PTV compass

THE PTV CUSTOMER FORUM FOR MOBILE PEOPLE
2ND EDITION 2008

ON FOCUS:

Active research towards "Networked Traffic and Transportation"

FUTURE OUTLOOK
Exploring and Developing Sustainable Mobility Solutions

NEW TRAFFIC SIMULATION PROJECTS
Cutting-Edge Micro-Simulation Models for Hong Kong International Airport and North Melbourne Station

MULTIVITAMINS FOR TRANSPORT PLANNING
New Software for Intermodal and Multimodal Planning

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traffic mobility logistics.

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Editorial

Actively creating the future of mobility!

Dear Readers,

PTV – the transportation experts! Our organisation has always pursued the mission to optimise traffic and transportation by consistently developing innovative products and services which are of benefit to industry and society. And our research in this field has to be always a step ahead.

Active traffic management is the focal point for all activities relating to planning, control and information. It embraces travel demand, travel behaviour and traffic infrastructure. Our team of scientists wants to understand how active traffic management can work, and they test the products and solutions in pilot applications. We are convinced that this is an important contribution to sustainable mobility and improved traffic.

As a leading project partner of the research initiative „AKTIV" we are involved in shaping the future of traffic and transportation management. Solutions such as vehicle-to-vehicle communications or intelligent traffic lights, which seemed to be utopian ideas a few years ago, will soon help to better use existing resources and to improve future traffic flow. The aim is to reduce the probability of traffic jams by 15 per cent. Discover what has been done to achieve these ambitious goals in our cover story.

We also actively seek to listen and respond to the needs of our customers: At this year's PTV Vision Users Group Meeting we shared our knowledge and expertise with 250 attendees from 25 countries. Also here cutting-edge solutions and technologies for the future were key topics.

Good examples for this future-orientated approach are the micro-simulation model for Hong Kong International Airport and transportation planning for Delaware Valley in the United States. Another important aspect is the development of sustainable traffic solutions, in particular in the field of public transport. Projects, such as North Melbourne Station in Australia or the European TRANSPOWER initiative, aim at coping with increasing volumes of traffic in a sustainable and more eco-friendly way by using public transport services.

In the spirit of the season, we extend a heartfelt Thank You and wish you the very best in the New Year. We look forward to continuing our close and successful cooperation. Let's have an optimistic look into the future despite these troubled times. And let's opt for more sustainable transport modes, such as walking, cycling, taking the bus or train, and car sharing. Besides the health benefits and cost savings, we can also feel good about doing something positive for the environment. An excellent opportunity to get active!

Best wishes,

Hans Hubschneider

Hans Hubschneider
Chairman of the PTV Board

Active research towards "Networked Traffic and Transportation"

Active research towards "Networked Traffic and Transportation"

What are the current trends in private and public transport? How can new, interconnected technologies improve the communication between vehicles as well as between vehicles and infrastructure? How can road users benefit from future information services? Transportation experts from around the world work on and analyse technologies aimed at addressing these issues. Join PTV on its research trip and explore solutions for future traffic management.

The ideal basis for intelligent traffic management would be built on a network for information exchange between all parties involved in traffic and transportation. Intelligent means to use the road network in an efficient and optimal manner, to improve traffic flow and reduce the number of traffic jams and road accidents. The Traffic Management research project that is part of the Aktiv research initiative shows how this vision is translated into reality.

"We are developing a network that enables traffic management systems to "interact" with in-vehicle information and assistance devices as well as with infrastructure units," explains project manager Dr. Michael Ortgiese, Vice President Research & Innovation at PTV Germany.

Future traffic management will allow vehicles and gantry signs to "communicate" with each other. A novel information network between drivers, vehicles and roadside infrastructure is the key. PTV analyses these scenarios together with numerous members of the Aktiv research initiative. New technologies will combine traffic information centres, roadside infrastructure and intelligent vehicles.

"Our aim is to reduce the probability of traffic congestion by 15% and to increase road capacity by 10%," says Michael Ortgiese. For almost three decades PTV has been focussing on truly innovative optimisation technology for traffic and transportation. As a member of the Aktiv research team, PTV provides technology for traffic information collection and processing, for road network optimisation and dynamic navigation included in cooperative vehicle-infrastructure systems.

Communication with networked vehicle infrastructure

Roadside infrastructure is also used as a new data supplier in this project. So-called roadside units fitted to gantries collect information sent from passing vehicles.

Cars "communicate" with road signs and construction sites

It will also be possible to directly transfer traffic information to the vehicle and to use driver assistance systems for further data processing. Warning vehicles located on construction sites, for example, can also provide up-to-the-minute traffic reports.

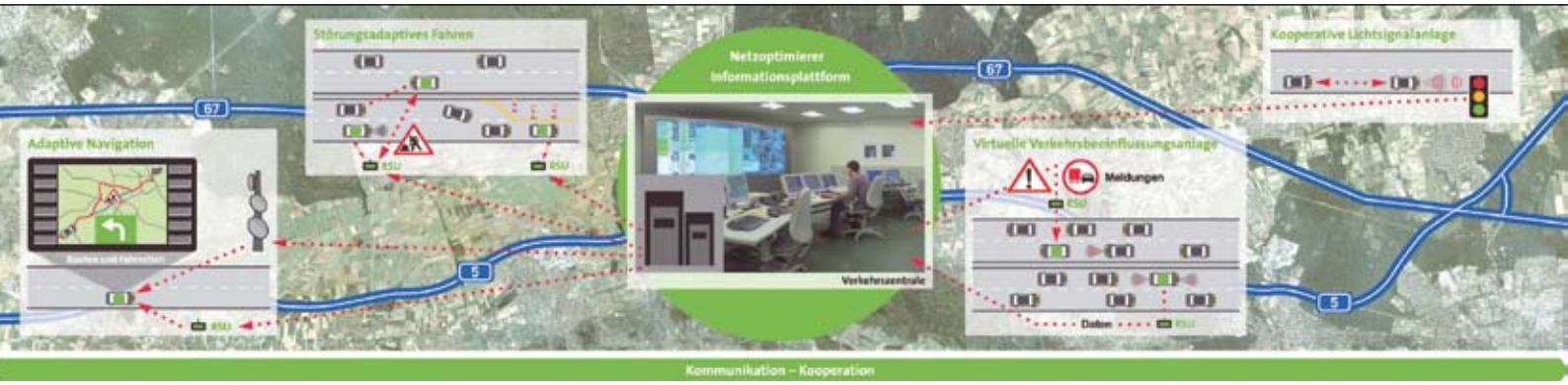
A specific WLAN standard, which complements the traditional DAB and UMTS communication channels, is used for short-range communications. It is designed to support mobile applications and to process data quickly. Even if two vehicles pass each other at a speed of 200 km/h, there are at least two to three seconds left for data exchange.

Intelligent software for traffic management centres

Adaptive navigation is an application in networked traffic and transportation. The navigation system analyses data from traffic information centres and services. Additionally, it permanently receives information about traffic conditions and travel speeds from other road users. The virtual traffic guidance system of a traffic management centre edits the vehicle data and the data collected by stationary units, such as induction loops or sensor systems. Intelligent software then develops a traffic management strategy and the recommendations are transmitted to the vehicles by means of gantry signs and roadside units (RSU).

Intelligent traffic lights are used in another scenario that is part of this model. The traffic light system is connected to and controlled by the traffic management centre according to the current traffic management strategy. It can compute the precise traffic volume and then calculate the optimal green and red interval times. Additionally, intelligent traffic lights provide vehicles with useful information about the traffic conditions such as the next green time or the sequence of red lights along the route.

All information is kept in a central data pool hosted by Aktiv. Strategic recommendations and up-to-date traffic information are included in a coordinated package of measures. The aim is to provide consistent informa-



Cooperative systems used in traffic management: The Aktiv research projects focuses on cars that "communicate" with gantry signs

tion displayed on gantry signs and navigation devices that allow drivers to follow the recommendations, and thus to ensure optimal use of the road network.

Project timeline

The 4-year Aktiv research project started in 2006. Since then the consortium has been focussing on the development and integration of systems and solutions. The presentation of the first project milestones generated significant positive media coverage. Test runs will start on the German A5 and A67 motorways between the Frankfurt junction and the southern state border of Hesse in October 2009. The final development and test results will be presented to technical experts and public officials in 2010.

The responsibilities of Aktiv's Traffic Management team

The traffic management team develops a cooperative system that includes the following elements: A Network Optimiser selects the best traffic management strategy based on the current traffic conditions and presents the optimal way of getting traffic through the network. After distributing the data and information by means of the Information Platform, the Adaptive Navigation system displays the best route through the network. The Virtual Traffic Guidance System stabilises traffic flow and the Construction Site Guide provides helpful driver assistance functions. If traffic jams occur on motorways, Adaptive Traffic Signals optimise traffic flow on the diversion roads.

This is what PTV does

- Creates an information platform designed to provide the required data for all applications
- Supports the network optimiser with the latest data and information on infrastructure and vehicles
- Provides messages and instructions for the virtual traffic guidance system
- Develops innovative navigation services to be used by the control centre and in the vehicle

The challenges

What are the most difficult tasks from the project manager's point of view? Michael Ortgiese explains: "The development of each application itself is a major challenge for the project teams. However, cooperative systems will only have a real impact if each unit works together with the other components of the entire system. Therefore, it is necessary to create, coordinate and implement numerous interfaces.

A central data platform

In addition to the system's architecture and design it is important to focus on communications technology. On the one hand, there are different types of communication channels for the applications. On the other hand, the project teams use a completely new technology based on the W-LAN standard 802.11p for traffic and transportation requirements. Even if research is based on other related projects and the results from the Car2Car Communication Consortium, it is a demanding challenge for the scientists to use this new technology for traffic-related applications."

"A completely new approach is used which includes infrastructure, such as gantry signs, traffic signals or construction sites in the information cycle in order to enhance traffic management", says Dr. Michael Ortgiese, Vice President Research & Innovation at PTV. He is also responsible for the Traffic Management project that is part of the Aktiv research initiative.

Worldwide cooperative systems in motion

Not only the Aktiv research team focuses on these new cooperative systems, but also scientists around the world promote this technology as part of their R&D projects.

Cooperation covers the technical aspects of communication between vehicle and roadside infrastructure as well as the information exchange between traffic management centres of road operators and service providers. These systems are currently being tested with SMARTWAY in Japan, which might succeed the VICS communication systems (Vehicle Information and Communication System). Private and public players in North America have established a coalition to support VII research (Vehicle Infrastructure Integration). The development of new ITS applications is part of this initiative. Over the past three years, several EU research projects such as CVIS (Cooperative Vehicle Infrastructure Systems), SafeSpot (Cooperative vehicle and road infrastructure for road safety) and Coopers (Cooperative Systems for Intelligent Road Safety) have also focussed on the creation of cooperative systems. The technical capabilities and the application knowledge gained in the Aktiv and CVIS projects are also used for the Pre-Drive Car2X project. A major field test for cooperative systems in Europe will be carried out during this project.

Research fostering sustainable mobility – from ITS to logistics

Michael Ortgiese explains further advantages: "Research results from Aktiv and other related projects ensure access to an increasing number of new ITS systems and innovative traffic management services. This also applies to logistics solutions."

The new cooperative systems will allow dispatchers to substantially improve freight transport in terms of speed, safety and efficiency. Traffic information and optimised routes are becoming more important factors in the logistics industry. The Logistik V'Info project funded by the Federal Ministry of Economics and Technology (BMWi) is one of the latest examples (cf. page 21). Up-to-date and statistically prepared information is used for transport scheduling and fleet management. The GoodRoads and the CVIS project also deal with cooperative systems. They show how an intelligent information network between drivers, infrastructure operators and transport companies can ensure sustainable freight transport in the future.

The advantages of research

Michael Ortgiese summarises: "The future belongs to networked traffic and cooperative systems. Our research activities address this major challenge and ensure PTV's and our customer's leading position in the traffic and transportation sector. We will continue to maintain our main focus on sustainable optimisation of traffic and transportation and to work closely together with other PTV experts, for example with our consultants who develop ITS master plans and our software developers who turn great ideas into innovative and marketable products."

www.aktiv-online.org

The Aktiv research initiative

Aktiv stands for "Adaptive and Cooperative Technologies for Intelligent Traffic". The German research initiative consists of 29 project partners from science and industry (automobile manufacturers and suppliers, electronics, telecommunications, IT, research institutions and road and transport authorities). The aim is to make traffic safer and more efficient. The project members therefore develop new driver assistance systems, solutions for efficient traffic management and vehicle-to-vehicle or vehicle-to-infrastructure communication. The Aktiv project has a total budget of about 60 million euros. Approximately 27 million euros are funded by the federal government.

Subproject	Objective
Traffic management	Implementing an information network between drivers, vehicles and infrastructure
Active safety	Developing intelligent assistance systems which collect precise information about the vehicle's environment
Co-Car	Checking mobile phone technologies for cooperative vehicle applications

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PTV AG

Under one roof

PTV has grown significantly across all of its operations. The company's continued growth and profitability are linked to its increasing number of highly skilled employees and its wide range of software products and consulting and research services for traffic and transportation. Approximately 500 employees from four different locations have been brought under one roof with the construction of a third building section added to PTV's head office in Karlsruhe.

The new seven-level building expansion built on a 3,276-square metre site offers office space for 460 employees. There is a nice spacious canteen and dining area on the ground floor. The canteen offers a varied menu of freshly prepared food on a daily basis. Each employee has a working area of around 15 square metres. A concrete core conditioning system is used for heating or cooling the spacious offices.

Dr.-Ing. Hans Hubschneider, Chairman of the Board of Directors, explains: "Continued growth brought a need for additional office space. The new building addition will improve communication and accelerate synergy effects. Some of the new offices have been rented to other companies. This means that there is still enough office space to house new employees. We expect that the strong demand for our intelligent solutions for traffic and transportation will continue to grow. Our special focus on transportation optimisation will drive our success."

Continued growth for PTV

In addition to the office expansion the size of PTV's board of directors has been increased from four to six members who have the following responsibilities: Dr.-Ing. Hans Hubschneider is Chairman of the Board and is responsible for the Research, Corporate Communications, Infrastructure & Production and HR divisions. Dr.-Ing. Thomas Schwerdtfeger is responsible for Business Development. He is also head of the Transport Consulting business unit. As a new board member Thomas Haupt is responsible for the Traffic Software business unit which includes all activities regarding transportation planning software, traffic management and intelligent transportation systems (ITS). Dr. Joachim Schmidt is head of the Logistics Software business unit. Harald Holberg is in charge of Controlling & Finance and the Internal Systems & Processes division. As a new board member Vincent Kobesen focuses on the company's international operations and development.

Together we can take focused action to further develop our company's strategy on solutions for sustainable mobility and transportation intelligence.

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PTV's new office building in Karlsruhe

PTV's board of directors from left to right: Vincent Kobesen, Dr.-Ing. Hans Hubschneider, Thomas Haupt, Dr. Thomas Schwerdtfeger, Dr. Joachim Schmidt, Harald Holberg,

Traffic Software / PTV AG

Fruitful discussion on sustainable traffic and transportation solutions

The 18th PTV Vision Users Group Meeting was held in Karlsruhe. PTV Vision users from Germany and abroad had the opportunity to share their knowledge with other transportation experts and find out more about the latest PTV Vision software developments and applications at this year's four-day event.

250 attendees from 25 countries participated in the users group meeting divided into two 2-day sessions which were held either in German or English. It was the ideal platform for PTV Vision users to collect plenty of information on PTV's Traffic software products and to share their knowledge and expertise in this field.

Presentations on the latest PTV Vision software developments included detailed descriptions of the new VISUM and VISSIM features. VISUM offers numerous new functions, such as the node editor with signal time plans and the Smart Map, an overview map that shows the user the network section he or she is currently working on. Users benefit from an enhanced line editing function for public transport applications and new passenger information aspects added to the assignment, which describes the passengers' route choice. Pedestrian simulation in VISSIM allows planners to realistically model interactions between pedestrians and vehicles, pedestrians' behaviour and routes taken by pedestrians in multi-storey railway stations, buildings or exhibition centres.

The presentations mainly focussed on the PTV Vision software suite. Transportation operators and experts from universities, public authorities, research institutions and private organisations presented various projects, such as transportation solutions in Edmonton, Canada, Austrian Railways' integrated transportation planning, multimodal transportation models in Leipzig and Munich, Germany, or the use of mobile phone data in order to collect data on travel behaviour and public transport service quality. Examples in Oman, Dubai, Singapore, London or Paris clearly show that the software is used worldwide for the development of solutions for road, rail and air transport. A major focus lies on the sustainable development of traffic in general and of public transport in particular. Projects such as the Bus Master Plan for Dubai or West London Tram aim at developing long-term strategies in order to cope with major traffic volumes in an economically friendly manner.

Customers around the world use PTV Vision

PTV Vision workshop attendees had the opportunity to discuss specific topics and issues with PTV's software developers and suggest possible solutions. The workshops provided the ideal platform for both parties to co-create and share knowledge.

All attendees enjoyed sharing their knowledge and expertise with other experts.

Speakers presented their visions for future traffic and transportation during the meeting.

Before closing the meeting, Thomas Haupt, member of PTV's Board of Directors and head of the Traffic Software business field, thanked all speakers for their outstanding presentations and the PTV staff for the excellent organisation and coordination of the meeting. "Traffic will remain a perennial issue, in particular with regard to our environment. As from 2010, EU citizens will have more rights in environmental matters, e.g. in the field of NO2 (nitrogen oxides). Since road traffic accounts for the majority of emissions, city councils have to develop measures to ensure compliance with the limit values. With VISUM for measure modelling and the VISSIM module EnViver for emission calculation we provide solutions designed to support these important strategies," says Thomas Haupt. Additional modules and cooperation models will follow.

Next year's international PTV Vision Users Group Meeting will take place in Vienna in 2009. The Users Group Meeting held in German will again use the excellent infrastructure of PTV's head office in Karlsruhe. See you next year!

Sustainable choice: The UGM attendees explored the fan-shaped city by tram.

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The members of PTV's Board of Directors (white shirts) from left to right: Dr.Joachim Schmidt, Dr.-Ing.Hans Hubschneider and Harald Holberg take the PTV flag as they cross the finish line.

PTV AG

Running for a good cause

PTV AG participated in the 24-hour run for children's rights for the third time. This competition combines excercise with fun and fundraising. The teams divided into groups of their choice have to run 24 hours without interruption. Runners hit the road to raise money for local projects that protect children's rights.

This year, PTV had a team of 75 highly motivated runners. It managed to be the 10th team (out of 39) to cross the finish line. Finally, the runners completed 780 laps, i.e. a total of 312 kilometres. Congratulations on this outstanding achievement!

Dr.-Ing. Hans Hubschneider, Harald Holberg and Dr. Joachim Schmidt, three members of PTV's board of directors, took the PTV flag as they crossed the finish line as PTV's last team of runners. Additionally, the people were extremely generous. With EUR 3,123.39 PTV ranked second amongst all participants.

Karlsruhe's 24-hour run was a major success again: the teams of runners completed a total amount of 26,828 laps, which equals a distance of 10,731 kilometres. The donations to this unique charity project amounted to EUR 39,825.56. For more information about the 24-hour run, visit www.24hlauf.org.

Sport event supports children's rights

New PTV Office in the Dubai Silicon Oasis Building

PTV AG / Dubai Branch

New challenges for PTV Dubai

In late April 2008, PTV Dubai Branch moved to Dubai Silicon Oasis (DSO) into a brand new office space. DSO is still under construction, but it is designated as a technology park with the aim to become a world centre for electronic innovation, research, and development. The DSO project consists of a 7.2 km master–planned community, which will accommodate office towers, R&D and industrial zones, educational institutions, apartments and villas, hotels, healthcare and a range of lifestyle facilities.

PTV Dubai office is designed to accommodate a total of 12 people, but can be easily expanded to accommodate 15 employees. Now the office has a nice reception area, meeting room, three enclosed executive offices and an open area with workstations.

PTV Dubai continues to provide transportation consultancy, including transportation planning, and traffic engineering services in the Region. In addition, we also provide software sales, technical support, and training for users of PTV Vision software in the Middle East.

PTV Dubai is actively involved in several traffic impact studies currently developed for Dubai, Abu Dhabi. PTV experts also support the Waterfront project in Madinat Al Arab. Project partners are building firms, architects, local authorities (e.g. RTA, PTA) and the Jebel Ali Free Zone Authority (JAFZA).

PTV Dubai has a new office and starts with new projects for future transport

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PTV America

PTV America has moved

PTV America Inc. has moved its company headquarters to Portland, Oregon. Please make a note of our new location:
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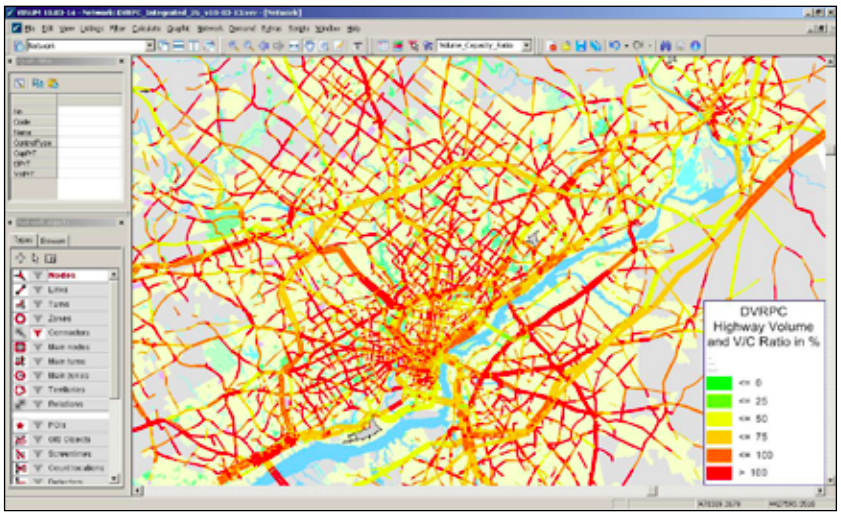
View of the skyline of the business district of Philadelphia

DVRPC's regional travel model under the VISUM platform



Traffic Software / PTV America

The Delaware Valley chooses PTV Vision for regional transportation planning

The Delaware Valley Regional Planning Commission (DVRPC), based in Philadelphia, PA (USA), has chosen PTV Vision as the new software platform for the regional travel model that is used to plan the transportation infrastructure for the entire metropolitan area. The selection of PTV Vision is the first step in a three-year project to upgrade and improve the regional transportation model. In the coming months the existing regional model will be migrated to VISUM by DVRPC's modeling consultant firm, Cambridge Systematics, with PTV America Inc. as a sub-consultant.

The Delaware Valley is ranked as the fifth largest metropolitan area in the United States of America with a population of over 5.5 million. DVRPC is the designated Metropolitan Planning Organization (MPO) for this region. As the MPO, DVRPC coordinates transportation planning for nine County governments, the States of Pennsylvania and New Jersey, and over 350 municipalities. The City of Philadelphia is the urban center of the region. Several sub-centers include the Cities of Chester, PA, Trenton and Camden, NJ, and the suburban center known as King of Prussia. The Delaware Valley has a complex transportation network with several toll roads, toll bridges, high capacity expressways, and multiple public transport modes including commuter rail, heavy rail, light rail, as well as urban and suburban bus lines. Aside from transportation, the region is rich in history as the location of the Declaration of Independence and with Philadelphia as the first capital of the United States.

Since the 1960s, DVRPC has continuously applied and maintained the regional transportation model to forecast travel volumes, market shares for different modes of transportation, impacts from land use and population changes, and emissions of air pollutants. The model is maintained by DVRPC's staff and also used by consultants under DVRPC's guidance. Important requirements for the model are compliance with Federal guidelines in project analysis and in transportation funding, the continuous and consistent update of short-term and long-term transportation plans and air quality estimates.

Major reasons why DVRPC preferred PTV Vision software over the competition include usability and work flow efficiency, the integration of macroscopic planning models and microscopic traffic simulation, the sophisticated public transportation model, the track record of efficient equilibrium optimization methods, and good customer service.

For PTV it is a great privilege to serve as the software provider and modeling consultant for the Delaware Valley. DVRPC's travel model will be one of the top VISUM applications world-wide due to the size and complexity of the transportation network. PTV is committed to make this a great success and has deployed its best experts from both PTV AG and PTV America to be involved in this modeling effort.

3-year project to upgrade the regional transportation model

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Traffic Software / PTV Asia-Pacific

Apron operations micro-simulation model for Hong Kong´s airport

Hong Kong International Airport (HKIA) is the fifth busiest international passenger airport, with more than 47 million passengers in 2007, and operates the busiest international cargo facilities in the world. With some 800 aircraft movements every day and about 90 airlines operating from HKIA, the airport links Hong Kong with over 155 destinations around the world. In a pioneering project PTV, in partnership with the Airport Authority, has developed a VISSIM micro-simulation model of the apron road network, taxiways, runways and gate operations.

Newly completed airfield improvements include the construction of the North Satellite Concourse, the addition of new taxiways and resurfacing of the two runways. Within a few years, additional hangars for aircraft maintenance and business jets will come into service. Planning for the future, HKIA has been preparing plans for the undeveloped area in the 'Midfield' between the two runways that will be developed in phases to meet future demand. HKIA will also soon commence the engineering and environmental studies on the feasibility of a third runway at the airport and a new cargo terminal will open in 2011.

The Airport Authority (AA) wishes to develop options for parking stand layout, taxiway configuration, passenger terminal location and layout, and associated passenger facilitation systems. Recent studies have identified improvements to increase the capacity of the existing dual runways from 55 movements per hour at present up to 68 movements per hour in 2015. A current study will assess the incremental air traffic movements associated with a possible third runway.

Traditionally, the design of improvement and expansion projects for airports has used a variety of specialist design and planning software tools for different elements of the airport operation, but there has been a lack of a comprehensive micro-simulation tool that is able to replicate apron operations in real-time, including all of the ground service operations associated with the arrival or departure of an aircraft, along with land-side transport operations, and passenger movements within the terminal.

Airport simulation supports planners and designers

PTV's micro-simulation software VISSIM is the only software package capable of simulating all stages of passenger and vehicle movement within the airport boundary. VISSIM has recently been used in the planning and design of land-side facilities for many airports including London Heathrow T5, Bangkok, and Auckland, and the new passenger simulation capability in VISSIM 5.1 is now being applied in pilot projects for Hong Kong Airport Northern Satellite Concourse and other key transport infrastructure. In a pioneering project PTV, in partnership with the Hong Kong Airport Authority, has developed a VISSIM micro-simulation model of the apron road network, taxiways, runways and gate operations. The model can import any daily timetable and can simulate any specified time period, including 3D visualisation of all aircraft and vehicle movements on the apron, in faster than real time, including movements of the following vehicle types:

Vehicle types included in the VISSIM simulation model

- Marshaller's car
- Passenger bus (remote gates)
- Baggage tractor and trailer
- Cargo loader and conveyor
- Catering truck
- Refuelling pump
- Aircraft towing tug
- Potable water delivery truck
- Waste water removal tanker
- Maintenance vehicle
- Cleaners crew bus
- Individual passengers/crew

VISSIM micro-simulation model of the apron road network, taxiways, runways and gate operations

The model includes 3D visualisation of all aircraft and vehicle movements on the apron

All aircraft movements are assigned on static routes consistent with apron control procedures and guidelines, while all ground service vehicles (GSE) are assigned to the apron road network dynamically, each searching for the fastest route, based on parameters and constraints defined for each vehicle type. The potential applications of this model are wide and varied, and apart from being used for evaluation of the efficiency of design alternatives, can answer the following (and similar) questions:

1. Where are the key bottlenecks on the apron road network and how can they be improved?
2. How long does the baggage take to travel from each gate to the baggage hall, and how variable is the travel time?
3. Where is the best location on the apron to park critical GSE?
4. How many vehicles of each GSE type do we need to service a given flight timetable in normal operations?
5. What are the impacts of abnormal operations, such as runway closure, blockage of a key element of the apron, or disruption due to adverse weather or an unusual incident or event?
6. How do we re-establish normal operations after an interruption, and how long will it take to recover normal service?
7. How do we optimise our GSE acquisition and utilisation plans?
8. How can we manage maintenance impacts and when can we close a part of the apron without significant impact?
9. How can we check planned management strategies, without risking adverse impacts, during maintenance or construction activities?
10. What can we do to maximise utilisation of key facilities and equipment and what is the financial benefit?

The VISSIM model is approaching completion, with the calibration of background traffic volumes presently underway, and will shortly commence scenario testing. Hong Kong Airport is one of the busiest and most complex airports in the world and the models have been developed in a modular manner, using a series of inter-linked simple scripts, so that they can be applied to other smaller airports with little adaptation effort. In the longer term, it is planned that many of the procedures developed during this exciting cutting-edge project will be built into the core of VISSIM and a dedicated graphical user interface will be implemented for use by airport planners and designers.

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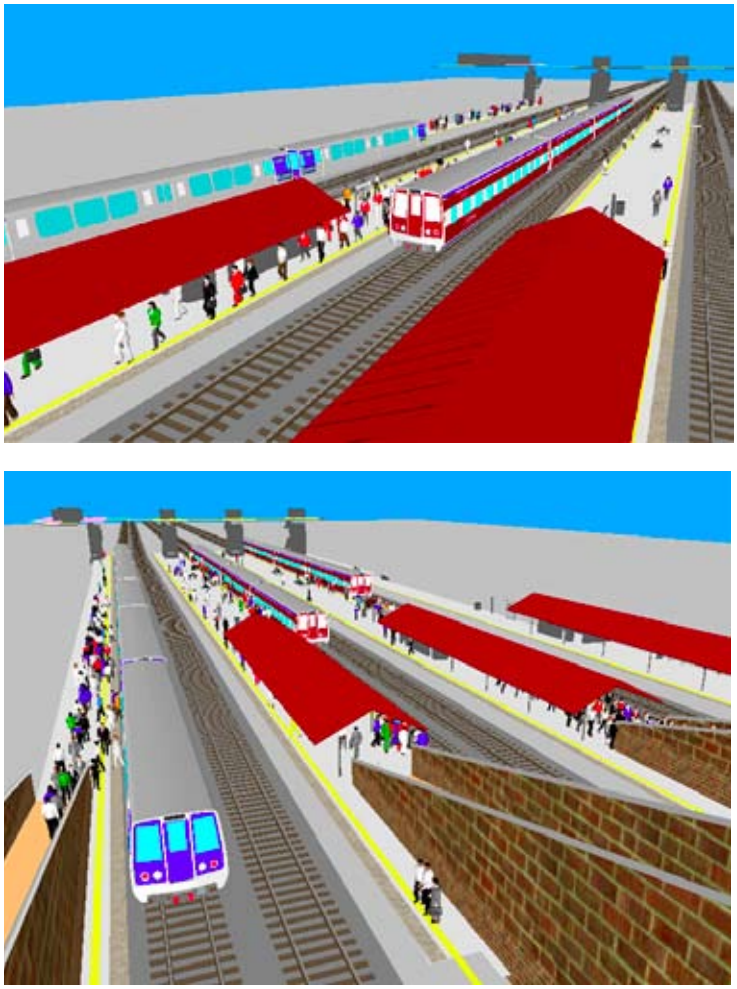
Traffic / PTV Asia-Pacific

Planning and design of passenger interchanges at North Melbourne Station

Planning and design for transport systems using the PTV VISSIM micro-simulation software has always provided measures for detailed investigation of traffic systems. Now with the inclusion of the areas based pedestrian simulation, PTV Asia-Pacific has investigated issues of rail passenger's operational landscape at a major rail interchange within the Melbourne metropolitan system. PTV considered the large number of planning and design constraints that can influence the movement of forecast growth in residents and employment.

North Melbourne Station is immediately adjacent to the City Centre loop within the Melbourne metropolitan area. There are four rail lines that converge on this station en-route to the Central Business District, with a variety of service destinations, rolling stock, schedules, service occupancy, loading distribution, and the number of doors for passenger boarding and alighting. Both regional and metropolitan services pass through this station during the morning peak period. There is a significant interchange of passengers between platforms at this station en-route between residential locations and employment centres. There is regular crowding and congestion on one platform for commuters transferring between services on their journey to work.

PTV developed a VISSIM simulation model of the pedestrian transfers within the station to investigate planning and design options for both infrastructure and service provision. The pedestrian simulation model incorporated the existing platform arrangements, including access ramps, obstacles and passenger behaviour across the platform. PTV developed the pedestrian transfers and the rail schedules, including rolling stock, variation in interchange between platforms and consideration for boarding and alighting times through the development of a spreadsheet. This approach streamlined the refinement process to investigate future year considerations including changes in number of doors and carrying capacity of the services, demand volumes and distributions (given the proximity of residential growth areas), service delays, and provision of infrastructure and scheduling refinements within the planning and design consideration for the North Melbourne Station rail passengers.



VISSIM simulation model of the pedestrian transfers

Simulation model of pedestrian transfers

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The City of Graz, Austria, has already introduced a traffic management system that allows the implementation of eco-friendly transport concepts.

Transport Consulting / PTV AG

Sustainable concepts for urban transport

Today's environmental conditions require urban transport solutions that provide a high level of mobility while protecting our resources. Therefore, the TRANSPOWER project assists important players in the field of urban transport such as municipal and regional authorities in implementing economically friendly, safe and efficient urban mobility concepts. The most important strategies focus on the reduction of traffic volumes and the use of alternative transport modes.

Decision-makers who wish to efficiently implement urban transport models need precise scientifically verified information about "best practices", optimal processes and profound experience in the relevant field. TRANSPOWER supports the exchange of knowledge and the input from experts and supervises the implementation of tailor-made concepts and projects. Additionally, municipalities, cities and representatives from industry and science have the opportunity to share their knowledge and ideas on sustainable urban transport.

The EU-funded project started in August 2006 and will last until August 2009. The consortium, which consists of 16 members from eight countries, represents small and medium-sized cities with up to 500,000 inhabitants. Six of these countries belong to the European Union. PTV, GTZ (an international cooperation enterprise for sustainable development), Ernst Basler + Partner, the European Academy for the Urban Environment and Mobility Graz are members of a competence team which supports this project.

The aim is to create a network between public authorities, industry and research in order to coordinate existing activities of the partners in the field of eco-friendly urban transport and to immediately use best practice results.

To reach these ambitious goals, the following five technical work packages with a special focus on passenger transport have been defined: Public Transport, Traffic Management, Integrated Planning, Non-Motorised Transport and Mobility Management. Each member of the competence team is responsible for the contents of one work package. PTV is in charge of the Traffic Management work package.

By sharing their knowledge and expertise, developing sustainable transport concepts and carefully using the resources, TRANSPOWER project partners will help to develop solutions that protect both our environment and mobility.

European network supports exchange of knowledge and expertise on the development of economically friendly urban transport models

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Logistics Software / PTV AG

Multivitamins for transport planning

When it comes to transporting goods, nothing fundamental has changed since the days of Hannibal, the Carthaginian general who traversed the wintery Alps with his war elephants in tow. Goods are still transported by road most of the time. However, there is much potential and political interest in shifting transalpine cargo to rail. One research project wishes to make a valuable contribution to this goal: SPIN-ALP (Scanning the Potential of Intermodal Transport on Alpine Corridors). However, another effective approach might be to use multiple modes of transport. Two such "multivitamins" for transport planning are multimodal and intermodal planning.

Hannibal faced many of the same problems as today's shippers and forwarders when he planned his march across the Alps. First, he had to select a route. But which route would best suit his army? It was enormous, with more than 50,000 foot soldiers, 9,000 cavalrymen and 37 war elephants, not to mention all the pack animals for provisions and materiel. Livius says that Hannibal's army crossed the Alps in 15 days. Today, the same trip obviously takes much less time. However, one thing has not changed: Infrastructure, time, costs and transport safety play a major role in transport planning. Now, though, you can mix and match different means of transport.

The right mix of transport modes

There are many reasons to combine several modes of transport. The main arguments in favour of multimodal transport are economic: costs and competitive pressure. Transport by rail has become an increasingly attractive alternative to lorries. It reduces road traffic volumes, CO2 and noise emissions, not to mention diesel expenses. However, rail networks are not as dense as road networks. Lorries can thus provide far more flexibility, if less loading capacity. Ship transport offers energy savings and considerable space, but it is limited by slow speeds and the inland waterway system. Furthermore, ship transport is usually one link in a multimodal chain, because goods are not produced or consumed right at the port. Instead, other modes of transport are almost always needed to make the first and last legs of the trip.

Intermodal terminal at the Port of Basel

Multimodal or intermodal?

"Multimodal transport" means that cargo is transported by two or more modes, i.e., water, road, rail or air. This requires different means of transport such as trains, lorries, ships or even airplanes. "Intermodal transport" is when goods are transported in standardised transport units such as containers or swap bodies; the goods are not handled directly.

Dr. Joachim Schmidt, Member of the Board of Directors PTV AG, said, "We are far from exhausting the optimisation potential of transport planning. New processes are helping businesses find reasonable, cost-efficient alternatives to road transport."

PTV's software supports the analysis and planning of intermodal transport alternatives with functions, interfaces and algorithms customised for transalpine transport.

Help with "option overload"

PTV Intertour has long been the favourite trip planning software for many logistics companies, forwarders and private carriers. It helps users to plan consolidated and distribution services at an operative level and to plan at a tactical level. PTV Intertour/Dispatch is specifically designed for trip planning with user-defined loading and unloading points. An additional module supports intermodal planning. The container version is ideal for FTL transport, such as with tanks or containers, and is specifically pre-configured for blocks. Dispatchers also receive hands-on support with powerful optimisation processes, interactive dispatching functions and graphical assignment overviews.

Now, developers are working to add support for multimodal planning in the module. PTV Intertour/Dispatch will allow dispatchers to split up transalpine transports from the United Kingdom to Italy and plan the stop-off points and segments on road, rail, or inland waterway. Plus, they can alternate between inland waterways and rail networks without leaving the software. And when dispatchers are planning trips, the software will suggest suitable modes of transport and display their availabilities.

Research to optimise transport networks

PTV does more than just develop software products for intermodal planning; it also researches ways to optimise transport networks. One example of this research is SPIN-ALP, which it manages in Germany. The project aims to shift more road transport in the Alps to rail. As its technical innovation, it has developed a new PTV software tool that allow shippers and transport providers to analyse and plan intermodal transport alternatives.

Today, the main transalpine routes are the North-South corridors. Transport planners have been slow to embrace rail transport as an intermodal alternative. In Austria, only 24% of all through-traffic currently uses the rail system; in Switzerland, the figure is 66%. Far too low, believe the two Alpine countries.

SPIN-ALP comprises research and development efforts to establish a product portfolio that addresses two major tasks: evaluating cargo flows to be shifted to rail networks, and planning intermodal logistics chains on transalpine corridors. As a provider-independent model, SPIN-ALP will help shippers and transport providers to optimise their transport networks. Customers benefit from efficient mode-shift analyses with transparent results and a high level of feasibility. SPIN-ALP is still field-testing its product portfolio in case studies.

Planning within the road, inland waterway or rail network

Marcel Huschebeck, SPIN-ALP project manager for PTV AG, said, „Experience shows that many shippers and transport providers are intimidated by planning. No wonder: Fully planning goods transports and integrating various modes in the logistics chain is an extremely complex affair. It requires exhaustive analyses, but there is still no solid basis for decision-making, particularly for small and medium-sized companies. In many cases, rail alternatives are simply overlooked. There is simply not enough information or figures on railway traffic that could be compared with road transport data."

SPIN-ALP considers the alternatives from the very start of the planning stage because transit traffic is not just shifted at the borders to Austria and Switzerland. Switzerland's stated goal is to move all through-traffic to rail, while SPIN-ALP's goal is to increase the percentage of cargo transported by rail in the Alps region.

Modern software is the solution

These issues can be addressed with PTV's new software, which represents the project's technical innovation. It supports the analysis and planning of intermodal transport alternatives with functions, interfaces and algorithms customised for transalpine transport. To enhance its appeal to prospective customers, PTV will use a robust and cost-effective development platform that supports modular extension.

The transport planning software fully models intermodal traffic: not only road maps but also timetables, terminals, railway lines and cargo transport services on transport axes and corridors – the basis for timetable-based intermodal trip planning. It also includes a transparent cost model that is compared against price benchmarks from surveys of shippers. To enable realistic planning and control the costs of transport alternatives, the software also covers the trip's pre-carriage and on-carriage stages so it can estimate the costs of various alternatives for door-to-door transport. Before, these details had to be resolved separately for each individual mode of transport and trip section.

SPIN-ALP will help to combat road overcrowding and prevent traffic jams at national borders with an all-in-one package of consulting, process planning and software. So what impact will the intermodal and multimodal "multivitamins" have on the transport planning industry? Only time will tell.

About SPIN-ALP

SPIN-ALP is a joint project co-sponsored by the German Federal Ministry for Economics and Technology and the German Federal Ministry of Traffic, Innovation and Technology as part of Era-Net Transport. It launched on December 1, 2007 and will run for 18 months until May 2009. PTV AG is managing the project for the German delegation. Other project members include the Fraunhofer Centre for Applied Research on Technologies for the Logistics Service Industries in Nuremberg, and ECONSULT Betriebsberatungsges.m.b.H. and ZTL Schulungs- und Beratungs GmbH, both based in Vienna, Austria. Switzerland is represented by Rapp Trans AG in Zurich and the Swiss Federal Institute of Technology Zurich.

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Logistics Software / PTV AG

Geo-functionalities for SAP Travel Management

PTV's geographic functionalities added to the SAP Travel Management solution make business trip planning even easier. Features, such as digital maps, route planning options, hotel and airport locators and distance calculations, enable more efficient travel planning. They are critical for today's companies that want to streamline business projects and substantially reduce their travel costs. Users will benefit from improved travel cost management, easier travel planning and a more accurate distance calculation. These components are directly integrated into SAP systems via standard interfaces.

Travel managers who use SAP benefit from a rich set of travel management functions which allow them to accomplish the following: book flights, hotel accommodations, rental cars and rail requirements, and coordinate travel expense processing and reimbursement. PTV xServers and their geographic functions offer enhanced functionality for streamlining business travel. Start and destination addresses are validated and geocoded, and specific search functions assist users in finding the nearest hotels or airports. The precise calculation of driving time and distance, the display of routes and stop-off points on a map and a detailed route description support travellers during their journey.

PTV xLocate Servers convert addresses of starting points and destinations or hotels and airports into geocoordinates that can be displayed on a digital map. PTV xRoute Servers calculate routes and distances and PTV xMap Servers present important information, such as routes and stop-off points on the map. Users benefit from a better overview of the geographic information. The detailed itinerary allows precise guidance to any destination, makes travel planning easier and reduces the journey time. The precise calculation of distances provides the exact number of kilometres travelled to be used for the expense account. This information is accepted by the tax office.

All functions are self-explanatory and directly integrated into the SAP Travel Management graphical user interface. They guarantee users high investment certainty and can be used for ERP 5.0 and higher.

SAP and PTV have been close collaborators for years. SAP users benefit from ready-to-use PTV components that can be integrated with SAP systems via standard interfaces – no modifications required. This shortens project cycle times, cuts costs and improves quality. The following SAP applications ship with PTV components as standard:

- SAP Travel Management
- SAP Supply Chain Management (TP/VS)
- Multi Resource Scheduling

PTV xServers for easy travel planning

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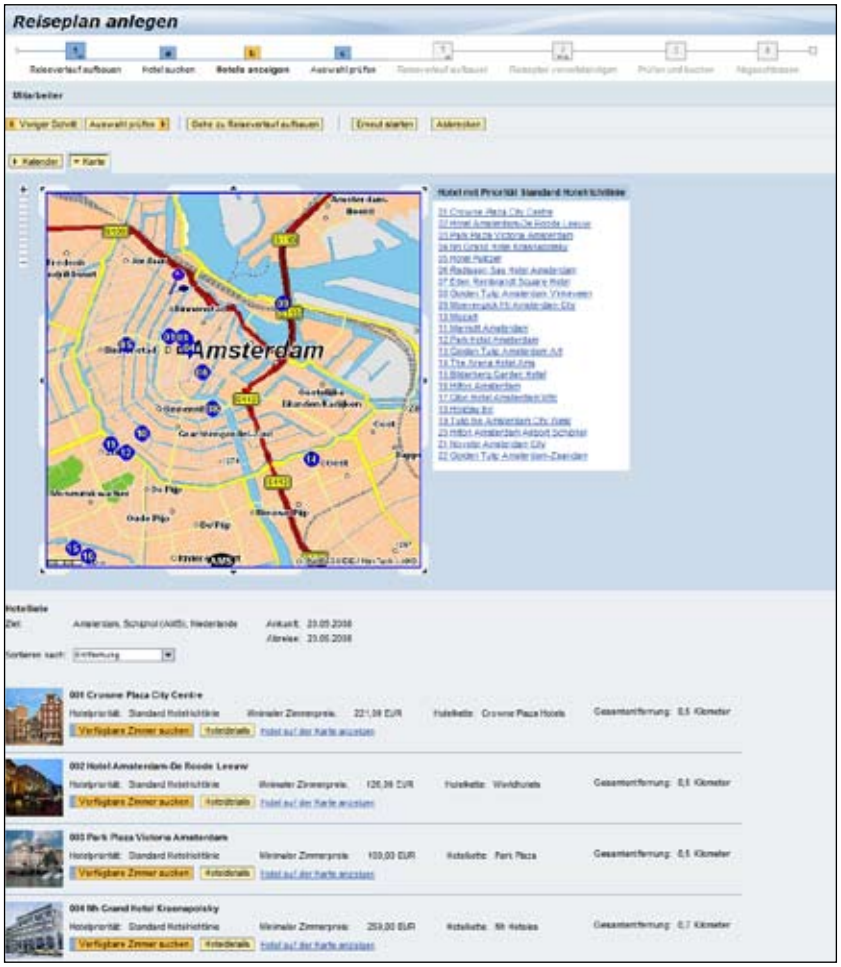
PTV xServers and their geographic functionalities make business trip planning with SAP Travel Management easier and more efficient, e.g. with specific search functions that help users find the nearest hotels.



Save energy while driving: Text messages on the display might motivate drivers to change or adjust their driving habits.

Logistics Software / PTV AG

Traffic information for dynamic transports

The Logistik V'Info research project's objective is to improve traffic and transportation while protecting and enhancing the environment. The consortium, that is led and coordinated by PTV AG, focuses on how dynamic traffic information can increase the efficiency of vehicle and route scheduling systems and control instruments. Another aim is to reduce transport energy consumption by using optimised driver assistance systems.

PTV is responsible for the development of transport planning and management systems. It also has to find ways to link and provide services for the supply of traffic information. This includes up-to-date information on traffic jams and incidents or specific events as well as time-related traffic volumes.

The information is included in a trip planning and control system that is based on PTV Intertour. Trips and routes can be scheduled on the basis of the latest traffic information by dynamically managing the course of the trip. The system allows drivers to avoid gridlocked areas and dispatchers to detect traffic incidents and delays at an early stage. This means that they can quickly adjust the trip schedules according to the current traffic situation.

Daimler AG's aim is to develop driver assistance systems that support energy-efficient driving. Dynamic traffic information provided in the form of text messages or graphical information on onboard displays might motivate drivers to change or adjust their driving habits in order to save energy and reduce emissions.

The solutions are being developed in close partnership with Schober Transport GmbH and tested in the Ruhr Area. The study wants to scientifically identify improvements and analyse how drivers and dispatchers react to the new systems. Additionally, the requirements of shippers, customers and traffic management centres and other logistics-relevant factors are carefully analysed in order to assess the applicability of trial results.

Michael Schygulla, Research & Innovation Project Manager at PTV says: "First results will be available in the middle of 2009. The systems will be tried and tested 'in the field' until 2010. We are confident that these measures will result in lower transport costs and higher transport reliability. A more efficient use of traffic infrastructure will benefit the economy and the environment."

How to save fuel while driving

The Logistik-V'info research project started on December 1, 2007 and will last until May 31, 2010. It is part of the "Intelligent logistics in freight and commercial transport" research initiative and has a budget of EUR 1.2m funded by the Federal Ministry of Economics and Technology. Project partners include PTV AG, Schober Transport GmbH and Daimler AG as well as scientists from Friedrich-Alexander University of Erlangen-Nuremberg, Germany, Institute of Business Administration/ Logistics and the University of St. Gallen, Switzerland, Institute of Logistics Management.

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Logistics Software / PTV AG

Queisser Pharma optimises complex sales processes

Queisser Pharma's customers range from small pharmacies to major healthcare chains. Therefore, it is a difficult task to effectively coordinate the company's sales activities. PTV's Map&Market/Premium planning software assists the manufacturer of well-known pharmaceutical brands such as Doppelherz and Protefix in efficiently managing its 35 strong sales team.

Axel Kaempfe's office at Queisser's headquarters is the heart of the company's sales organisation. About 35 sales representatives call on customers throughout Germany and present Queisser's wide range of healthcare products. "Our team has to call on pharmacies on a regular basis whereas major healthcare chains have extremely narrow time slots for sales calls limited to a few weeks during the year," says Axel Kaempfe. "Thanks to PTV Map&Market/Premium we can now handle everything faster and more efficiently. Customer contacts have been substantially increased with the same number of sales representatives."

Problem-free installation

Did Queisser encounter any problems when using the new software after its implementation and customer data storage? "We were surprised how easy it was to implement PTV Map&Market/Premium across all levels," summarises Axel Kaempfe whose department has been successfully using the software tool for two years now. Extra features, such as 'capacity calculation' or 'annual planning', and options that allow the user to prioritise customers enable Queisser to reach its strategic goals.

More customer contacts with the same number of sales reps

Axel Kaempfe can now quickly react to short-term changes. For example, just a few mouse clicks in PTV Map&Market/Premium and pharmacies that were recently closed are replaced by newly opened shops. Moreover, the system allows a fairer distribution of sales territories by considering factors such as turnover, time required for each sales call and driving costs (an important aspect that should not be neglected). Axel Kaempfe explains: "This program helps us to optimise the workload."

Maximum flexibility in sales force management

Each member of the sales team receives a well-structured itinerary based on the optimal route, call times and accurate customer data. Additionally, data that might be required for taking new customer orders during the visit can be transferred to the employee's mobile device. PTV and GML (Gesellschaft für mobile Lösungen) jointly developed this innovative technology.

Axel Kaempfe is very pleased with the results: "The software allowed us to make great progress. PTV Map&Market/Premium even handles our extremely complex sales management processes."

PTV Map&Market/Premium provides sales reps with a clearly structured itinerary.

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"We want to be able to plan the whole route, from A to B, wherever that may be and use the same method throughout," says Mr Buning from TNT.

Logistics Software / PTV Benelux

TNT Express chooses a system for world-wide route planning

Until last September the TNT Express branches planned their routes making use of various programs such as Route 66 or Microsoft map, or other sources such as the websites of the Dutch Automobile Association, the Michelin guide or even Google. Each branch used to run their own specific application or a version which had data on its national road network. This means that there was no real global solution. "For a company such as TNT Express which operates on a world-wide scale, this situation was just not right, " said Mr Buning, project manager at TNT Express and responsible for IT development and ROCS systems worldwide. "You need an easy to operate all-encompassing system which can be used at all locations. Firstly, this is more efficient and secondly, savings are achieved."

It took Mr Buning and his colleagues three or four months to carry out the selection process. Ultimately, it was PTV with their xServer which came out on top. "What we needed was a product for seamless integration into our way of working and immediate application, offering a good ROI. Additionally, PTV was one of only a few companies that also offered a Linux-based option. This counted very much in favour of PTV, according to Mr Buning.

PTV´s xServer allows complicated mapping and routing services to be run on TNT's own servers. The system is also integrated into TNT Express's own back office environment. Due to this integration the total planning module provides the latest mapping, routing and geocoding technology. This means that TNT now has access to a means of finding an exact location, a module to create a map with the specific location on it and then apply a route from A to B. Mr Buning was very pleased with the results: "The core functionality worked immediately. What we, as a company, had to do was to build the surrounding shell in order to provide the system with our addresses, a module to show the map and a module to request routes."

Central servers

The route planning system is managed centrally from the Express ICS Department in Duiven, however individual servers on which the package runs are assigned to each section of the world. As a result, the calculations for the European branches are carried out on a central server in England. At the branches the necessary maps and route descriptions are then called up online, printed and handed over to the drivers. New data technology allows geographical maps to be quickly updated, either partially or fully. The underlying geographical database is updated every three to six months and PTV ensures frequent upgrades of the basic modules to further improve speed, enhance functionality and the addition of points of interest or landmarks such as petrol stations, safe parking areas, etc. This updating and upgrading is, according to Mr Buning, relatively simple, as the actual program is separate from, and thus independent of the underlying database.

PTV xServer allows complicated mapping and routing services to be run TNT´s servers

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PTV Loxane

Survey for CERTU on Dynamic Carpooling

With more than 500 million privately-owned passenger cars worldwide, the potential value of empty travelling seats is huge. As one of today's main topics is sustainable development and how to reduce greenhouse gas emissions, dynamic carpooling is a concept with a promising future. Interested in this new alternative, the French Ministry for Ecology, Energy, Sustainable Development and Territorial Planning (MEEDAAT), through CERTU, has asked PTV Loxane to carry out a survey on dynamic carpooling and how to implement it so that carpooling can become a full mode of transportation.

Introduction to CERTU

The Centre for the Study of Urban Planning, Transport and Public Facilities (CERTU) is a member of the Scientific and Technical Network of the MEEDAAT. CERTU is responsible for carrying out studies on behalf of the French State or for the benefit of local authorities, public bodies, companies entrusted with public-service commissions or the relevant professions. Through its activities relating to statistical work, surveys, studies, expert evaluations and technological innovation, the Centre contributes to the advancement and dissemination of knowledge and skills.

Carpooling, a new mode of transportation

CERTU initiated a research programme on new modes of transportation. This programme was launched following the development of carpooling and car-sharing services or cycle stations in big cities. This need for different ways of commuting can be explained by various factors, such as soaring oil prices, sudden environmental awareness and costly public transport, etc. Carpooling proves attractive to local authorities : it can help reduce traffic volumes and hence, greenhouse gas emissions. For carpoolers, beyond the mere fact of cutting transportation costs, carpooling re-creates a social link that does not exist in public transport anymore.

When technology meets individual transport

CERTU played a major role in spreading information on intelligent transportation systems. In close collaboration with PTV CERTU has been working on the "dynamic carpooling" concept. The aim is to develop an innovative carpooling service bringing a real added value to users:

- flexibility
- usage of technology
- (mobile phones, PDA, Internet, GPS)
- automatic and instant matching of rides
- integrated billing system.

PTV Loxane's role was to carry out a thorough analysis of existing experiments in other countries and identify the reasons for success and failure. The challenge was to elaborate the practical implementation conditions for dynamic carpooling and provide some guidance so that dynamic carpooling can move from the state of mere concept to reality and become a full mode of transportation.

The survey for CERTU is scheduled to be officially published in December 2008.

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Miscellaneous

Celebrate the Season!

Another year draws to a close and we would like to take this opportunity to express what pleasure it has been working with you throughout the year. We also wish to thank you for your interest in the latest news about our products and solutions and look forward to serving you in the New Year. We at PTV again support the charity organisation „Our little brothers and sisters“ (http://www.nph.org/), caring for orphaned and abandoned children in Latin America and the Caribbean. The organisation‘s aim is to help homeless children and to provide a loving, secure environment. Since 2002, PTV has been participating in the NHP sponsorship programme, supporting Juan Carlos (10), José Manuel (13) and William Antonio Martinez (16), three brothers from El Salvador. We wish to continually contribute to poverty reduction, according to the motto of Padre William Wasson, the founder of the organisation: “If there are enough people in the world who really want to help, we can achieve something.“

Best wishes for a festive holiday season
and a bright New Year.

PTV. The transportation experts.

From left to right
José Manuel Martinez
Juan Carlos Alfaro Martinez,
William Antonio Martinez

Meet PTV at these International Trade Fairs

11.-15.01.2009	TRB Annual Meeting	Washington DC	www.trb.org
23.-24.02.2009	Andinatraffic	Bogota	www.andinatraffic.com
03.-08.03.2009	CeBIT	Hanover	www.cebit.de
18.-20.03.2009	Intertraffic China	Shanghai	www.china.intertraffic.com
02.-03.04.2009	DVVK	Munich	www.dvvk.de
21.-23.04.2009	Traffex	Birmingham	www.traffex.com
12.-15.05.2009	transport logistic	Munich	www.transportlogistic.de
27.-29.05.2009	Intertraffic Istanbul	Istanbul	www.istanbul.intertraffic.com

For more information about events and exhibitions in 2008, go to www.english.ptv.de/cgi-bin/news/messen.pl

We welcome your enquiries and feedback.
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