InnoTrans 2004

Over 35,000 visitors expected to attend

This year, the world’s leading trade show for the public transport industry will be even larger and more international than ever before. Between 21 and 24 September 2004, companies from 34 countries will present their innovative products and services at the Berlin Fairgrounds.

The organizers anticipate that over 35,000 visitors will attend. In its early years, InnoTrans was primarily a trade show for railway transport, but has since expanded to represent nearly all segments of the urban and bus transport industry. While nearly all European representatives of the public transport industry gathered at InnoTrans in 2002, this year will feature a substantially larger number of companies from Asia and North America. Appealing for the first time this year are KOREM Company, South Korea’s market leader for railway transport systems as well as Hitachi Ltd. and Kawasaki Heavy Industries Ltd. from Japan and one of the giants of the railway industry: General Electric Transportation.

IVU Traffic Technologies AG will be present for the fourth time – in Hall 2.1, Booth 127. In a space measuring ninety square meters, representatives of public transport companies will get the chance to promote the advantages of modern planning, operations and management systems for public transport. IVU’s systems are in use at over 300 public transport companies. In the latest release of MICROBUS Version 7, we have greatly expanded the range of functions in the most powerful timetable and duty scheduling system available on the market. The three main innovations are precise planning according to calendar days, integrated duty and vehicle scheduling as well as tramnet planning. MB-rail is IVU’s system enhancement designed to meet the special requirements of railway service. Other products on display will be a real-time passenger information system, the range of i.box on-board computers and iQbus. IVU’s unique reliability management system. Appointments to discuss special areas of our work may be arranged online at www.ivu.de.

One of the fastest growing technologies presented at InnoTrans is the area of railway infrastructure, which has been assigned nearly twice the exhibition space it had in 2002. The organizers were hard-pressed to satisfy the demand for presentation space on the track system directly adjacent to the exhibition halls. The 2,000 meters of track at the “InnoTrans” train station have been fully satisfied on the track system directly adjacent to the exhibition halls. The 2,000 meters of track at the “InnoTrans” train station have been fully booked.

The highlight of the main program is the InnoTrans Dialog Forum, which will feature experts from Germany and abroad who were invited by Deutsches Verkehrsforum in conjunction with the Verband Deutscher Verkehrsunternehmen (VDU) and the Union of European Railway Industries (UNIFE).

In early July, IVU’s British subsidiary introduced the new MICROBUS Version 7 at Nottingham City Transport (NCT). In the second quarter of 2004, IVU simultaneously received several orders for on-board computers with integrated ticketing function. Orders for on-board computers with ticketing functions

Orders for on-board computers with ticketing functions

In the second quarter of 2004, IVU simultaneously received several orders for more than 200 on-board computers with integrated ticketing function. One such order came from Omnibusverkehr Saale-Drömlin (OVS) in Saalfeld, which plans to equip 15 additional buses with the i.box printer, the most state-of-the-art on-board printer with integrated ticketing. The Zweibrücken public transport company and other firms also rely on IVU’s ticket printers.

Nottingham City Transport implements MICROBUS 7 and personnel dispatching system

In early July, IVU’s British subsidiary introduced the new MICROBUS Version 7 at Nottingham City Transport (NCT). At the same time, the public transport company in this city in central England placed the personnel dispatching module in service in its Trent Bridge depot. Initially, the MICROBUS personnel planning system will run together with the current manual system so that the results of the payroll rules can be tested. During the next phase, NCT will place the vehicle scheduling system into service in the same depot.

Athens light rail system uses MICROBUS

The preliminary work was daunting. Apart from a very short deadline, there was still track to be laid and depots to be built, drivers and dispatchers had to be trained. Nevertheless, the Athens light rail system went into service right on time for the opening of the Olympic Games. Thanks to the MICROBUS scheduling system, planners were able to draw up a detailed trip and duty schedule well in advance. IVU would like to wish the new “Olympic Light Rail” system a good trip and a gold medal in passenger satisfaction.

Potsdam is the 200th customer to choose MICROBUS®

Potsdam’s public transport company orders IVU’s planning and scheduling system.

Potsdam-based VIP will use the MICROBUS system from IVU Traffic Technologies AG to plan and schedule its future public transport services. The public transport company in the capital of the German state of Brandenburg ordered the timetable and vehicle scheduling as well as personnel dispatching modules from IVU. Potsdam is the 200th customer to choose MICROBUS, which has been establishing itself as the European standard for this application since the 1980s.

“We are very proud of our 200th MICROBUS customer”, said Prof. Dr. Ernst Denert, CEO of the Berlin-based software company. He added that the system had become a best-seller and now accounted for a substantial portion of IVU’s revenues and result. The Potsdam company expects MICROBUS to make its planning processes more efficient and to increase the quality of its public transport offer. VIP also anticipates a decreasing need for government grants... continued on page 4

Left to right: Grießner, Wanke, Denert, Weis, Langenhan.
Modern vehicle monitoring system for Poznan

MPK Poznan places BON® into service for buses and light rail trains

Just a few weeks before Poland joined the European Union, MPK Poznan – the public transport company in the city of the same name – placed the last few functions of the BON vehicle monitoring system into service. "I am very happy with BON and the new 1box on-board computers, which give us a modern vehicle monitoring system," said Wojciech Tulibacki, the company’s managing director on completion of the successful acceptance test.

The project was carried out by IVU Traffic Technologies AG, the sole manufacturer currently present on the Polish market. 'The fact that Poznan has chosen our product is very gratifying, and we share the pleasure that MPK and all Poznan residents feel at seeing the system go into service," said IVU CEO Prof. Dr. Ernst Denert.

MPK Poznan is one of the largest municipal public transport companies in Poland, whose 240 buses and 190 light rail trains transport nearly two hundred million passengers each year. Very soon after Poland’s shift to democracy, the company began modernising its vehicles and systems as a way to offer customers reliable and comfortable public transport service. In the future, a radio link will give the central control a continuous overview of the location of all buses and light rail trains in the city. Each vehicle always knows its location and reports it to the central control in twenty-second intervals. When vehicles are late or accidents occur, the control centre can intervene quickly and reach drivers by radio. The system receives all planning data from MICROBUS, which MPK has been using for the past three years. Naturally, all systems in Poznan run Polish versions – even MICROBUS printouts are prepared in Polish. Future plans include installing on-board computers in another fifty trains and adding a traffic light control module to the system, which will provide phased traffic lights for Poznan's trains.

Metro lines in Berlin

BVG anticipates 18 million new passengers

However, passenger association criticises reduction in bus route network

In late July, Berliner Verkehrsbetriebe (BVG) announced the results of its plans for the new transport concept "BVG 2005 plus", which is scheduled to go into effect when the timetable changes on 12 December 2004. BVG hopes that the new bus and tram metro lines will attract eighteen million passengers next year and simultaneously reduce the company’s deficit. CEO Andreas Graf von Arnim announced this goal at a press conference. With the help of the metro line concept, BVG plans to cut bus service by 5.3 percent with regional and urban railway service as well as subway, making it unattractive to many passengers. In addition, the association said that the reduction in parallel service required by the Senate for financial reasons would not be adequately achieved.

The BVG 2005 plus will result in some “reasonable reorganisation” in public transport service and also take into account new traffic flows in Berlin. This includes the future metro bus line 41, which will finally provide a direct connection to Potsdamer Platz from the Neukölln area. Metro lines are bus and light rail lines that travel major routes where no urban railway or subway service is available. Metro lines run buses and trains in short intervals every day of the week, nearly 24 hours a day. Combined with regional and urban railway service as well as subway lines, the metro lines will form BVG’s new core network. There are 47 routes in the future, a total of 153 light rail and bus routes, with over 1,000 vehicles. Each of these express bus routes will provide full coverage for all Berliners.

The concept will first be submitted to the Senate for review, after which BVG plans to communicate all changes to the residents of the city districts. To compensate for the extended service on the main routes network, the service will be reduced on the less busy ones, while ten to twenty bus routes will be taken out of service altogether. Overall, BVG plans to cut bus service by 5.3 percent with the goal of saving 71 million euros and increasing revenues by 9.7 million euros. According to BVG’s marketing director, Tom Reinhold, the new concept will improve service for 37 percent of Berliners by providing more frequent service, while the cutbacks will be felt by only five percent.

The passenger association IGB welcomes the fact that “BVG 2005 plus” will result in some “reasonable reorganisation” in public transport service and also take into account new traffic flows in Berlin. This includes the future metro bus line 41, which will finally provide a direct connection to Potsdamer Platz from the Neukölln and Kreuzberg areas surrounding Sonnenallee and Urbanstraße, which are not easily accessible from the express railway network. Until now, this route has required long access walks and frequent changes with the subway, making it unattractive to many passengers. However, the passenger association found it unacceptable that the new metro lines would cause “dramatic” cutbacks in general bus service. In addition, the association said that the reduction in parallel service required by the Senate for financial reasons would not be adequately achieved.

IVU is very close to Poland not only in a geographic sense – we also employ a number of Polish nationals who have maintained contact with public transport companies in Poland ever since the political transition at the end of the 1980s. As the first foreign supplier, we have a successful reference project that was completed with excellent results by our Aachen supplier, we have a successful reference project that was completed with excellent results by our Aachen office, which resulted in a system in Poznan. In recent weeks, there are also 219 regional bus companies, some of which are very large, as well as a national railway operator (PKP), which maintains an extensive network. All of these companies must modernise their routes, fleets and systems in order to remain competitive with private means of transport in the struggle for passengers. Now that Poland has joined the European Union, subsidies are available for investments in infrastructure.

Letter from the Management Board

Ladies and Gentlemen,
Dear IVU customers,

Our business is becoming more and more international, a trend that is felt not only in our four regional companies in the United Kingdom, France, the Benelux countries and Italy, but also in classic export business. Recently, a number of long-standing customers – such as Wiener Linien and the Swiss Federal Railways – have been joined by companies in more exotic locations: Dubai, Kuala Lumpur and Bangkok.

One very promising export market lies practically at IVU’s own doorstep – just eighty kilometres from Berlin. Poland, which recently joined the European Union, has nearly forty million inhabitants – nearly four times the population of Hungary and five times that of Austria. The country’s ten largest cities are home to 6.3 million people. Poland has a total of 132 municipal public transport companies that operate buses and light rail service – Warsaw even has two subway lines. There are also 219 regional bus companies, some of which are very large, as well as a national railway operator (PKP), which maintains an extensive network. All of these companies must modernise their routes, fleets and systems in order to remain competitive with private means of transport in the struggle for passengers. Now that Poland has joined the European Union, subsidies are available for investments in infrastructure.

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Dr. Gero Scholz

The Management Board:
Prof. Dr. Ernst Denert
Dr. Olaf Schemczyk
Dr. Gero Scholz

BVG 2005 plus is the first transport project in which roughly 24,000 Berliners took part. This combination of customer surveys, market research passenger counts and traffic flow analyses has never been conducted on such a large scale and formed the basis for planning the new transport concept.

Left to right: Schemczyk, Gawin, Sklepik, Tulibacki.
Germany is at the forefront of international efforts to liberalise the public transport market. More and more foreign transport groups are penetrating the German market in an attempt to secure a piece of this attractive business.

According to a report by the Financial Times of Germany, an increasing number of corporations want to get a piece of the fifteen billion euro market for German public transport service. Even railway passenger business – is gradually starting to pick up. Reforms in German railway service have laid the legal groundwork for non-discriminatory access to infrastructure. Today, competition is part of everyday business in the railway market, as reflected in the figures of DB Netz AG. Over 280 external railway companies are customers of DB Netz AG. The activity of numerous foreign public transport Groups on the German railway market underscores the attractiveness of this market, from regional and long-distance to freight service.

The main corporations active in railway passenger service are from France, whereas their home market is still largely shielded from international competition. In addition to the Keolis Group and EuRailCo, a joint venture between the Transdev and RATP Group, the largest foreign player is currently the Veolia Group. Connex, the public transport division of the Veolia Group, operates in the railway passenger, public transport and railway freight markets through a number of subsidiaries.

The family-run enterprise plans to focus on the German-language market for public transport service. Niehues hopes to benefit from the close ties to public corporations, which have been its customers in the waste management business for years. To acquire technical know-how in the public transport business, Rethmann got the French public transport company Keolis on board. The French railway operator SNCF, which is one of Deutsche Bahn’s largest competitors, holds a 43% percent stake in Keolis.

A British company has also penetrated the German market: the U.K.-based Arriva Group bought a 90 percent majority share in Prignitzer S.A. – Rhenus-Keolis – has more than 20 percent of the regional bus market, from regional and long-distance to freight service.

Germany is one of Europe’s most liberalised countries, which has been its close ties to public corporations, helping companies like Arriva to operate in the market. The increasing liberalisation of the German public transport market made even Deutsche Bahn AG a player in the regional and municipal public transport business. After moving into this segment, the railway transport corporation has been buying shares in other bus companies for a number of years. Over the medium term, Deutsche Bahn plans to expand its share of the urban transport market from its current eight percent to twenty percent. Having earned 1 billion euros in revenues from bus service in 2002, Deutsche Bahn continues to leave all competitors in the dust.

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Connex, Rethmann and Arriva are not the only ones to expect good business in 2003, or only five percent of total division generated 50 million euros in 2002. The rail operation between Pritzwalk and Pulitz was steadily growing since 1987, earning a surplus of 700,000 euros last year, according to Arriva. The company operates public transport routes in Brandenburg, Mecklenburg-Vorpommern and North Rhine-Westphalia. PEG also handles freight business. Backed by a new partner, PEG plans to participate in more public tenders.

The vehicle server of the future

Public transport companies set high standards

The vehicle server of the future will be more than “just” an on-board computer. It will be the communication nerve centre for buses and trains. As public transport companies find themselves faced with increasingly more complex requirements, they need an extremely powerful system that is able to handle distributed applications and to which future functions can be added at any time. Data volumes are also growing. Vehicle servers must control a large number of on-board devices and provide entirely new applications like infotainment, interior surveillance, distance control, transmission of vehicle diagnostic data to the depot and much more. In the future, high data transmission rates will be absolutely necessary for these applications.

Other competitors are active as well. According to the Financial Times of Germany, the public transport subsidiary of Rethmann, the second largest waste management company in Germany, and France’s Keolis S.A. – Rhénus-Keolis – has more than doubled its annual revenues since 2001. While it’s true that the new division generated 50 million euros in 2003, or only five percent of total revenues, “I am certain that we will quadruple this figure in the short term”, said CEO Hermann Niehues.

The family-run enterprise plans to focus on the German-language market for public transport service. Niehues hopes to benefit from the financial troubles of the municipalities and states. “There is increasing pressure to streamline operations.” In fact, the Group got its first break when six municipal bus companies were privatised. Rethmann benefited from its close ties to public corporations, which have been its customers in the waste management business for years. To acquire technical knowledge in the public transport business, Rethmann got the French public transport company Keolis on board. The French railway operator SNCF, which is one of Deutsche Bahn’s largest competitors, holds a 43 percent stake in Keolis.

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Due to rapid economic and population growth, the second-largest state in the United Arab Emirates is facing high demand for mobility. Indeed, Dubai has undergone rapid development over the past few decades, even since its oil deposits were discovered in 1966. Dubai’s heads of state managed to turn the country into a prosperous economic centre through oil and other exports. Experts predict that Dubai’s population of currently about one million people will double by 2010 and reach 3.5 million in 2020. In light of this trend, the government is facing enormous mobility challenges.

Dubai has therefore continuously expanded its traffic infrastructure in recent years. At first the focus was primarily on private transport. But Dubai has taken on a pioneering role to develop a smoothly functioning public transport network in the region. The city of Dubai set up a public transport company in the early 1980s. While passenger figures remain relatively low compared to those in other regions, such as Europe, the 20% annual growth rate is nevertheless extraordinary. Buses operated by Dubai Municipality currently transport around 200,000 passengers per day, and the government has plans for a future Dubai light rail system, which is expected to go into service in 2009.

The public transport company of Dubai Municipality plans and operates bus service within the municipal public transport network. They must currently plan the deployment schedules of roughly 500 vehicles and 1,000 drivers as efficiently as possible. While at first glance this may seem like a relatively easy task that should be manageable with the help of planning software, the conditions under which the company deploys its service are nevertheless quite different from the situations we see in Europe.

The public transport company must first procure all data for its planning and management. Prior to introducing the MICROBUS planning system, travel data was collected at time points, which were defined as measuring points in the network when companies employ timekeepers, an instrument would record at certain times and record bus travel data with a stopwatch. As a result, the company had no precise timetable data for the individual stops, only values for the timing points. However, this manual gathering data became quite obsolete, as Dubai’s growing traffic volumes frequently delayed bus departures and arrivals, making it difficult to respond flexibly to these changes in the form of new timetables. In addition, the public transit network itself is growing rapidly in 2005, for example, Dubai Municipality counts today on a new bus route every three months, which made it essential to adjust the plan data. As though weren’t enough, planners must also take into account special conditions. For example, there is a special trip and duty schedule for Ramadan that not only provides shorter work schedules but also accounts for the fact that the primarily Muslim clientele shift their activities to nighttime hours during this period. Special timetables must also be created for trade shows, congresses and World Bank meetings. The planning system must take into account the departure time of independent fluctuations in passenger volume as well as passenger turnover figures for new products.

In 2003, Dubai Municipality (DM) therefore decided to use MICROBUS as a way to make its bus service more attractive. MICROBUS won the contract in an international bid against numerous competitors. IVU easily solved the travel data collection problem by implementing the MICROBUS planning system together with the I-box on-board computer. Dubai now uses the I-box to collect travel data “online” during service, which allows the statistical average of the departure times for all stops to be re-incorporated into MICROBUS planning operations. This procedure can be repeated as often as necessary. The I-box on-board computers in the buses then take the updated timetables back to the route and adjust the data during the trip. This strategy is a successful interaction between planning and actual operation.

In the future, DM will use MICROBUS to handle not only trip and block duty scheduling, but also personnel and vehicle scheduling. The company uses the English version of the system, along with add-ons in Arabic. – Dubai’s official language – for recording stop names and footnotes on timetable printouts. The BONUM statistics program is another product in IVU’s integrated IT platform – analyses the actual data.

Interview with Dr. Gero Scholz, IVU’s new head of development

Mastering complexity and setting the standard

Now that you’ve been with IVU for a hundred days, what is your impression of the system?

IVU has a very strong product line, a dedicated and energetic team. Yet, some things could be done better. For example, I think that customers would find continuous software releases more useful than a great many short-term changes and adjustments for individual customers.

How good are IVU’s systems?

Technically, the systems are outstanding. They offer a powerful range of functions based on an excellent understanding of the planning habits and procedures of public transport companies – even including graphical user interfaces, we don’t mean the usual icons and buttons, but graphical work schedules, track occupancy plans and maps. When we say the word “online”, we think of control consoles with wireless data messages, GPS navigation, voice control and real-time passenger information. When we discuss the application care, we’re not talking about add/delete functions or bus capacities, but tricky heuristics and precise methods. When we think about hardware, we’re not limiting ourselves to standard devices running Windows and Unix, but integrating data into on-board computers as well as PDAs and other mobile terminals.

However, systems such as this have been established technology cannot always be based on the most modern and elegant technology platform. Systems like MICROBUS and i.box have a reputation for their reliability, but they also offer a wide range of options as well. It is therefore necessary to use the latest technologies while at the same time ensuring that they are wellmatched and flexible. Our new platform has been designed from the very beginning to be flexible and open and it is based on an established framework from the very beginning. Furthermore, we should not forget the importance of databases in addition to programming languages, which are often the topic of conversation. We are standing on firm ground in this area by consistently relying on Oracle.

But shouldn’t some things be different, better, more efficient?

Yes, of course. Today we rely heavily on Java and J2EE, especially where the servers are concerned. In addition, “non-Java” will always have a role to play for client components. But the main thing is that we plan the migration process carefully and preserve continuity at all times. As a result, the i.box for example, has a reliable architecture that allows the software to be added to or enhanced at any time. As a result, we should only replace platforms in both the case of failures and when the deadlines and budget have already been set. While I rely to some extent in the use of description languages, I have absolute faith in quality assurance, which begins in the early stages of development and not during the final test.
IVU and a partner developed MICROBUS in the early 1980s at a time when planning systems were available only on mainframe computers. The first DOS version of MICROBUS, on the other hand, ran on workstation computers, which made it attractive to small and medium-sized companies. Although it lacked a modern database link, this DOS version could automatically form duty rosters and blocks. In 1986, Wolfsburg became the first customer for the trip and block scheduling modules available at the time, but was soon joined by Offenbacher Verkehrsbetriebe and Deutsche Eisenbahn-AGE (now Con-}

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in recent years, IVU has made substantial improvements and added new functions to MICROBUS 2, which is now available in Version 7. Originally tailor-made primarily to the needs of urban bus service, the system now also covers regional service, while its MB-rail option was designed for rail service. MICROBUS is also suitable for very large public transport companies. “MICROBUS has become so comprehensive that it covers all types of public transport service – something that none of our competitors can offer,” said Prof. Denert.

The quality assurance process for the new MICROBUS Version 7 has been successfully completed, and the product released. MICROBUS is already the most powerful time-table and duty scheduling system on the market. A great many new functions have been added in MICROBUS 7. In particular, the new version comes with three major innovations that affect the entire product:

- Precise planning according to calendar days
- Integrated duty and vehicle scheduling
- Traintet planning

A summary of all new and improved features will be published soon. A new product brochure will also be available in time for InnoTrans.

All customers will enjoy numerous minor improvements, under the maintenance agreement with the normal upgrade. Major new function blocks will be offered as an upgrade package to the current license. IVU is preparing a training program in which core experts will explain the overall system as well as individual modules. IVU has also invested heavily in documentation. The online help for MICROBUS 7 is now over 1,000 pages long (compared to 400 pages for MICROBUS 6.3). Early experience has shown that even new users have a better chance to familiarize themselves thoroughly with MICROBUS if they view these 1,000 pages as an opportunity, and not as a burden.

The official delivery CD was prepared in early June, the upgrade process will be discussed in detail with each customer. A handbook on data migration and other conversion work is available. All experience gathered during the migration will be collected by MICROBUS Product Development in the form of a FAQ list and made available to the customer as needed.

"It may have been a very exhaust- ing at times and took much longer than originally planned, but it was a lot of fun to see the product grow and meet the expectations of the most discerning customers. To see how it was expanded from municipal bus service to include regional and railway service. To see vehicle and duty scheduling merge and watch the final optimisation touch- es", said head of development Dr. Gero Scholz.

Could you describe the development process for projects?

Project work is the engine driving our corporate development. This is where very many things can be tried out and implemented faster, then incorporated into the projects over the medium term. The recent projects are those in which a product or product-like platform serves as the starting point for a project that adds important new features, which in turn flow back into the product. Occasionally, however, it takes somewhat longer to fully integrate a special solution into the standard product. Discouraging customers want us to continue to deliver special solutions in the future that we can then incorporate into the standard product. We need to master requirement complexity and set the standard at the same time.

Which aspect of the magic triangle is the most important for you, cost, functions or quality?

You can’t go wrong with quality. The later we detect a defect or implementation error, the more expensive it gets for everyone involved. Where deadlines and range of functions are concerned, we will always have to seek compromise in individual cases. What is important to me is that we set a framework by defining fixed release cycles. Over the long term, however, the main thing is to expand the coverage of the magic triangle, that is, boost productivity. In addition to better processes and more powerful technology, the key is for everyone on the team to contribute and find the best overall approach. Expanding the horizon, for example through selective contact with individual customers for members of the development team, is absolutely necessary.

Is IVU ready for globalisation?

We have everything well under control from a technological standpoint. At the request of the European Parliament, we build a 10,000 page Web site – in twenty languages, would you believe it? We operate MICROBUS in multiple languages simultaneously in Switzerland, print schedules in Arabic from right to left, etc. In the public transport business, however, globalisation also means having to deal with different planning habits, legal conditions, national interface standardisations, to name a few. There is still much to do in this area. The longer we operate in a country, the better our products cover these local characteristics, something that can be seen in the waste management business in Holland. We have established a good foundation of experience in Italy (Switzer- land), France and the UK. That can be extended to other countries. Successful sales efforts in Scandinavia, Greece and the Near East are evidence of this.
A map is worth more than a thousand words

MICROBUS-map combines network data with electronic maps

Public transport planners often have very complex tasks to perform. They must determine future transport needs, design a suitable multimodal transport system to meet these needs and develop well coordinated timetables. These timetables must accommodate the transport requirements of every customer, all the time and everywhere – a task that can be mastered only by integrating highly heterogeneous data.

All these items of information share one thing in common: a spatial relationship. It is therefore necessary to support all spatially related procedures in the public transport company through integrated geographic information systems (GIS). The MICROBUS-planning and scheduling system helps optimise internal operations with modules that can be combined flexibly: trip scheduling, block scheduling, duty scheduling, personnel and vehicle dispatching, vehicle and duty optimisation as well as statistics – all of which are based on a central ORACLE database. The MICROBUS-map add-on module links all network data to electronic maps and visualises this information. MICROBUS-map also offers GIS-supported planning based on intelligent maps. For example, the system can include demographic information in the network data planning process. Network data, including stops, stations, pull-in and pull-out points, automatic vehicle monitoring and traffic light points or route points, automatic vehicle monitoring and traffic light points or routes can be added and edited right on the map. The integrated GIS component communicates and interacts with all other MICROBUS modules for network processing.

The network data can be combined with external market data on the map, for example detailed demographic or accessibility information. On this basis, data operations are automated. The module can help public transport companies save costs in measuring distances with the measuring car, since the precise length of the route is determined right on the map and stored in the database. Of course, not only can route lengths be taken directly from the map, but manually maintained distances can also be integrated into MICROBUS-map. You can also create different map layers for different work processes, making it possible to visually check as well as selectively display network data. For example, you can display only the stops and route distances for the "bus" segment. There is no longer any need to laboriously enter and adjust external coordinates. Just use the mouse to easily position nodes and routes in the desired location on the map. You can drag and drop route points directly onto the map without having to search through long selection lists.

A great many of IVU's European customers are already using MICROBUS-map. DB Regio and Connex public transport companies plan their networks with GIS support. MICROBUS-map is also used to plan the urban transport service in Luxembourg and the regional service in the British Midlands around Birmingham.

Geographic information systems also support the other systems in IVU's public transport IT platform: data management (infopool), passenger information (fahrinfo), geographic display of operating procedures (BON GIS) and offer and sales optimisation (GISbase). Standard interfaces enable GIS-based data from one system to be used in other applications.

Solution for Combino trains in sight

Siemens presents public transport companies with a recovery strategy

According to newspaper reports, Siemens is apparently close to a solution to its problem with the defective Combino light rail trains. At a meeting in Bern, Siemens Transportation Systems presented key users with a repair and recovery strategy that specifies extensive reconstruction work on the train body.

This means that the expensive plan to rebuild the aluminium chassis for the 400 trains already delivered worldwide has been abandoned. However, independent experts must still approve the recovery plan in a test that could take several weeks. The aluminium body of the light rail trains was poorly designed and had started to crack. A portion of the Combino fleet in Germany had to be taken out of service, since Siemens was unable to guarantee that the vehicle roofs would not collapse in an accident or during full braking. According to the paper, which was presented to some users as early as the end of June, additional floor panels and angles were to be attached to the body and windows replaced with stabilising elements to increase train safety. Additional shock absorbers in the chassis are expected to reduce stress on the wagon bodies.

The effects of the resulting greater train weight on braking distances and the ability to handle curves are yet to be investigated. The trains are expected to be repaired in the Uedlingen and Prague plants. Experts believe that each train will take eight to ten weeks to be repaired, which means that public transport companies will have to contend with limitations for several more years. According to the new model, Düsseldorf Rhenbahn estimates that recovery work on its 35 trains cannot be completed earlier than the spring of 2007. A number of public transport companies are considering filing compensation claims against Siemens. Operators are faced with the problem of how to maintain light rail service despite the shortage of trains and, in some cases, are forced to use trains that were already decommissioned.
2004 European Election – online for the first time

Results of elections in all 25 countries can be accessed via the Internet.

For the very first time, the results of the June 13 European election were available for viewing online throughout Europe right on Election Night. IVU had set up the efficient Web portal for presenting the European election, which provided information on all candidates, the election laws of the 25 European states and the composition of the previous parliament in twenty languages prior to the election. On Election Night, an Internet mapping center, located in Brussels, collected and evaluated the results from all EU countries. The results were then transmitted to computer centers in Paris and Berlin, from where they were made available to the 450 million citizens of the European Union.

IVU was responsible for the development, installation and failsafe operation of the system, which was based on open-source software. The media, particularly television broadcasters, were able to download broadcast-quality results directly to their own systems via a special interface. A security concept prevented system crashes and bottlenecks during Election Night. The servers in both computer centers as well as the data lines were adequately protected against hacker attacks. In addition, all equipment components had a dual design that would have allowed one system to take over if another one malfunctioned.

The German Federal Election Commissioner also used IVU’s software during the European election to determine and present the results from Germany for this purpose. IVU installed the same system that was developed in close cooperation with the German Federal Office of Statistics for the German parliamentary elections in 2002. On Election Night, the system collected the results from the individual countries, then automatically combined, evaluated and presented them. The German state of Saarland also used an IVU system to count the results of the European election as well as the local town council, parish council, district assembly, mayoral, district administrator and municipal association elections, which took place on the same day. The central vote collection and evaluation functions offered municipalities substantial savings potential, which makes us very optimistic for additional orders. As early as September, the state of Saarland will use an IVU system to carry out and evaluate the regional elections.

“The systems in Saarland and for the European Election represent an unprecedented success for IVU’s e-govern- ment applications and provide proof of the enormous expertise that our company has demonstrated again and again in this field”, said IVU CEO Prof. Dr. Ernst Den- ker. He added that no other company can match IVU’s position in this demanding segment of the e-govern- ment market.

In recent months, the trade press has not been the only one buzzing with the news: the federal government in Germany planned to limit subsidies that allow the disabled to ride for free. Currently the severely disabled are able to use local public transport service free of charge anywhere in the country as long as they carry a pass that they can purchase for 60 euros a year. According to the German Ministry of Social Welfare, the disabled should not have been able to ride free for only in their home- town transport systems in the future. Ministry figures show that the federal government transfers 240 million euros a year to public transport companies to compensate them for lost income due to travel by the 1.4 million disabled people who hold a pass. This amount is expected to be gradually reduced.

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Light rail is alive and well

Crash tests shape the tram of the future

Light rail is getting more popular all the time. In Germany, we have 4,169 kilometres of light rail track, with roughly 80 new kilometres of track being added each year. The largest and oldest network in the republic is in Berlin (359 kilometres), which is also where the first horse-drawn tram was operated in 1865. The newest light rail system is in Saarbrücken, which went into service here in 1997. Light rail is experiencing a comeback, which does not surprise experts like the researchers at the Institut für Schienenfahrzeuge at the Technical University of Berlin: trams are safer than buses and cheaper than the subway.

Nevertheless, light rail faded into the background of the decades following the Second World War. Berlin is a particularly good example of this trend. In the western part of the divided city, planners designed wide streets that were ideal for cars and ripped up the tracks, while the network remained intact in the east. Although the State of Berlin will build only two new routes in the near future, the tram today is a central part of public transport services: it transports up to 120,000 passengers a day during peak times.

Safety is therefore a growing concern. As part of the EU project SafeTram, researchers at the Technical University of Berlin and IVU engineers joined forces with the railway industry to investigate ways in which to improve light rail collision prevention. SafeTram focuses on classic light rail as well as regional urban rail (or “peri-urban trains”), which connect urban centres with the periphery.

The project involves design studies as well as trials in the test bay. Passive safety in the vehicle itself is also getting more attention. Here, the focus is on protecting passengers and drivers during collisions with motor vehicles as well as other rail-borne vehicles. Although accidents are statistically rare, they often occur where trains travel on the street or use the track of regional or urban trains.

During their tests, researchers take a close look at how light rail vehicles behave when they collide with other vehicles and try to improve the design of the driver’s cab. Engineers carried out crash tests on the test route of the Polish Railway Test Centre in Zmigrod near Wroclaw. The goal was to test collision safety in a tram and a regional urban train. To do this, experts sent two test vehicles to the track loop: both were equipped with add-ons and modules that anticipate the future design – such as the test set-up of a driver’s cabin at a crucial zone on the driving unit.

The test vehicles were driven by a diesel locomotive and crashed into obstacles in a controlled manner, the scenarios simulated real accidents. During the first test, the light rail structure crashed into a vehicle of the same construction, during the second test, a light-weight railcar rammed a freight car weighing 80 tons. The purpose of both tests was to demonstrate whether a driver’s cab can be adequately protected. The front of the cab is supposed to partially absorb the impact, yet retrace by no more than 40 centimetres. The rear area should not experience any deformation at all. Otherwise the driver could be trapped and not be able to get safely out of the vehicle. In the second test, the shock absorber took on a special role: it was supposed to prevent the buffers from ripping open the tram car. The possibility of overriding the rail was also investigated, a situation in which the approaching vehicle slides onto the stationary train, crushes the cabin roof and derailed.

Wifried Wolter, who manages the SafeTram project for DB System Technik, is happy with the results. “We proved that it is possible to build a serviceable and crash-safe structure for a regional urban train.” The tests also showed that special modules can prevent trains from overriding the rail. The next step is to turn the results into binding rules under new European safety guidelines. Companies such as Deutsche Bahn and Berliner Verkehrsbetriebe also want to establish standards for the industry.

The IT platform for public transport

Whether bus, light rail, heavy rail, commuter trains, ferries, urban or regional transport operators... our solutions solve all the complex requirements in a simple way. Over 300 public transport companies in Germany, Europe and overseas rely on our solutions.

The fee for the meeting is €220.00 per person. We have booked the HILTON Hotel on Gendarmenmarkt – one of the prettiest city squares in Germany – as the conference hotel. There will also be a number of rooms allocated for participants. We will be happy to help you find alternative accommodation. Starting immediately, our customers can register online at www.ivu.de or request a registration form from Ute Hempler, tel 030-8 190 06-500, E-Mail: ute.hempler@ivu.de.

Important dates

Public Transport User’s Conference
on 24 and 25 February 2005.

At the request of many customers, we will not be holding the meeting in the fall, but in the spring – after the timetable change.

Otherwise, everything will remain just as you have come to expect: in-depth information about all systems and modules of our public transport product platform, a framework for presentations and professional interaction, evening entertainment for which, this time we have reserved the Museum of Communications – including a private night time viewing of the Blue Mauritius.

In our last issue, we announced that we would award a DVD player as a prize to anyone who could find three German terms on our Web site that are ordinarily expressed in English.

From the many correct submissions, the name drawn as the winner was Heiko Kitschbecher of the Stadtwerke Bonn public transport company. Congratulations! In a few days, the DVD player will be on its way to Bonn. We would like to thank everyone who participated in our puzzle and hope they had a lot of fun looking for the terms.

The following German terms, which usually occur in English, could be found on our Web site: Setzenbaum, Runterlade-Bereich, Stellen, E-Post, Geschäftsfelder, Unternehmen, Produkt, Nachrichten, Kennzahlen, Kundenzugang, Aktuelles, Kundendialog.

In our next issue, we will announce the winners of our weekly “Market Watch” competition.

In our issue of 19 October, we announced that the German terms...