

# Transport Security and ICT Systems

CYBER SECURITY DIVISION



# INNOVATIVE SECURITY AND ICT SOLUTIONS FOR TRANSPORTATION

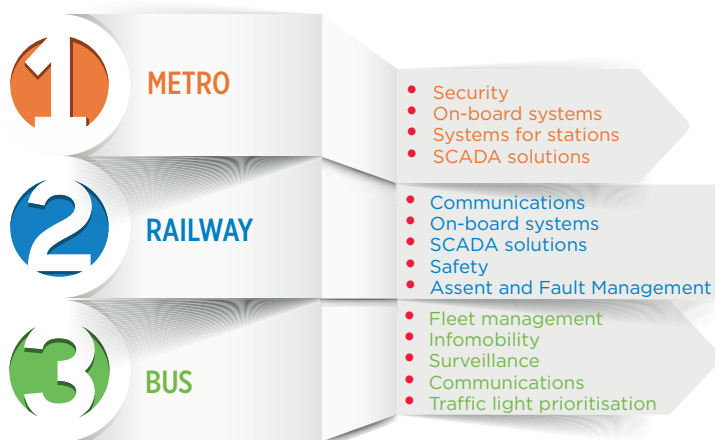
Transport Authorities require complex solutions, employing state-of-the-art technologies where effectiveness, reliability, safety and security aspects are crucial.

Continuous evolution of the transport infrastructure produces an increasingly diverse range of disparate technologies.

Integration and interoperability among different information, communication and cyber security system are the key drivers to the management of the infrastructure's evolution.

We are the ideal partner to provide integrated solutions, taking responsibility for the overall system design and commissioning.

We have proven expertise in the provision of cutting-edge security, communications and ICT systems to metro/railway operators and bus transport companies. The approach is hybrid and flexible: most of the components are internally designed and manufactured and first class external equipment and sub systems are integrated into a powerful system. This allows us to provide flexible solutions capable to optimize CAPEX and OPEX.



## TURNKEY SOLUTIONS FOR METRO

The company is able to provide a Technological Platform supporting:

- › The safety and security on-board
- › Passenger information system to people
- › Security on stations and on tunnels
- › Automation systems
- › Communications on-board and along lines
- › Networking integration

## COMMUNICATIONS AND SECURITY FOR METRO

The company provides communications systems for voice, narrowband and broadband data in Subways:

- › **TETRA based** systems for reliable and secure voice and narrow band data communications.
- › **Wi-Fi based** (with fast handover) technology for broadband data applications, like real-time video surveillance of vehicles.
- › **Operating Control Centre (OCC)** for common situational awareness across all stations and trains.

The **Physical Security Management System (PSIM)** is the core of the OCC and is able to provide video surveillance system with embedded sophisticated scene analysis algorithms and open to COTS video cameras and codecs.

## ON-BOARD SYSTEMS

The on-board system integrates multiple sub-systems implementing a wide set of services relevant to voice and data communications, vehicle monitoring, on-board security and passenger information broadcast, including:

- › Reliable communications connecting travelling and ground-based staff.
- › On-board broadcast of audio announcements or visual messages (PA/PIS).
- › Bidirectional audio communications between on-board passengers and OCC, also in emergency scenarios (Intercom).
- › On-board audio-surveillance by OCC.
- › On-board video-surveillance (CCTV).
- › Diagnostic and monitoring data reporting to OCC.

## SYSTEMS FOR STATIONS

The system includes video-surveillance and crowd analysis solutions providing:

- › Improved situational awareness through integration/ correlation of data from station subsystems (access control, TLC, energy, lighting, etc.)
- › Use of optical and thermal cameras, effective scene analysis algorithms for prompt detection of potentially critical situation.

The design, implementation and maintenance of integrated networking and telecommunications infrastructures can also be provided. This is based both on in-house developed communications systems and third party systems (Fiber Optics, SDH, DWDM, MPLS, Routers and Switches etc.).





## SCADA SOLUTIONS

The company provides **Supervisory, Control and Data Acquisition systems (SCADA)** specifically designed for Metro infrastructures (Trusted SCADA SIL2 certified) for Power Supply (SCADA-PS), used specifically for the functionality of Traction Power Supply Automation & Supervision for Building Management & Control System (SCADA-BACS), used specifically for the functionality of stations automation and supervision.



## SOLUTIONS FOR RAILWAYS

### COMMUNICATIONS FOR THE FUTURE

The company offer includes IP based multi-technology (e.g. LTE, HSDPA/UMTS, TETRA, Wi-Max) TLC systems thus providing an intrinsic resilience through multi-bearer voice and data services.

The best bearer is automatically selected by the on-board system controller (**TR-OBUS**), whereas on ground side data received from different bearers are aggregated and reconstructed in a fully transparent way for the user and the overall multi-technology infrastructure can be managed through a unique network management.



### ON-BOARD SYSTEMS

Integrated solutions are available for both security and entertainment, including:

- › CCTV systems with video recording
- › Diagnostic telemetry data and error reporting
- › Passenger Information System (PIS)
- › Public Announcement System (PAS)
- › Wi-Fi connectivity for intranet/internet access
- › Entertainment content on passengers own devices.

### SCADA FOR RAILWAYS

In the modern "Railways" applications great attention is dedicated to the SCADA systems to supply the operator with a comprehensive and easy-to-use tools to manage and to assure the operational safety of all Plants.

Core to the solution is the **GRS (Global Ranger System)** able to provide:

- › Monitoring and control large electrical distribution networks and integrated control and manage both Traction Power and Stations of a railway network
- › Analysis of the network regarding the optimization of feeders, commutate, convertibility, energy powers, minimization of wastes, optimization of the tension
- › "CAD-LIKE" configuration of the graphic presentations and the static base.

### SAFE STATION

Railway Stations are today regarded as a critical point for public safety, to be protected through effective security systems that should also directly involve the citizens in their own protection.

To satisfy this increased emphasis on station security, the company has implemented an innovative package called 'Safe Station', which includes:

- › Integrated security control for stations
- › Direct contribution through Wi-Fi/Bluetooth
- › Access points for free connectivity to SEC Control Room
- › Alarms button on the app to activate local CCTV and request assistance
- › An efficient video-surveillance for improved situational awareness achieved through the integration/correlation of data gathered from station subsystems (access control, TLC, energy, lighting, etc.)
- › An integrated Networking and Telecommunications infrastructure based both on in-house developed communications systems and third party systems.

### INNOVATIVE ASSET MANAGEMENT

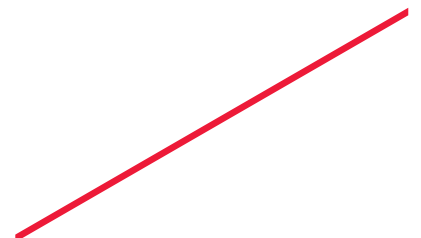
Improvement of efficiency and reduction of maintenance costs are key target for all Railway operators and can be achieved through the innovative Asset Management solutions that include:

- › Unattended track geometry system implemented through on-board laser sensors, mountable also on passenger trains thus reducing the costs relevant to the need of using special diagnostic trains
- › Distributed sensing system implemented through on-track units for signalling integration and monitoring of the railway environment.

### UMBRELLA FAULT MANAGEMENT

**NFm40** is an Umbrella Management System for infrastructures through a unique, simple and user friendly graphical representation of sub-system elements.

It is a vendor independent platform capable to interface and integrate different management systems, developed by different vendors and based on different technologies.



# SOLUTIONS FOR URBAN BUS SERVICE

The solution for public bus transportation companies is based on the collection and exchange of real-time information in a continuous loop between customers, drivers, vehicles and control rooms in order to achieve an overall resource optimization and implement a smoother and more efficient service.

In particular, the capability includes:

- › Centralised fleet management
- › Infomobility services
- › On-board and ground video-surveillance
- › Voice and data communications
- › Traffic light prioritisation system



## SUCCESS STORIES

### METRO - ROME METRO LINE C

Thanks to its expertise in the provision of state-of-the-art security and ICT systems for subways, the company has been selected as supplier for the new Line C of Rome underground.

This is a cutting edge driverless metro extending for more than 25 km and 30 stations in the heart of Rome and is safely being operated through the company's ICT and on-board solutions (inclusive of TETRA, Wi-Fi, PIS, PAS, CCTV and Emergency Intercom).

SCADA further complete this turn-key system for monitoring and management of stations and metro assets.

### RAILWAY - ETIHAD RAIL (SHAH-HABSHAN-RUWAIS)

The Shah-Habshan-Ruwais railway will be built in three stages along more than 1,200 km through the UAE. The company has been selected as the unique supplier for the provision of a turn-key integrated Communications, Security and SCADA solution. In addition to a multiservice network as ICT backbone, a complete GSM-R/GPRS infrastructure is being provided, including radio terminals and dispatching solutions for radio communications.

Security is guaranteed through state-of-the-art CCTV, access control and anti-intrusion solutions whereas a SCADA system will enable an efficient management of the railway plants.

### URBAN BUS TRANSPORT - MILAN EXPO 2015

For the Universal Exposition 2015, an Integrated Bus system is being provided. This is expected to carry more than 20 millions people into the city of Milan.

Public transport will obviously be the main people mover during the event and having already successfully supplied ICT and Security systems for Milan metro, the company has also been selected as the best candidate for the provision of ICT and Security systems for urban bus transport.

This being done via an Automated Vehicle Management (AVM) system for 250 buses plus on-board video-surveillance, passenger counters, Passenger Information System, multimedia and Public Announcement sub-system, on-board LAN/Wi-Fi/UMTS access points, LTE router and remote diagnostic for each bus.



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