TRANSPORT MANAGEMENT AND CONTROL

IN A WORLD OF CHANGE AND COMPLEXITY

INCREASING PUBLIC TRANSPORT USAGE BY COMMITTING TO AN IMPROVED SERVICE QUALITY

"Our strategy to double the market share of public transport worldwide by 2025 is about cities: making them better places to live and work."

Alain Flausch, UITP Secretary General

PROVIDING A TRANSIT SERVICE THAT IS FAST, CONVENIENT, SAFE, COMFORTABLE AND INTEGRATED FOR PASSENGERS.

A high quality transit service provides consumer surplus, thus attracting travellers who would otherwise drive.

Public transport faces a number of challenges resulting from changes in the socio-economic environment. Transport operators are under increasing pressure to manage incidents efficiently, keep schedules and maintain up-to-date information, with limited funds.

"Transport is…a major economic sector in Europe, generating

7% OF THE GROSS DOMESTIC PRODUCT (GDP)

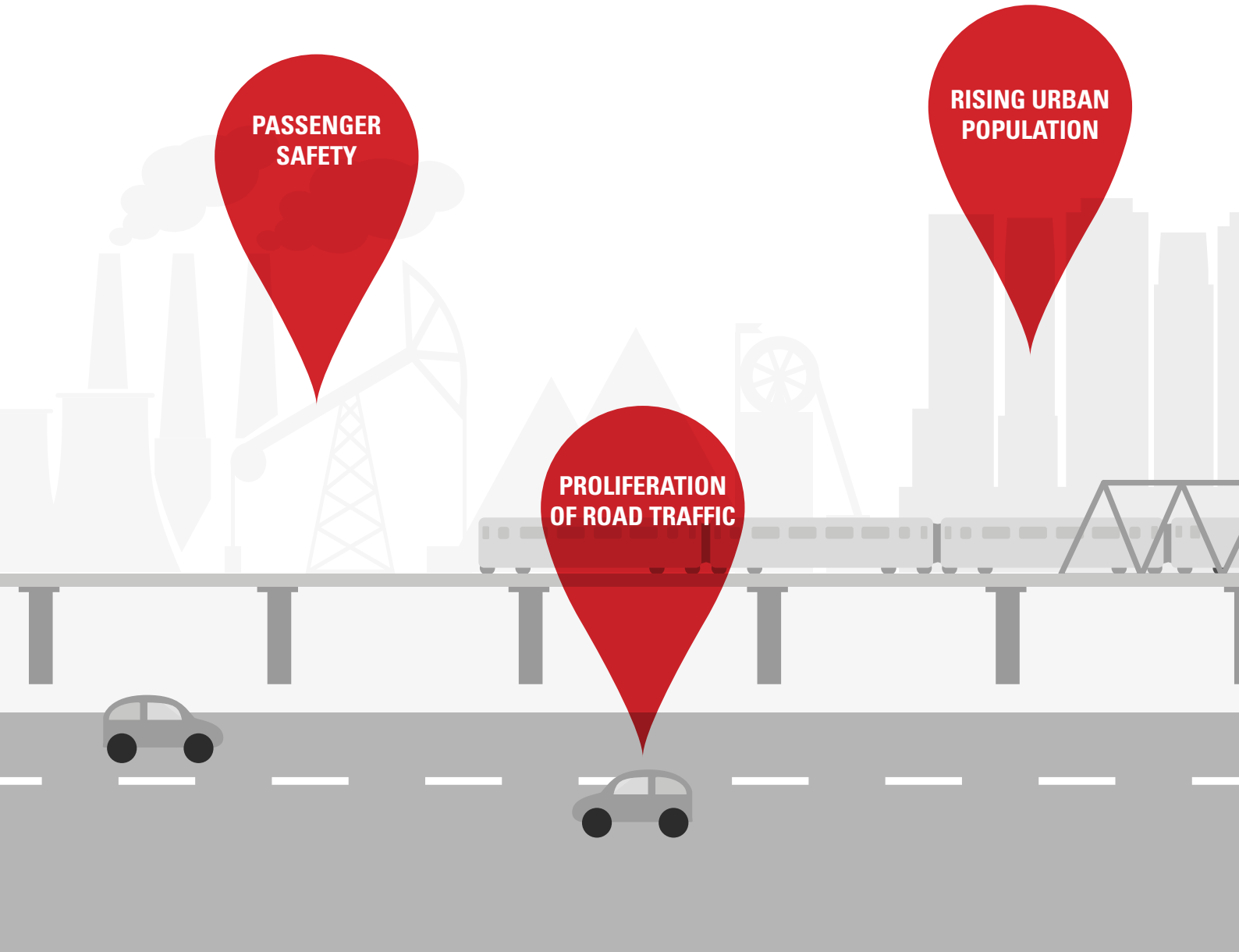
and employing 12 million people including vehicle and equipment manufacture…"

European Commission report: 'Innovating for a competitive and resource-efficient transport system'

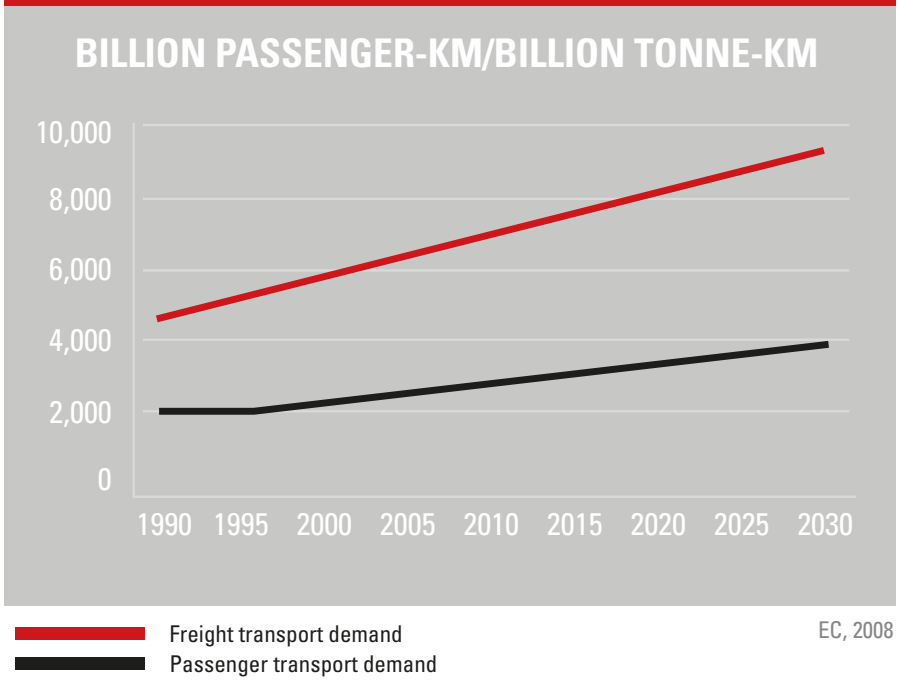
LOCAL AND GLOBAL CHALLENGES

Global trends are impacting how public transport providers optimise service quality for passengers. Rising urban populations, the proliferation of road traffic, climate change legislation, threats to public safety: these are the economic, political and social challenges that will continue to affect anyone involved in public transport in the years ahead. Increasing public transport mode share will also require beating off competition from private forms of transport. Urban-friendly electric vehicles are making it more economical for people to drive themselves.

While the trend for usage of public transport is generally on an upward curve, there remains a focus on driving up the share of travel by collective modes of transport and generate a virtuous circle for public transport. Operators are not complacent; they have to protect revenue and profit margins so they can continue to invest in maintaining and improving services. Every passenger lost to another mode of transport chips away at that investment capital.

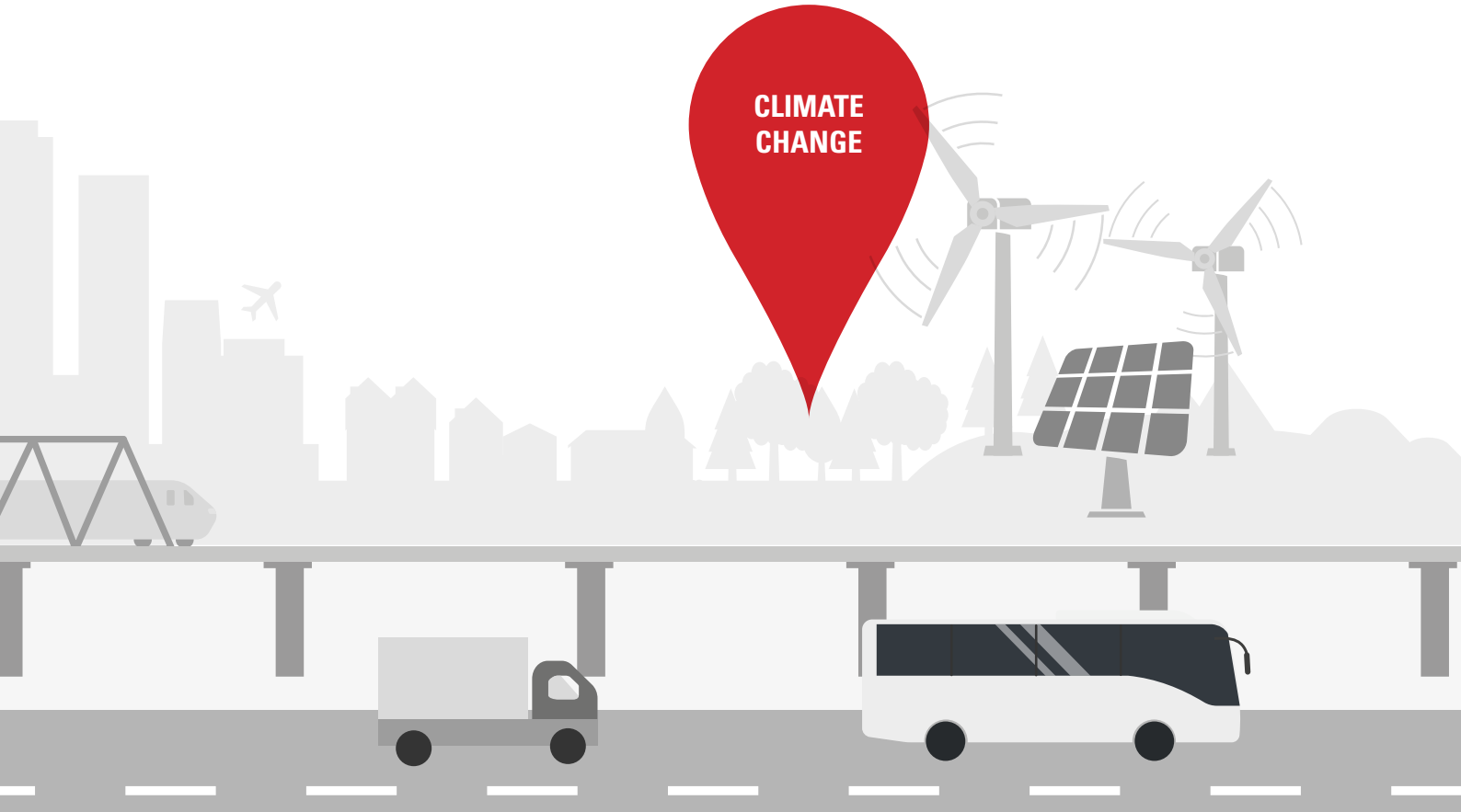


PASSENGER AND FREIGHT DEMAND PROJECTIONS (EU27)



EC, 2008

> "Smart, green and integrated transport is identified as a major challenge for project funding within the European Commission's proposed 2014-2020 research programme, "Horizon 2020"..."
>
> Siim Kallas, European Commission for Transport



COMPLIANCE

Government policy and regulatory scrutiny are also major factors influencing the management of the transport infrastructure. For policy makers, the focus is on integration – providing a joined-up transport infrastructure for citizens and businesses. This is where developments in private transport are seen as positive. Fewer cars on the road, more people using bicycles – including publicly-funded bicycle hire services – and initiatives such as car pools all help to lower greenhouse gas emissions, reduce congestion and over-crowding, in turn helping public transport services to run more smoothly.The benefit for operators is that policies such as these help with demand management and also enable the provision of better passenger experiences. This in turn can lead to more demand for public transport services.

BUILDING THE MANAGEMENT PICTURE

It's not just the sheer variety of variables that must be accommodated by transport decision makers, it's the pace at which they occur. Risk levels and fuel prices can fluctuate almost daily. Passenger sentiment can switch from quiet appreciation at one moment, to a storm of social media rage at the next. Even the impact of longer-term trends seems to arrive sooner than it used to. For example, the rapid disruptive rise of the Uber app would not have been possible before the arrival of smartphones, with social media to add momentum to the word-of-mouth. Planning a high quality service in these volatile times needs to be a measured and contained process of analysis and judgement. But, as any successful high-roller will affirm, good intelligence about the risks and realities can still enable effective decision-making. Timely access to meaningful data also drives innovation and enables operators to shape the future, rather than simply reacting to it.

"A higher share of travel by collective transport… will allow for increasing the density and frequency of service, thereby generating a virtuous circle for public transport modes. Demand management and land-use planning can lower traffic volumes. Facilitating walking and cycling should become an integral part of urban mobility and infrastructure design…"

EUROPEAN COMMISSION STAFF WORKING PAPER, 'ROADMAP TO A SINGLE EUROPEAN TRANSPORT AREA.

CONGESTION COSTS EUROPE

ABOUT 1%

OF GDP ANNUALLY

The European Commission has set itself the target of establishing a framework for a Europe-wide, multimodal transport information, management and payment system by 2020.

EUROPEAN COMMISSION TARGETS, 2011

THE LEVERS OF CHANGE

The quality of the data now available to transport operators is better than it has ever been. So although the operational environment is increasingly complex, the tools to deal with it are more powerful, and can be applied more effectively than was previously possible. Managers can apply high-quality intelligence to some key areas for change and improvement:

EFFICIENCY

Operational efficiencies can lead to lower costs, releasing capital for investment, reducing risk, and improving competitiveness. For example, better quality data on individual passenger journeys enables schedules to be more closely aligned with demand.

SAFETY

Timely, comprehensive data – such as vehicle telemetry about oil levels or brake pads – allows for better risk assessment, helping to reduce accidents, while drivers can be equipped with GPS-enabled emergency buttons to summon help instantly in the event of an incident.

INNOVATION

New management and operational processes, such as fleet optimisation to align vehicle capacity with demand, can reduce time-to-value for service improvements and other sources of competitive advantage. High-quality data communication services are also essential for the safe operation of driver-less vehicles.

ASSET UTILISATION

Better-informed planning and more effective maintenance regimes can help to prolong the value-producing life of vehicles, rolling stock and other assets.

PASSENGER COMMUNICATION

Keeping passengers better informed reduces complaints, improves satisfaction scores and takes pressure away from front-line staff. Reliable data communication plays a key role here in providing real-time information to passengers. To minimise the impact of service disruption, real-time vehicle location data can be combined with intelligent prediction algorithms, to calculate accurate departure time information.

INTERNAL COMMUNICATION

Staff must be better informed and more up-to-date with information than the passengers they serve, and need reliable, clear communication during incidents or busy periods.

COSTS SAVINGS OF

€13Billion

PER ANNUM

> "Comprehensive and unbiased Multimodal Information and Ticketing Systems (MMITS)… are highly likely to be attractive for users, in turn providing an attractive marketing and sales channels for travel providers. The modal shift facilitated by MMITS will lead to further, positive effects, with estimated costs savings of around €13billion EUR per annum, and allow investing in infrastructure and capacity, thus further increasing efficiency…"
>
> WOJCIECH WIEWIOROWSKI, EUROPEAN DATA PROTECTION SUPERVISOR, 'DATA – THE FUEL FOR DIGITISING TRANSPORT', APRIL 2015

THE INFRASTRUCTURE'S INFRASTRUCTURE

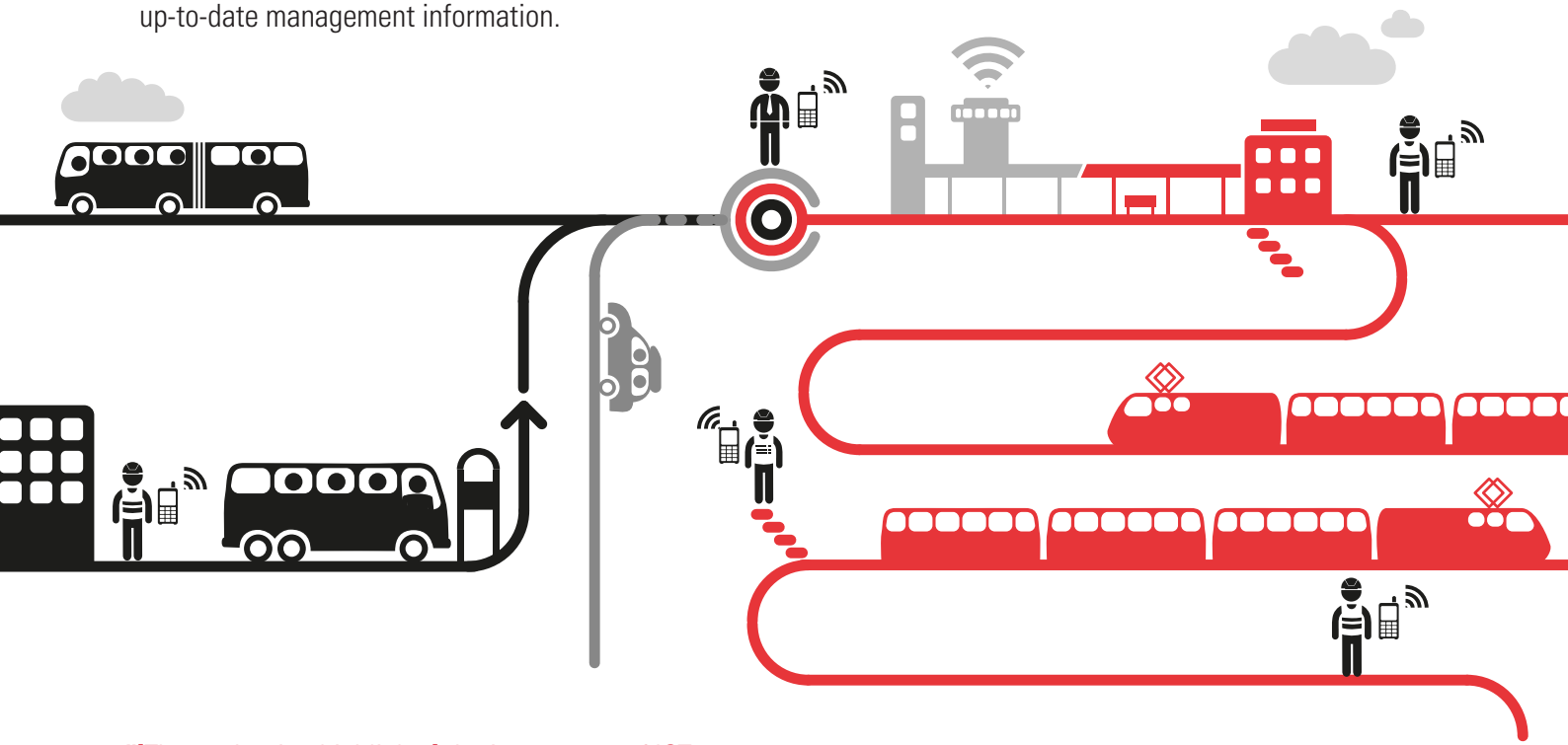
There's a common thread running through these forces for change: the importance of a reliable, secure and widely accessible communications infrastructure. Day-to-day, the voice and data communication with front-line staff is where the quality of the fixed and wireless networks can have the most immediate impact. As well as a reliable connection, the clarity of the audio and the ease of use of the devices are critical factors in the smooth two-way communication between individuals and teams.

At the strategic level, effective voice and data communication are essential for the efficient execution of projects, and for the gathering of data to inform decision-making. Resource allocation, scheduling and maintenance programmes can all be planned more effectively with more complete and up-to-date management information.

A dependable flow of real-time data can also enable increased automation of key processes. This drives down costs and eliminates the potential for errors that can compromise service delivery.

In emergencies, or times of serious disruption, the reliability of the communications infrastructure is critical. This is why so many operators rely on TETRA, DMR (Digital Mobile Radio) or other private radio standards, rather than public cellular networks.

During major incidents, public networks are often either switched off, or are overwhelmed by demand. Private networks bypass this congestion, and allow close integration with the communications systems used by the emergency services, so that incidents can be resolved rapidly and safely.



"[The evaluation highlights] the importance of ICT technologies as a key enabler for all transport services. As ICT systems will be part of the infrastructure, transport experience will be transformed completely…"

'THE FUTURE OF THE TRANSPORT INDUSTRY,' JOINT RESEARCH CENTRE REPORT FOR THE EUROPEAN COMMISSION, 2014

THE WAY AHEAD

The relentless evolution of modern communications systems has brought technologies that are better optimised than ever to support a multitude of needs: from simple voice-centric communications, to complex data-centric communications.

By adopting advanced digital mobile radio technologies such as MOTOTRBO™ and TETRA, transport operators can extract greater value from their licensed radio spectrum.

GREATER CAPACITY

Licensees can double the capacity of their existing 12.5 kHz channels, through the use of digital mobile radio technologies such as MOTOTRBO. Additional capacity can be used to support voice and data applications.

MANY SERVICES, ONE PLATFORM

The enhanced data capabilities of digital radio systems like TETRA enable transport operators to support multiple applications on a single communications platform. They can include voice, operational data and train signalling data, such as ETCS level 2. Increased use of data applications to support work processes and routine communication also benefits overall system capacity, because it reduces the requirement for voice traffic.

SIMPLIFIED INTEGRATION

Advanced digital radio systems are based on IP architectures and harness the benefits of standardised, commercial, off-the-shelf IT technologies. For example, the dispatch communication functions of the radio system, such as group calling and broadcasting, can be easily integrated using Application Programming Interfaces with existing control centre systems.

REDUCED COST OF OWNERSHIP

The greater capacity provided by advanced digital radio systems allows multiple user fleets to be supported on a single network, reducing maintenance and operational costs. Making use of the system's data capacity also reduces airtime fees incurred with commercial mobile operators.

"

Intermodal Transport Communication Systems (ITCS) open the way to efficiencies that can dramatically reduce costs and improve the passenger experience. For example, buses on busy commuter routes can be connected to traffic management systems and automatically advance traffic light phases, ensuring the lights are green as they approach. Systems like these can run on TETRA wireless networks, as well as on Digital Mobile Radio (DMR) services, so they can scale and adapt in line with the needs of the business.

MOTOROLA SOLUTIONS


15
Penalty Fares

A collaboration between Rheinbahn AG, a public transport company in the North Rhine/Dusseldorf region, and the commuter organisation Via Verkehrsgesellschaft, has helped to improve safety and efficiency, and optimise resource utilisation. It's also enabled a better passenger experience.

INIT, a leading provider of integrated telematics and fare collection systems, equipped the transport companies with on-board computers, the MOBILE Intermodal Transport Control System (ITCS) and a dynamic passenger information system.

Motorola Solutions installed the Dimetra IP TETRA digital radio system, which is fully integrated with the ITCS, and provided TETRA digital radios.

THE SYSTEM PROVIDES

99.998%

AVAILABILITY AND GIVES PASSENGERS REAL-TIME INFORMATION ABOUT SERVICES.

"We know that we can rely on the Dimetra IP-TETRA-System. The seamless flow of communication helps us to maintain route plans with all of our buses and trains to the best of our abilities."

REINHARD RENJA, PROJECT DIRECTOR, RHEINBAHN AG

MOTOROLA SOLUTIONS

Motorola Solutions is the leader in mission-critical digital voice and data communications. Solutions include dedicated and customised communication infrastructures for metro, rail and bus service providers. Motorola Solutions works with transport operators around the world in the development and provision of advanced networks designed to support the industry priorities of safety, efficiency, improving the passenger experience and reliable, effective communication.

FOR MORE INFORMATION OR TO CONTACT US DIRECTLY

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