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OMNIA
SWARCO TOTAL TRAFFIC SOLUTIONS

MANAGING MOBILITY

One of the major challenges being faced by cities and regions today is that of ensuring sustainable and efficient transport, both for people and goods and to successfully manage the demand for mobility.

A COST-EFFECTIVE INVESTMENT

Intelligent Transport Systems (ITS) can offer valuable support in this task. They help to make mobility more efficient and safer, 'user friendly', safer, and can also reduce its impact on the environment. Compared with the investment needed to build new infrastructure, ITS deployment requires less effort and less time. Such applications also have a "multiplier" effect, enhancing the effectiveness of infrastructure investments.

NEED FOR FLEXIBILITY

ITS therefore represents a strategic choice for the Mobility Authority. But to have a real impact, the systems must be tailored to the specific transport infrastructure. And in order to have long term cost-effectiveness, they need to adapt easily to evolving mobility demands, to changing policy, and also to new technological opportunities.

HARMONISATION AND A MULTIMODAL APPROACH

Urban areas represent a particularly complex challenge from the mobility point of view. Private cars, public transport, commercial traffic and other users all make competing demands on the same transport network. Specific ITS applications have been developed: traffic control, public transport management, traveller information services, and so on. But to gain the maximum benefit, they need to operate within a harmonised multimodal framework.

FOCUS ON 'GREEN' ITS

The economic livelihood of a city depends on an efficient transport system, but a growing concern today is the quality of the environment. Until now ITS has focused primarily on improving the fluidity of traffic and reducing trip times, but increasing attention is now being given to achieving more sustainable mobility.

CO-OPERATIVE SYSTEMS

To meet these objectives, the use of 'Cooperative Systems' will in the future be fundamental. This approach implies the full organisational cooperation of all players involved as well as technical cooperation between the systems, also exploiting the possibility of data exchange between roadside equipment and vehicles.

USING ITS TO MAKE A DIFFERENCE

Fundamental principles for achieving the maximum benefit from ITS are therefore:

- the **integration** of a complementary range of ITS applications
- an **open framework** which permits full cooperation between the different systems
- a **modular structure** to permit step by step implementation and expansion
- attention to both **efficiency and 'green'** objectives
- the integration of **cooperative systems**.

AN INVESTMENT FOR THE FUTURE

Once the basic platform has been installed, further developments are simplified due to:

- The “open” nature of OMNIA, which makes it possible to connect – when needed – new components, new peripheral units and use new communication media and standards
- The existing data models, protocols, Geographic Information System (GIS) and maps can be reused in the future by any new systems, saving time and money.

A system which starts small and simple, can in time grow large, both in terms of functions and area coverage.

OMNIA: suited to different organisational models

The modular architecture of OMNIA makes different approaches possible:

- A centralised organisation will use OMNIA as the common access point for surveillance, monitoring and control of all applications.
- A de-centralised organisation will give responsibility to the operators of any group of “single systems” (i.e. UTC, PT, Parking, etc.), while OMNIA ensures interoperability and coordination.

Mixed models are also feasible: OMNIA technology allows the operator to choose.

OMNIA: cost effective operation

The OMNIA platform provides added-value to users thanks to:

- The availability of a comprehensive set of data, making it easy to optimise operations, understand mobility needs, and plan future enhancements.
- Real time modelling and forecasting functions which enhance all existing and future systems

SWARCO is present in most countries of the world

This gives OMNIA an added advantage as:

- Systems developed by local SWARCO companies have long been adapted to local requirements, standards. OMNIA benefits from this experience and incorporates all outcomes (e.g. protocols, standards, programming languages, etc.).
- The national/local Swarco company will insure that deployment, commissioning, assistance and maintenance are carried out to your satisfaction.

OMNIA has been designed for the worldwide market, but can respond perfectly to local requirements.

Talk to us first!

BENEFITS AND REFERENCES

OMNIA INTEGRATES ALL THE ITS SOLUTIONS OFFERED BY SWARCO



IN AN URBAN SCENARIO

- Signalling control systems
- Urban traffic control
- Public transport management
- Parking guidance and guidance
- Priority for emergency services and Public Transport
- Environmental protection
- Traveller information systems
- Collective guidance and Info
- Street lighting supervision
- etc.

IN A MOTORWAY SCENARIO

- Traffic monitoring
- Network control
- Section control
- Incident detection
- Toll collection
- Ramp metering
- Multimedia Traffic Messages
- Variable Message Signs
- Traveller information
- Individual Route guidance and other applications

BACKGROUND

Extensive testing in Torino in the 1990s demonstrated that the integration of: Public Transport Fleet Management, Urban Traffic Control, Traffic Guidance, Multimedia Information, and Integrated Mobility Management was able to:

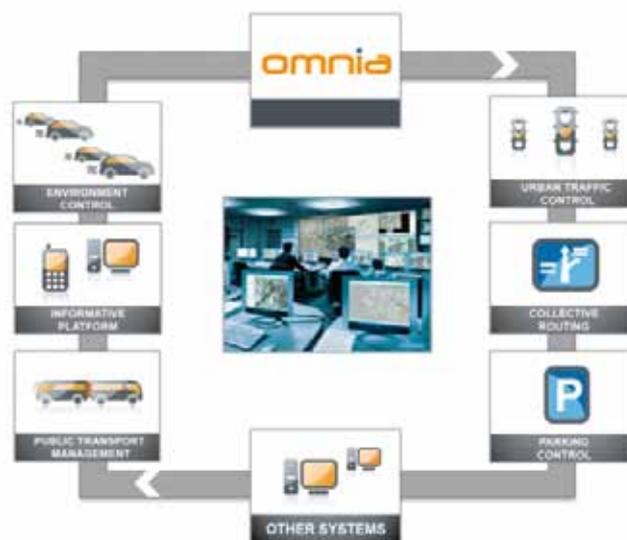
- Reduce the average daily travel time (private traffic) by 21%
- Achieve an average reduction of 10% in emissions (and more in 'black spots')
- Cut energy consumption and CO2 emissions by around 10%
- Reduce trip times of public transport operations by 20%.

Mizar was at the leading edge of this research and contributed to the development of the system which is still in full operation today. During the 20th Winter Olympics "Torino 2006" it passed one of the most challenging tests with flying colours!

OMNIA is the modern answer, offered by SWARCO, for achieving Integrated Mobility Management.

An Integrated Road Transport Environment (IRTE)

The key and basis for creating an Integrated Road Traffic Environment is a **Mobility Management Platform** which allows a wide range of ITS applications to be coordinated within a common structure.



Such a platform requires an open architecture, with interfaces which are not system or technology-specific, which allows any application to be “plugged in”. Existing systems can be easily integrated in the platform and new functions added at a later stage without having to redesign the system.

The Mobility Platform also needs a modular structure to favour flexibility. This permits the city or region to create a ‘personalised’ IRTE tailored to its specific needs and economic possibilities. Beginning with the priority applications, it can expand the system over time with new or extended services.

The aim of the Platform is to support the user in all stages of Mobility Management: monitoring, fine-tuning of the systems, and strategic planning.



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The OMNIA Platform is SWARCO's state-of-the-art solution for the integrated road transport environment. Its modularity and scalability means that it can be successfully adopted for large-scale systems with many applications already installed as well as cities and regions at an early stage of ITS development.

■ INTEGRATED ENVIRONMENT

OMNIA offers a high level framework which provides a single access point for all the component systems and support for the whole life cycle of a system: implementation, operation, updating and planning.

■ ANY ITS APPLICATION CAN BE SIMPLY 'PLUGGED IN'

OMNIA's open architecture means that any ITS application (Urban Traffic Control, Public Transport, Parking, Streetlights, VMS, etc) can be integrated within the platform, independently of the supplier or technology.

■ TAILORED TO YOUR SPECIFIC NEEDS

OMNIA enables any city or region to build its own "made to measure" ITS environment. It is possible to add new ITS applications when required and also to modify the services associated with existing applications.

■ EASY-TO-USE GRAPHIC INTERFACE

One of OMNIA's strongest features is the exceptionally flexible and user-friendly graphical interface which is also multilingual. The clear graphics allow rapid and intuitive interpretation of the real-time status of the network. An operator can view single or multiple windows, and zoom in for full details of any of the systems.



■ DISTRIBUTED DATABASES

The platform collects real time data and uses it not only to manage operations but also to model and forecast mobility demand. This gives all applications access to high quality data, which is also available to operators and city managers for their strategic planning. The DBs themselves remain independent in order to keep the system open and flexible.

■ EMBEDDED TRAFFIC MONITORING

OMNIA offers embedded functionalities for advanced traffic monitoring which includes traffic data and system component diagnostics. All the traffic measures (traffic volumes, speed, etc) and traffic related data (e.g. signal plan, clearance capacity, turning proportions) are gathered and stored in the central system archive together with their estimated statistical profiles.

The diagnostic status is constantly updated for all system components. This data is stored and made available through dedicated screens and detailed reports. Availability indicators are calculated to support maintenance and automatic alarms are generated when problems are identified.

■ A COST-EFFECTIVE BASIS FOR THE FUTURE

OMNIA is a strategic investment for both the present and the future. Its effectiveness in managing ITS applications brings immediate returns as well as long term benefits due to the support it gives in strategic planning. The ease of extending the platform to include new applications means that future extensions come at a lower cost.

All SWARCO systems are now designed to ensure that they are inherently compatible with the OMNIA Platform and can therefore be simply “plugged in”. Other systems can also be integrated in the platform through the use of appropriate interfaces.



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OMNIA IS THE SWARCO PLATFORM FOR INTEGRATED MOBILITY MANAGEMENT

Omnia has been developed with modern technologies, so that it can integrate any kind of applications, new or existing, and be used for large or small systems.

All Swarco applications are compatible, so that they can simply be plugged in. Legacy systems as well as systems from other suppliers can be interfaced.

OMNIA offers:

- Open and modular architecture
- Open interfaces and data exchange rules
- Large variety of protocols and standards
- A user friendly, graphical User Interface

FREEDOM OF CHOICE: the user can integrate as many or as few systems as desired.

The modular and open architecture of OMNIA, largely independent from technology, is ideal for step-by-step implementation, where different systems are integrated in different phases and according to the specific local needs.

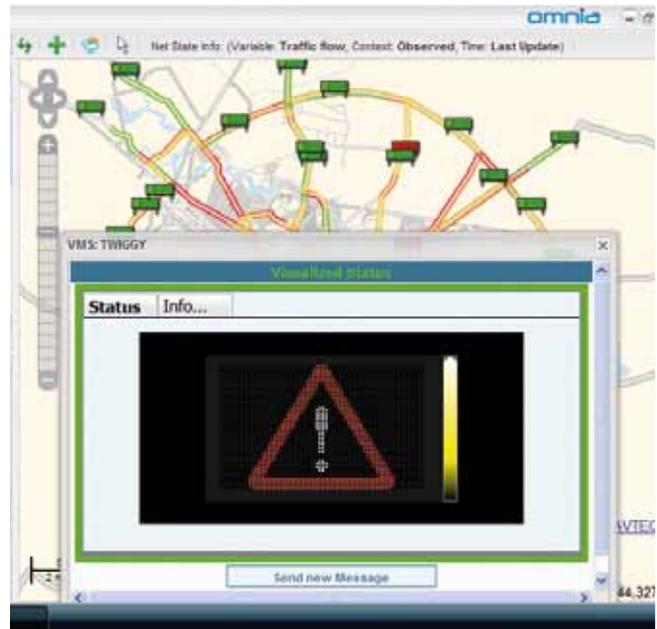


THE NETWORK AT YOUR FINGERTIPS

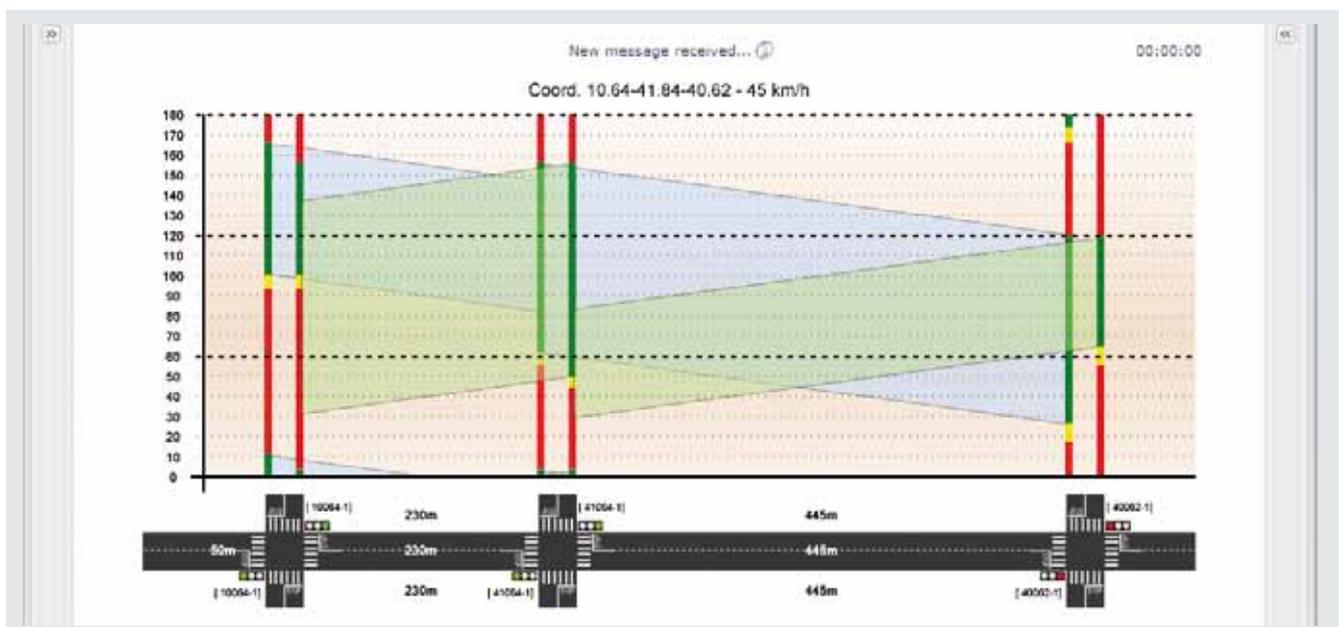
FOR A HIGH PERFORMANCE NETWORK

You can do everything you need to from wherever you are!

From a single workstation, the operator can make all the required adjustments and settings to optimise the functioning of any component of the mobility network.



The OMNIA GUI is based on state of the art web technology. This means that the platform can be accessed through a standard workstation (PC) and the most widely-used browsers (Internet Explorer, Firefox). Wherever they are located, authorised users can monitor the system status and intervene when necessary.

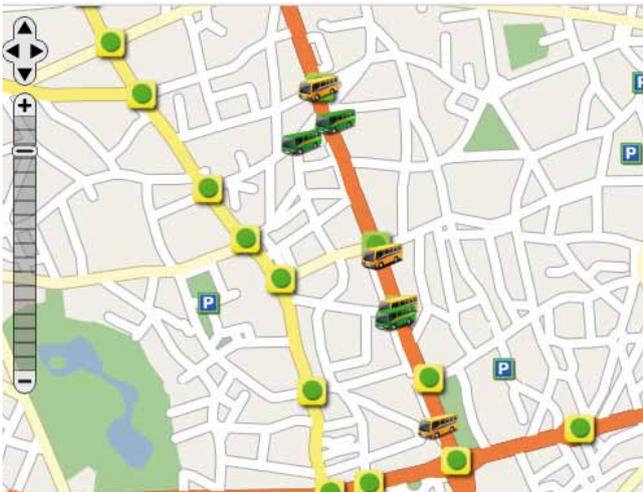


NETWORK STATUS AT A GLANCE

OMNIA's offers just what the manager of a transport network needs: an easy to use graphical interface which gives a full view of what is happening across the network at any given moment!



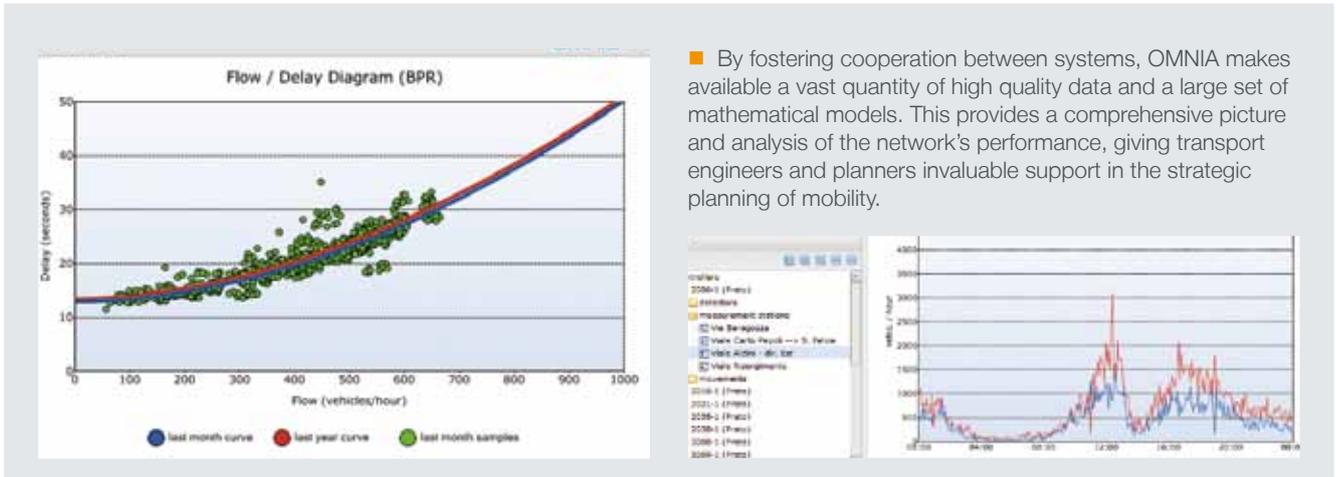
■ The operator can visualise any system at network scale or zoom in to understand the detailed conditions. It is possible to check the location of buses, the fluidity of traffic, the messages being displayed on overhead panels, the occupancy of car parks, whether the street lighting is on.....



■ The map view can be configured according to taste: the user decides how to build up the page, which details to visualise, the colour coding and other features. A clear and intuitive display makes it simple to understand any problem at a glance: a bus behind schedule, a congested intersection, a message panel out of order, ...

READY-TO-GO SOLUTIONS

A TOOL FOR STRATEGIC PLANNING



■ By fostering cooperation between systems, OMNIA makes available a vast quantity of high quality data and a large set of mathematical models. This provides a comprehensive picture and analysis of the network's performance, giving transport engineers and planners invaluable support in the strategic planning of mobility.

TRAVELLER INFORMATION SERVICES

- The large amount of data brought together from the operational systems plugged into OMNIA is transformed into valuable 'information' by models and algorithms developed by MIZAR. These ensure that it is always accurate, reliable and up-to-date.
- The information is delivered to travellers as 'personalised' services via many different communication channels (Internet, GSM, RDS/TMC, GPRS/UMTS etc.). It is multimodal and, in particular, helps travellers making intermodal trips.





SWARCO | FIRST IN TRAFFIC SOLUTIONS.

SWARCO is a growing international group providing the complete range of road marking, signalling and traffic management products, services and solutions. SWARCO has been committed to road safety with innovative solutions for four decades. The corporation supports the growing mobility needs of society with clearly identifiable state-of-the-art traffic guidance and control equipment. Reflective road marking systems and high-tech solutions for traffic telematics are the group's core business.

The SWARCO TRAFFIC MANAGEMENT companies offer quality turnkey systems and solutions in urban and inter-urban traffic control, parking, public transport and infomobility.

The excellence of a market leader, the strength of innovation, long-term partnerships and the resolute commitment to quality and service make SWARCO your first choice when it comes to making roads safer and traffic more fluid with innovative and environmentally sound means.



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