for the planned, double-track rail connection between Seremban and Gemas.

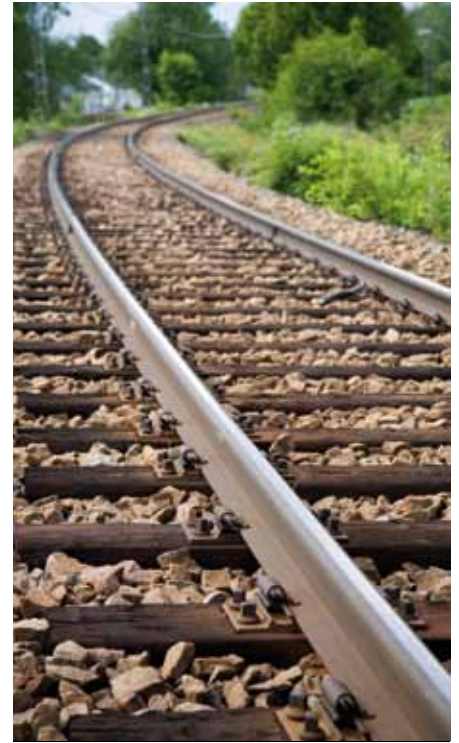
The project is part of a comprehensive initiative of the Malaysian government to expand the rail infrastructure and thus provide the nation with safe, reliable and efficient railway transport. inControl Tech won the contract after a strict tendering procedure initiated by the Indian Railway Construction Company (IRCON) as the main contracting body for the approximately 100 km two-track rail connection. The remit of inControl Tech includes systems for digital voice and data transfer, private branch exchanges, signal telephones, real-time passenger information systems, public address

systems, as well as video monitoring and SCADA systems.

In all cases, inControl Tech is supplying a modern, digital, integrated solution based on the PSItraffic system platform, which has already been successfully deployed in the European rail sector. Winning this contract has allowed the PSI Group to make the important step into the Asian railway market.

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Malaysian railway uses PSItraffic

PSI founds specialist for mobile communication services

Solutions for business customers and social communities

PSI has founded Cellls GmbH, a full subsidiary of PSI Transcom GmbH specialising in the development, marketing and operation of new mobile communication services.

Cellls products are geared towards domestic and international companies in the fields of logistics, transport and security, police and fire rescue, operators of private and trunked radio networks as well as all types of social communities.

The range of services offered by Cellls GmbH comprises PushToTalk, MessageRoute, a platform for location-based services as well as the new product Cellls. As a replacement for walkie-talkie and trunked radio products,

PushToTalk offers significant advantages with regard to flexibility and operating costs as well as additional features such as positioning.

MessageRouting bridges the separate areas of Internet and mobile messaging, whilst the location-based services platform offers a foundation for the marketing and operation of telematics and track & trace solutions. The new Cellls product is a tailored solution for the consumer market to support ad-hoc conferences in social communities.

The founding of Cellls GmbH underlines PSI's commitment to the rapidly growing market for new mobile communication services in the telecommunications sector. The new solutions were presented at CeBIT 2009 in conjunction with the technology and marketing partner Vodafone. Cellls also intends to form further partnerships in the fields of media and social communities.

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