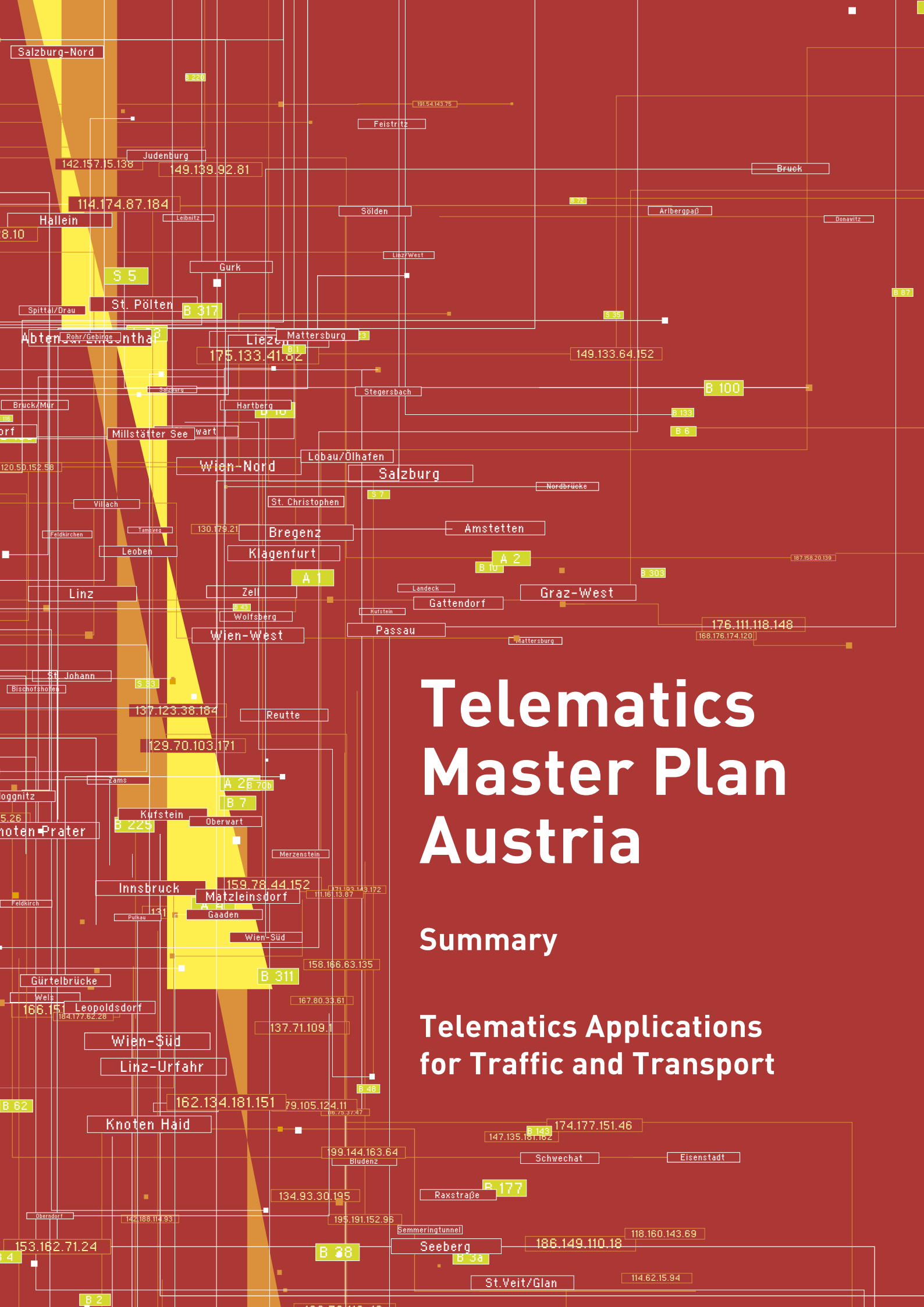






Telematics Master Plan Austria

Summary

Telematics Applications for Traffic and Transport

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Preface

A high capacity transport system is an important location factor for Austria's economy and population. The effects of growing traffic loads, which are being felt by every citizen today, and the issue of how to master the growing volumes of traffic forecasted for the next few years pose a challenge for transport policymakers. They will have to find solutions that meet the economic, ecological and social standards of a modern society.

Telematics – a relatively young discipline that applies the new technologies – gives transport policymakers the tools they need to help them develop and implement a sustainable and compatible transport policy.

The constant changes in the mobility behaviour patterns of the population and in business processes call for regular adaptations to transport policies and flexible regulations. In the future, it will not be possible to rely exclusively on infrastructure construction projects to cope with the requirements of our transport system. Modern transport policy is based on constant innovation and the precisely-defined application of modern technologies for traffic control, traffic monitoring and transport management.

The National Telematics Master Plan together with its mission statement, the packages of measures and defined priorities constitutes a structured approach to the application of telematics for Austria's transport system.

The strategy of the Federal Ministry of Transport, Innovation and Technology is to assess the transport system as a whole and not each mode of transport individually. The master plan includes construction measures as well as ones for transport telematics that cover all modes of transportation and are designed to achieve a long-term strategic effect. This could also be exemplary for other EU countries such as the new Member States. Thus, Austria plays an active role as a role model for the development of a sustainable and compatible transport system in Central Europe.

Not all of the proposed measures will meet with unanimous acceptance and many aspects will have to be analysed and specified in detail. However, the path that Austria intends to take to exploit the potentials of applied telematics for Austria's transport system in the next 15 to 20 years is defined in the present Telematics Master Plan.

The work on the Telematics Master Plan has brought together many players from the fields of traffic and transport, and has created an awareness of the opportunities of telematics applications, thus preparing the ground for its successful implementation. I would like to thank all contributors for their cooperation and efforts invested, and hope that the measures proposed will soon yield the desired benefits to society.

Vice-Chancellor Hubert Gorbach
Federal Minister of Transport, Innovation and Technology

A new approach

In 1950, Austrians travelled 8 km per day on average, but by 2003 the distance covered had climbed to 38 km per day. As things stand today, this trend will continue for the next 15 to 20 years. Generally, traffic performance in Europe are expected to increase by about two percent per year. Even today, some sections of roads and railway lines are already overloaded by traffic. The consequences of this strain are accidents, traffic jams and an even greater adverse impact on the environment. However, it will not be possible to enlarge the capacities of the modes of transport just by investing in more infrastructure as in the past. We will have to find new approaches.

ITS – Intelligent Transport Systems – provide management, control and information functions based on telematics. These systems can contribute significantly to solving problems. Moreover, the safety of the various transport modes can be improved substantially through the appropriate application of telematics, and access can be made simpler and more user-friendly.

The experience gained in the past few years (1998-2004) in Europe, the US and Asia has shown that it will only be possible to exploit the potentials of the application of telematics to transport systems if governments are willing to cooperate in establishing the necessary infrastructures.

The Telematics Master Plan covers this aspect by defining recommendations for the application of telematics within the scope of Austria's transport system.

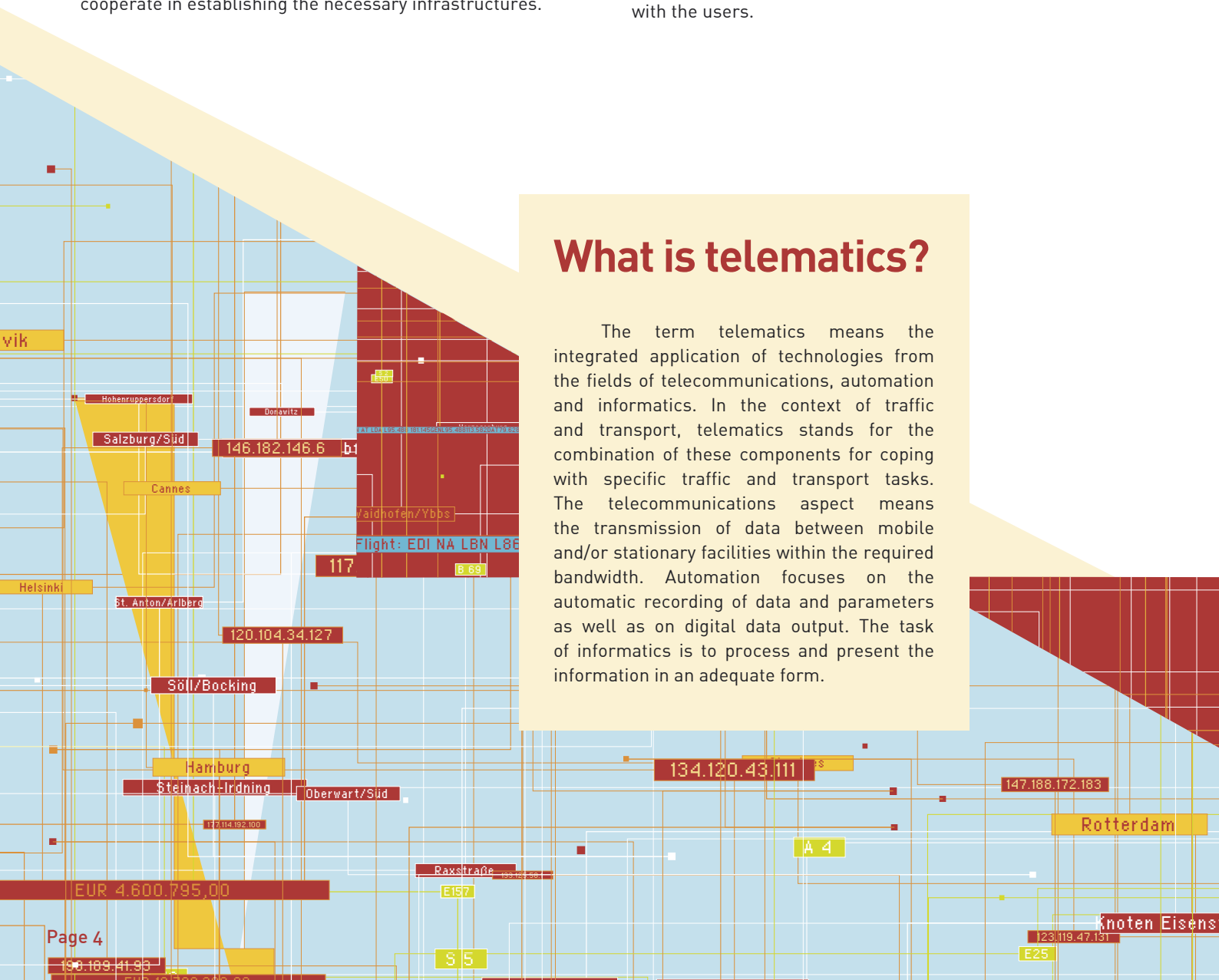
This master plan shows how the capacity of the existing transport infrastructure can be exploited more efficiently by employing macroeconomic, microeconomic and ecologically-compatible measures. The measures cover all modes of transport: road, rail, air and inland waterway.

It is the **declared goal of the Telematics Master Plan** to improve Austria's transport system by defining a set of measures for the prioritised application of telematics. By providing an adequate overall framework, developments that optimise the use of transport networks and increase the efficiency and safety of Austria's transport system are to be promoted. Thus, a contribution is made to meeting the economic and socio-economic demands imposed on a transport system.

Crucial for the wide acceptance is the involvement of all parties concerned: authorities, operators of infrastructure facilities, service providers, interest groups, the users of transportation means etc. To this end, it is necessary to foster the exchange of information and discuss the expected benefits with the users.

What is telematics?

The term telematics means the integrated application of technologies from the fields of telecommunications, automation and informatics. In the context of traffic and transport, telematics stands for the combination of these components for coping with specific traffic and transport tasks. The telecommunications aspect means the transmission of data between mobile and/or stationary facilities within the required bandwidth. Automation focuses on the automatic recording of data and parameters as well as on digital data output. The task of informatics is to process and present the information in an adequate form.



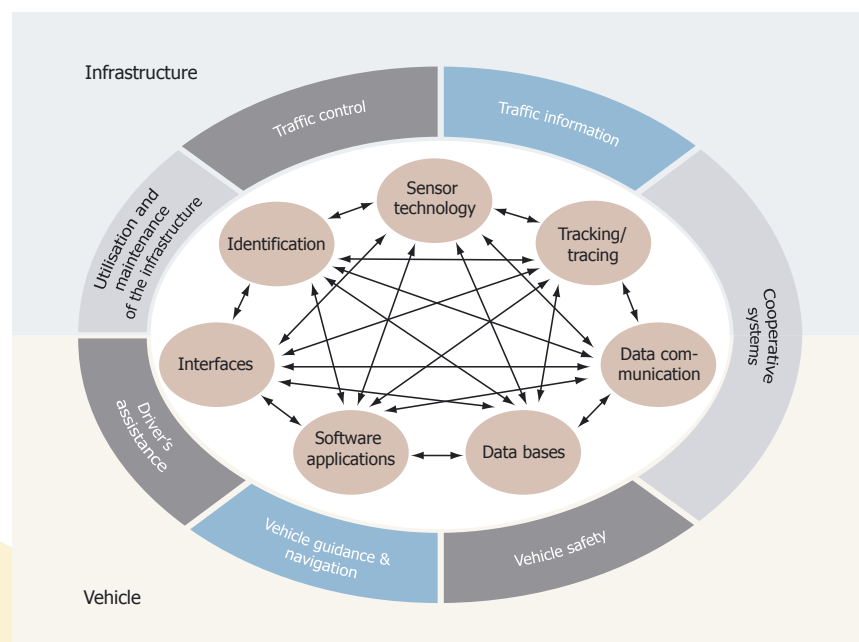
Integrated transport policy and telematics

Austrian transport policy has a tradition of viewing the modes of transportation individually when considering the financing aspects, construction and operation.

This view prevents the systematic exploitation of the existing overall capacity of the Austrian transport system. The transport routes along the Danube corridor are a good example for this mechanism: Here, we have excessive traffic loads on roads, while the Danube waterway is underused at a rate of only 10%. To achieve a more balanced use of transportation modes it no longer suffices to build, for example, high-level transshipment hubs: Today, investment in telematics to support traffic control and monitoring have become indispensable. Integrated transport policy means viewing the performance and the effects of the modes of transport as a whole. It also means increasing the capacity of the overall transport system, while taking the aspect of sustainable compatibility into consideration. Therefore, a strategy accorded at the policymaking level and adequate instruments are necessary for implementing this policy.

The Telematics Master Plan is one of the instruments required for implementing integrated transport policy. Therefore, it considers all modes of transportation in its recommendations. It covers a longer timeframe and presents the expected macroeconomic benefits. This is how it can – and will – reduce traditional reservations against the necessary investments by authorities, operators and other players.

Cross-linking of the telematics components



Benefits of telematics applications

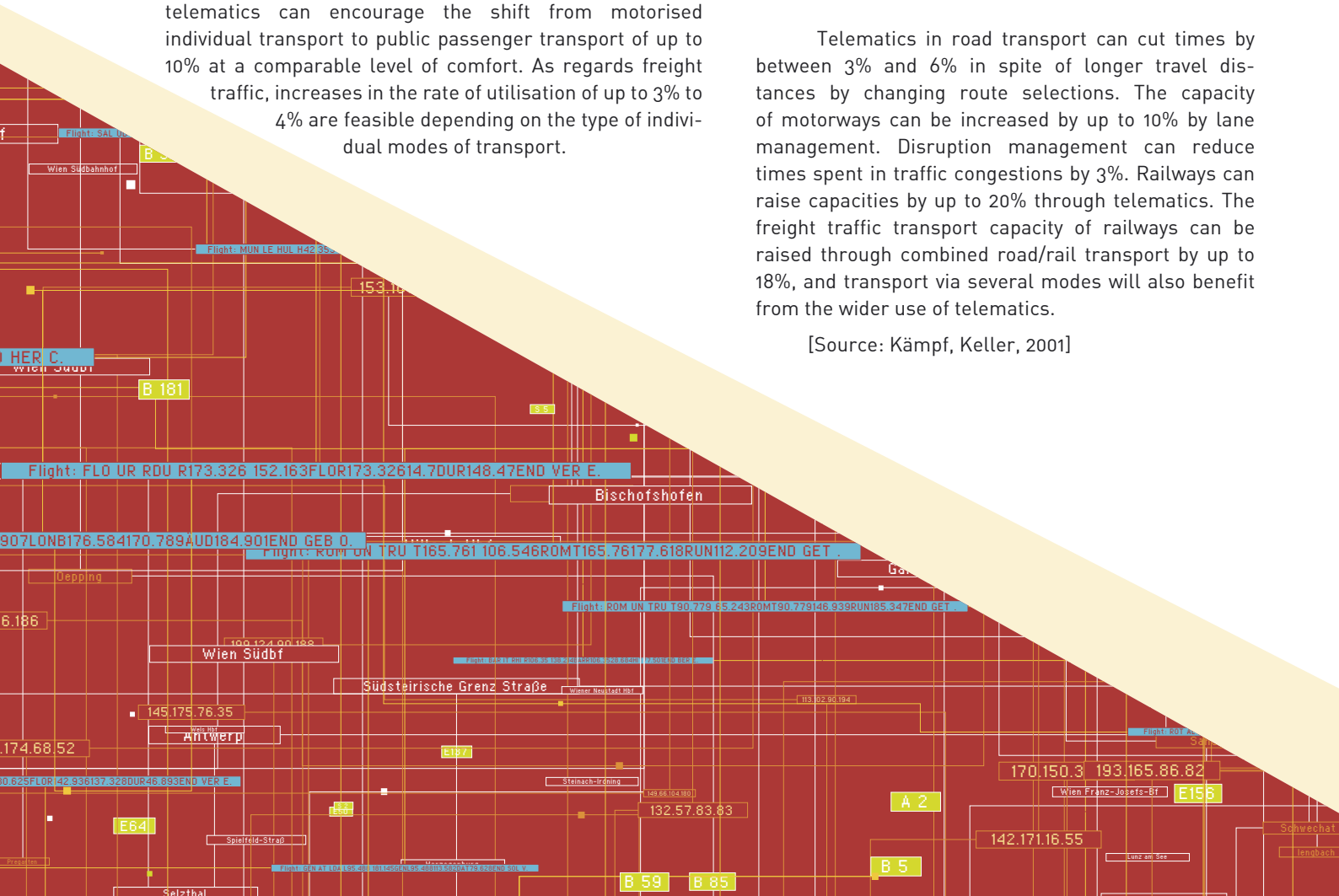
Transport telematics is sometimes regarded as the “expansion of transport routes by different means”.

Telematics ameliorates various traffic problems, e.g., it relieves bottlenecks and combines transportation modes (multimodal transport).

The more frequent and coordinated application of telematics can encourage the shift from motorised individual transport to public passenger transport of up to 10% at a comparable level of comfort. As regards freight traffic, increases in the rate of utilisation of up to 3% to 4% are feasible depending on the type of individual modes of transport.

Telematics in road transport can cut times by between 3% and 6% in spite of longer travel distances by changing route selections. The capacity of motorways can be increased by up to 10% by lane management. Disruption management can reduce times spent in traffic congestions by 3%. Railways can raise capacities by up to 20% through telematics. The freight traffic transport capacity of railways can be raised through combined road/rail transport by up to 18%, and transport via several modes will also benefit from the wider use of telematics.

[Source: Kämpf, Keller, 2001]



Strategy for the application of telematics

The Telematics Master Plan is based on a strategy that defines the main strands of the application of telematics to Austria's transport system. This strategy is laid down in a mission statement:

Mission 1: Efficiency

Telematics in transport and traffic is to be used for the purpose of improving efficiency and optimising the exploitation of Austria's transport system with respect to capacity, availability, reliability, etc. The aim of the application of telematics in transport and traffic is to foster the linking of transport networks for the purpose of promoting intermodal mobility.

Mission 2: Safety

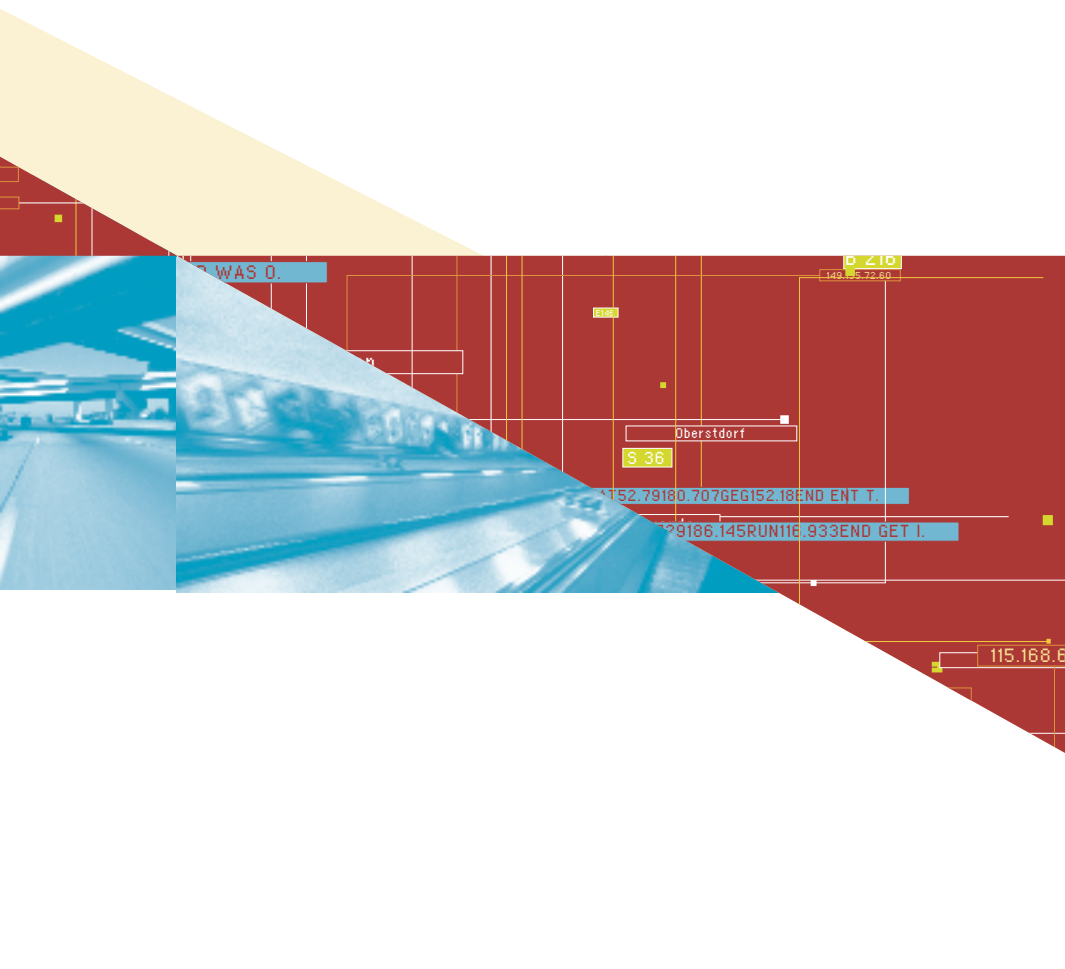
The aim of applied telematics is to sustainably improve the safety of all persons involved and affected by transport and traffic.

Mission 3: Quality

The purpose of telematics in transport and traffic is to harmonise the transport system with ecological, economic and socio-economic goals – to the benefit of citizens and the economy.

Mission 4: Application

The realisation of these three principles requires minimum standards with respect to compatibility, system openness and joint access to telematics applications also in an international context.



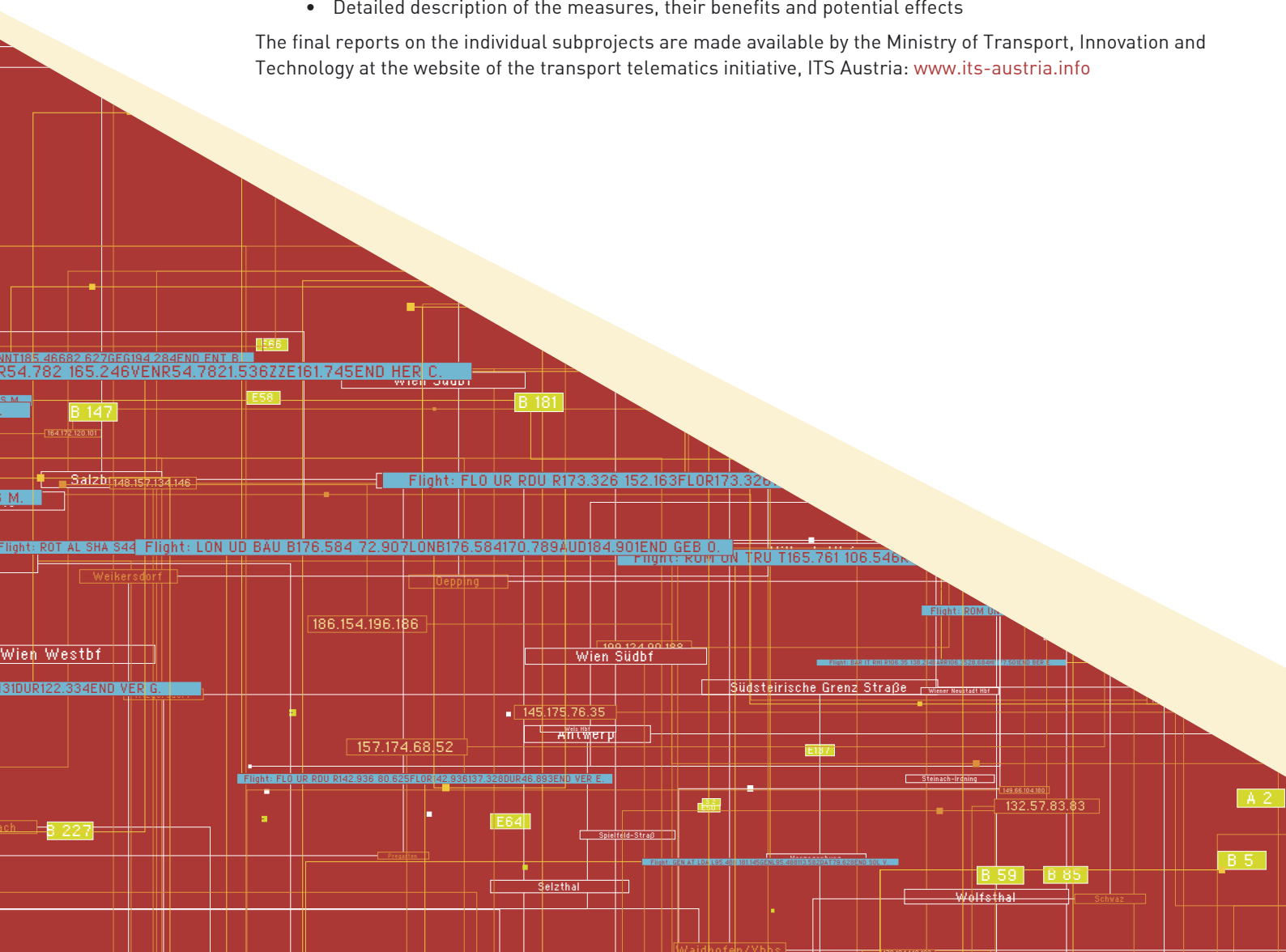
Establishment of a knowledge base

The drafting of recommendations for the application of telematics in Austria's transport system requires a carefully prepared database that incorporates all modes of transport and considers the experience gained in other European countries. In this context, Austria is treading new ground by giving priority to the application of telematics based on a macroeconomic cost-benefit view. This requires a scientifically-founded evaluation of the use of telematics. This kind of evaluation was performed in Europe for the first time.

The knowledge base consists of the following newly created content:

- Definition of user requirements in the context of European specifications
- Recording and evaluation of the current status of the application of telematics in Austria
- ITS architecture for the application of telematics in Austria (based on the European Framework Architecture)
- Technology database
- Evaluation method for the application of telematics
- Detailed description of the measures, their benefits and potential effects

The final reports on the individual subprojects are made available by the Ministry of Transport, Innovation and Technology at the website of the transport telematics initiative, ITS Austria: www.its-austria.info



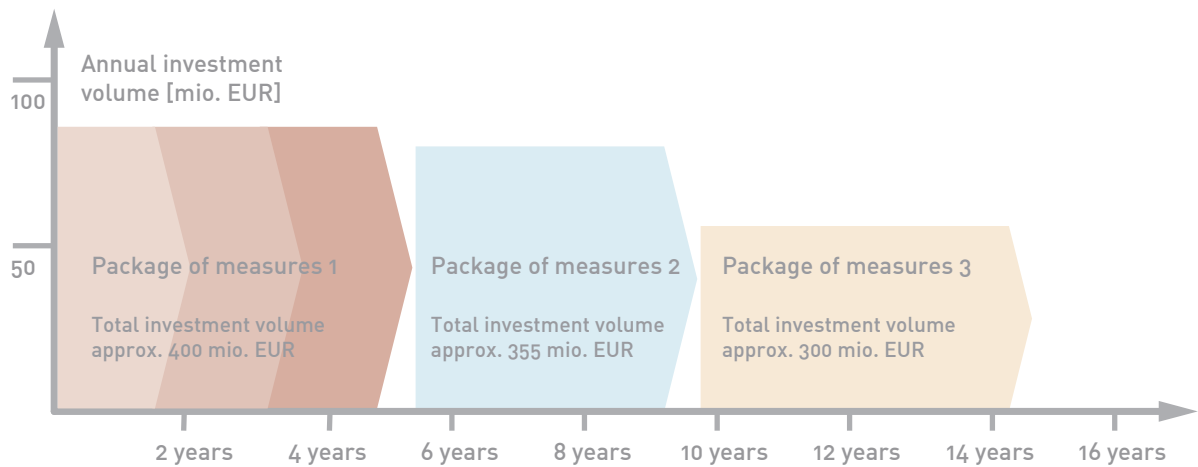
The outcome

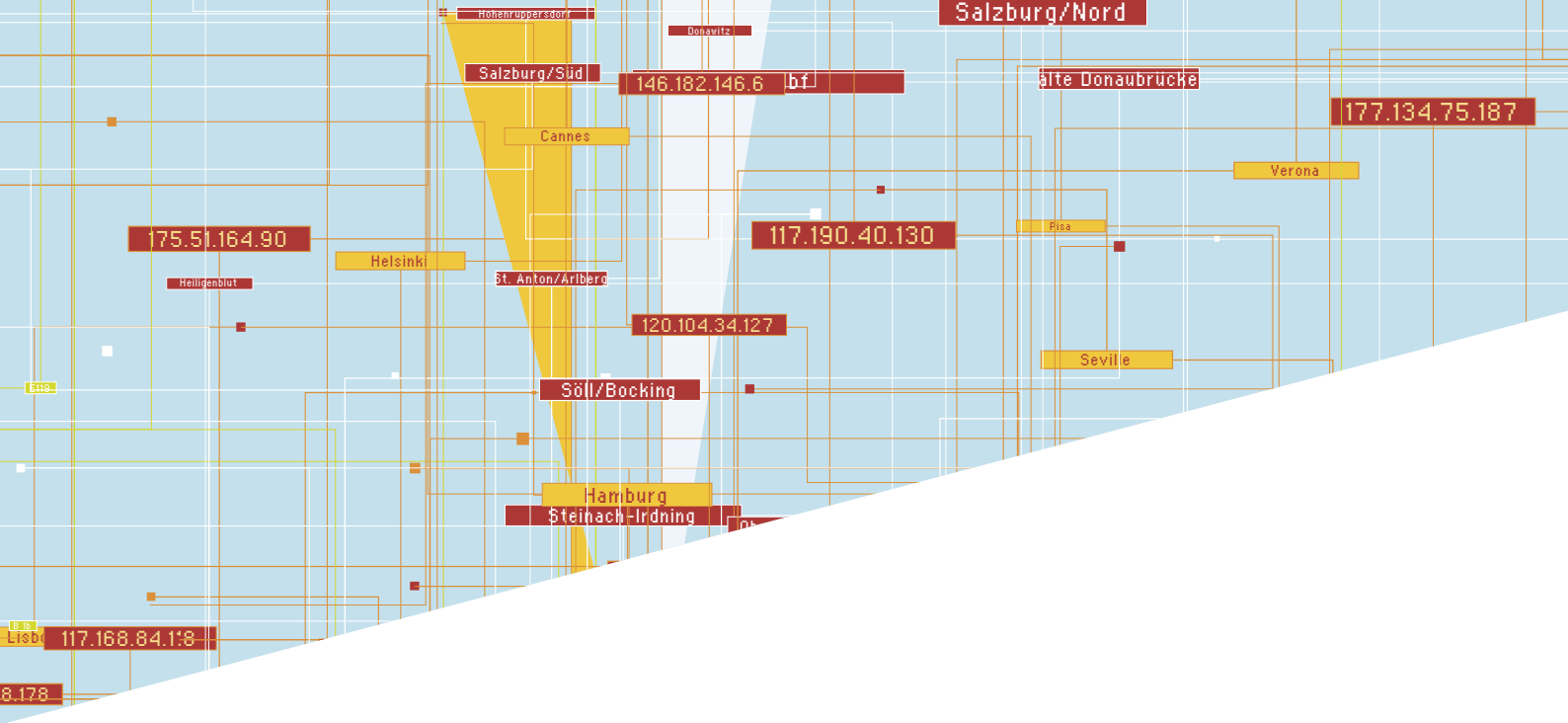
Telematics must be profitable: Therefore, it is the aim of the Telematics Master Plan to present recommendations for the preferred application of telematics in Austria's transport system and to back these by verifiable macroeconomic cost-benefit analyses.

The main criterion for the prioritisation is oriented on the ratio of the expected benefit compared to the necessary costs. It is feasible that the benefits of the measures will exceed their costs as early as after the first eight years. This is illustrated by the results obtained in other European countries which have investigated the cost-benefit ratio *ex post*.

The Telematics Master Plan recommends the implementation of three packages of measures over the next 15 years.

The estimated costs for implementing the measures are around EUR 80 million per year (over a period of five years) for the first package, some EUR 70 million annually for the second package and some EUR 60 million per year for the third package of measures. While the cost-benefit ratio for the first package of measures – calculated throughout the life of the facilities – can be multiplied by a factor greater than 2, for the other measures a cost-benefit ratio of about 1 may be assumed (due to the longer timeframe). However, the experience that will be gained in the next few years is expected to provide an even better basis for the calculation. It will facilitate an exact estimation of the benefit and thus provide a sounder basis for taking investment decisions.





Package of measures 1A

Management of the transport infrastructure through a variable electronic toll for trucks on the low-level roadway network

Number of sub-measures: 3

Mode of transport: road

Traffic mode: FT, MPT

The deterioration of infrastructure caused by heavy utility vehicles is above average. These effects are taken into consideration by extending the tolls imposed on trucks to the whole roadway network, thus enabling the management of the transport infrastructure based on the polluter pays principle. In addition, this enormously encourages the shift of freight traffic to rail, and raises the pressure to reduce light runnings. This involves the reduction of distances driven, traffic jams, number of accidents, emissions and energy.

Dynamic monitoring and control of transport on the Danube waterway

The application of transport telematics will increase safety in traffic management and provide support for nautical manoeuvres of water vessels. Thus, this will enhance the attractiveness of the Danube as a transport route and help to exploit its unused capacities for the environmentally-compatible handling of transport along the Danube corridor. Various instruments have to be introduced for this purpose, e.g., cross-border management to simplify customs clearance, control of persons and the reporting of hazardous goods, management of accidents in order to increase safety and to optimise the capacity utilisation of locks by assigning "lock slots".

Number of sub-measures: 3

Mode of transport: waterway

Traffic mode: FT, PT

Demand-dependent influence of traffic flow through infrastructure measures – Control of traffic flows to the high-level roadway network

Number of sub-measures: 4

Mode of transport: road

Traffic mode: FT, MPT

The coordinated control of traffic flows on and to the high-level roadway network helps to utilise the limited capacities more efficiently and thus increase capacity. The flows can be adapted flexibly to the traffic situation in order to maintain an unhindered flow of traffic, e.g., by means of variable message signs or dynamic lane marking. As a consequence, traffic jams and collisions are avoided and emissions are reduced.

Monitoring compliance with statutory provisions (monitoring of traffic flows by the executive authorities) on low-level roads

The comprehensive monitoring of vehicles and their behaviour in traffic as well as the automatic detection of deviations from statutory provisions are the most important examples for the surveillance of compliance with statutory provisions. The aim of this measure is to increase the correct behaviour of all participants in traffic when driving or loading vehicles. Telematics applications of this type are to be implemented mainly on dangerous road sections (e.g. at places with a high rate of accidents or intersections).

Number of sub-measures: 2

Mode of transport: road

Traffic mode: FT, MPT

Priority for public transport (traffic junctions and access to roads junctions)

Number of sub-measures: 2

Mode of transport: rail, road

Traffic mode: PT

Deviations from defined schedules in urban areas with excessive traffic loads can cause lost connections, unscheduled convoys formations, transfer of delays to return routes, problems in staff shift changes and customer dissatisfaction. These deviations (dispersion of travel times) can be reduced and connections can be ensured by giving priority to city buses, regional buses and trams at junctions individually controlled by light signals or by a computer-aided local traffic guidance system.

Demand-dependent influence of traffic flow through infrastructure measures – Control of traffic flows from high-level roadway network to low-level roadway network, especially in urban areas

The capacity of the low-level roadways is limited at some exit hubs by the high-level roadway network. Traffic control systems at motorway exits facilitate safe and fluent traffic on motorway routes and the lower-ranking roads. Thus, traffic jams resulting from a too low exit flow capacity are prevented. In addition, rear-end collisions are avoided and emissions are reduced.

Number of sub-measures: 4

Mode of transport: road

Traffic mode: FT, MPT

Monitoring actual schedules and management of operating disruptions on railways

Number of sub-measures: 3

Mode of transport: rail

Traffic mode: FT, PT

By harmonising the defined schedule with the current position of the vehicle, delays can be recognised early on. On the basis of this information, train connections can be ensured or rescheduled in the event of major deviations. The resulting reduction in delays impacts the selection of transportation means in favour of passenger transport by rail.

Guidelines for defining minimum quality when recording traffic data in order to create efficient transport information

The preparation of guidelines for the recording, processing and forwarding of Austrian traffic data in cooperation with the authorities and operators involved is a prerequisite for guaranteeing a minimum level of quality (minimum level of service) for the recording of traffic data for all modes of transportation. This is indispensable for the (intermodal) linkage of the data for which reliability is guaranteed.

Number of sub-measures: 0

Mode of transport: air traffic, rail, road, waterway

Traffic mode: FT, MPT, PT

Regulating access to static and dynamic traffic data (overall conditions for using basic traffic data for value-added traffic information services – distinction between the responsibility of federal authorities and private initiatives

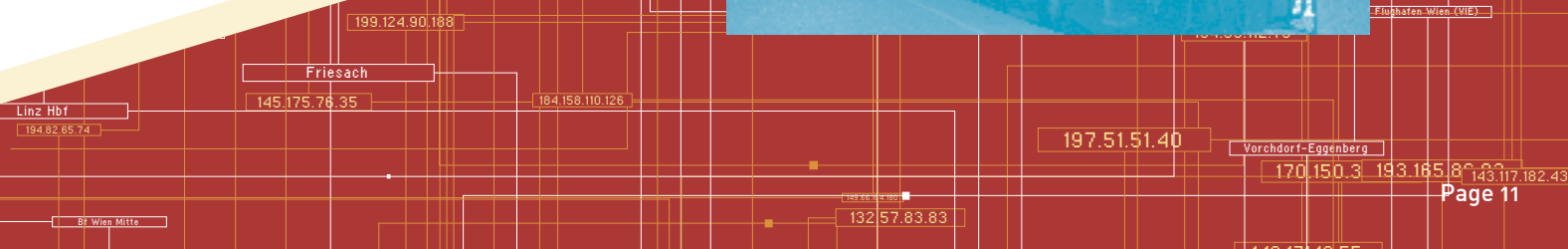
Number of sub-measures: 0

Mode of transport: air traffic, rail, road, waterway

Traffic mode: FT, MPT, PT

Access to static and dynamic traffic data that constitutes the basis for value-added services has to be clearly defined by the federal authorities and private service operators. To this end, a uniform regulation must be created, taking into consideration existing legal obstacles and overall conditions as well as all actors involved. However, access does not necessarily have to be provided free of charge.

PT – Public traffic
FT – Freight traffic
MPT – Motorised private traffic



Linking traffic control centres for creating an intermodal transport system

As a result of the increased need for intermodal mobility, the use of existing capacities and information across all modes of transportation must be taken into account. In order to optimise utilisation, the traffic control centres of each mode of transportation are to be linked in a multimodal database to guarantee traffic control across all types of transport for improving disruption management.

Number of sub-measures: 0

Mode of transport: air traffic, rail, road, waterway

Traffic mode: FT, MPT, PT

Recommendations for the development of Austrian guidelines for the application of telematics in the transport system including a uniform planning basis for the application of telematics in the low-level roadway network

Number of sub-measures: 0

Mode of transport: road

Traffic mode: FT, MPT

The telematics infrastructure that is currently being established provides a verified standard for the recording of traffic data and traffic control and management on the high-level roadway network. However, this does not include the low-level roadway network that carries a higher accident risk linked to the greater distances travelled. In order to extend the lacking standards to cover the low-level roadway network, a manual for telematics applications in this area must be prepared and guidelines for the standardised use developed.

Use of the current operating data on public transport (railway/road) for extended services

The joint use of the operating data by several companies as well as the standardised transfer of data, e.g. data on vehicles' positions, is to be provided to customers in the form of attractive services. The goal is to provide public transport-related real-time information as well as to develop services for the dynamic assurance of connections, also regarding intermodal applications such as park&ride facilities.

Number of sub-measures: 0

Mode of transport: rail, road

Traffic mode: PT





Package of measures 1B

Management of transport infrastructure through a variable electronic toll for passenger cars on the low-level roadway network

Number of sub-measures: 4

Mode of transport: road

Traffic mode: MPT

The aim of the management of the infrastructure by differentiated, electronically-collected tolls is to influence transport demand. The tolls can be collected for the different distances travelled as well as based on various parameters such as time, occupancy rate or vehicle category for every car passing through. The collection of tolls decreases demand and as a consequence also lowers the distances driven, and results in fewer traffic jams, fewer accidents and lower emissions/energy.

Recording and provision of information on cargo (electronic consignment note) in intermodal freight traffic

By using paperless consignment notes, the redundant registration of information on cargo is avoided, which helps to optimise the intermodal transport chain and reduce administrative expenses. Furthermore, this facilitates intermodal freight traffic and thus encourages the shift of traffic from road to rail and waterways.

Number of sub-measures: 2

Mode of transport: air traffic, rail, road, waterway

Traffic mode: FT

Increased efficiency of rail control operations

Number of sub-measures: 3

Mode of transport: rail

Traffic mode: FT, PT

Controlling the operation of the railway network by means of block-dependent and speed-dependent signals makes it possible to increase railway route capacity by up to 30%. Similarly, an integrated operational management system should facilitate the optimal utilisation of the infrastructure. Operating disruptions and potential risks can be avoided by technically monitoring trains with respect to their faultless condition.

Increasing efficiency, safety and quality in aviation by air traffic control measures

The use of state-of-the-art telematics in aviation may reduce the time needed for take-off and landing and may improve ground-handling in general, which will lead to a significant increase in traffic throughput at traffic junctions. In addition, telematics helps to improve traffic management in the upper airspace as well as higher security standards. Thus, the application of telematics results in cost reductions in aviation.

Number of sub-measures: 5

Mode of transport: air traffic

Traffic mode: PT

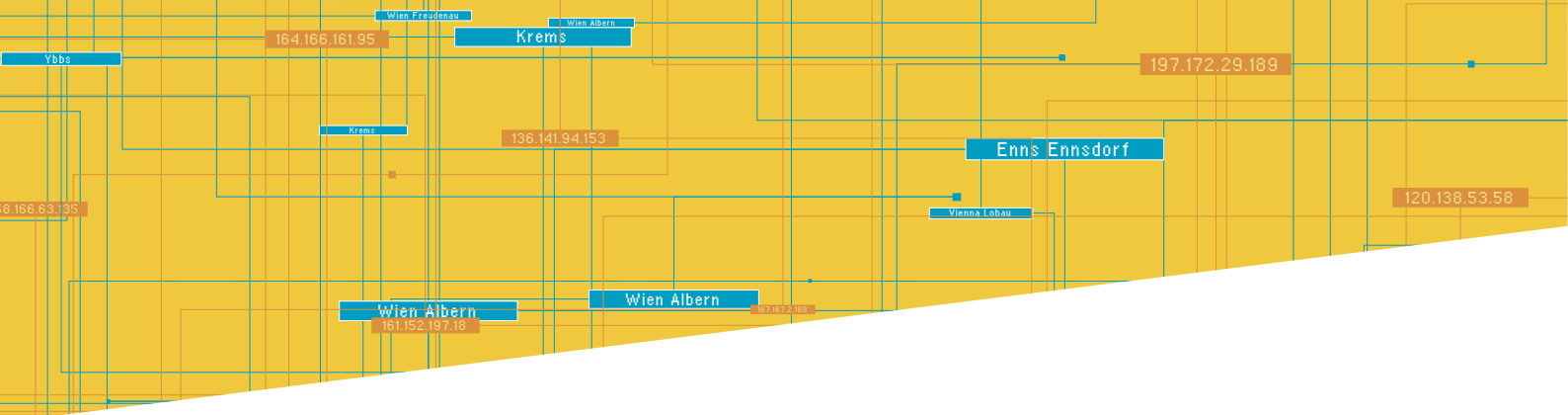
Use of current operational data of rail freight transport for extended services

Number of sub-measures: 0

Mode of transport: rail

Traffic mode: FT, PT

Currently, internal access is provided to a considerable volume of operational data, e.g., data on railway car positions. This data will be provided to individual companies of the transport sector. This will make it possible for them to offer attractive freight information services to customers. The forwarding of freight information is also of great significance for intermodal transport chains.



Package of measures 1C

Speed- and demand-dependent influence of vehicles on traffic flows: passenger cars

Autonomous devices within vehicles for supporting the driver, e.g., under unfavourable weather and visibility conditions, and devices for stabilising driving, avoiding collisions etc., particularly at times of capacity bottlenecks and during peak hours would be an improvement. Additional individual information, e.g., on non-compliance with speed limits, raises drivers' attention, encourages cautious driving in line with the situation and thus helps to lower accident risk.

Number of sub-measures: 2

Mode of transport: road

Traffic mode: MPT

Recording and provision of dynamic traffic and travel information (incl. navigation) in road transport (real-time) on the low-level roadway network

Number of sub-measures: 3

Mode of transport: road

Traffic mode: FT, MPT

The provision of important dynamic basic data on the low-level roadway network, e.g., information on traffic conditions or real-time weather information, results in the reduction of traffic jams, better use of the existing infrastructure, an improvement of traffic safety as well as less strain on the environment. Traffic participants are provided with a better overview of the current traffic situation, which helps them to react flexibly.

Recording and provision of dynamic information for cargo tracking in intermodal freight traffic

The recording and provision of information on the status quo and location of cargo as well as other cargo-specific information in the transport chains of intermodal freight traffic makes it possible to optimally use the existing transport system and to improve the reliability of the transport chain. Furthermore, the transparency and quality of the flow of goods is increased and access to freight traffic across all modes of transportation is facilitated. Shifts of freight transport from the road to other modes of transport are possible.

Number of sub-measures: 2

Mode of transport: air traffic, rail, road, waterway

Traffic mode: FT

Provision of a uniform "overall graph" of the Austrian transport system (attributes, updating, access, data use on the basis of utilization licenses)

Number of sub-measures: 0

Mode of transport: air traffic, rail, road, waterway

Traffic mode: FT, MPT, PT

The "graph" of the transport infrastructure – the digital data basis in vector format of the transport system – is an important basic document for the planning, operation and maintenance of transport routes. Digital infrastructure data (graphs) are indispensable for navigation systems, route planning, visualisation, mobility planners, personal travel assistant etc., thus, for many telematics-based traffic information, control and management systems. The data for tracking the individual modes of transport will be provided and harmonised so that they can be converted easily and at a low technical expenditure. This does not mean the creation of a specific, new superordinate graph, but rather ensuring the compatibility of existing and future data formats and graphs.

Use of the existing (toll collection) infrastructure as a data source (for transport monitoring and traffic control)

The data of the Austrian toll collection system (EFC – Electronic Fee Collection) boasts high quality with respect to data density, precision and content and can – under observance of the data protection guidelines – substantially contribute to efficient transport monitoring and traffic control. In order to achieve an improvement of the overall transport system, EFC data on motorways and expressways have to be combined with the data of all transport operators. The benefit is the avoidance of additional expensive infrastructure and the improved quality of the transport data recorded on motorways and expressways.

Number of sub-measures: 0

Mode of transport: road

Traffic mode: FT, MPT

Use of the digital tachograph for consistent monitoring and enforcement of truck/bus traffic (total weight over 3.5 t)

Number of sub-measures: 0

Mode of transport: road

Traffic mode: FT, MPT

The introduction of the digital control devices instead of conventional control devices must be implemented in the European Union at the latest by 5 August 2005. Vehicle and driver data are recorded electronically in the digital tachograph and can be retrieved via a chip card and the easier and faster data evaluation ensures greater safety. Furthermore, control is improved and the competitive conditions in the transport sector are harmonised throughout Europe.

Package of measures 2

Recording and provision of dynamic intermodal traffic, travel and passenger information (incl. navigation)

This package of measures provides the following important information to traffic participants: Dynamic travel information (pre-trip information), dynamic traffic information (pre-trip and on-trip information) as well as static passenger information (information on schedules, prices, alternative offers in the event of irregularities etc.). If the quality of the information provided is sufficiently high, the behaviour of individual traffic participants can be positively influenced.

Number of sub-measures: 4

Mode of transport: air traffic, rail, road

Traffic mode: MPT, PT

Recording and provision of dynamic traffic, travel and passenger information in public transport on roads and railway lines (real-time)

Number of sub-measures: 4

Mode of transport: rail, road

Traffic mode: PT

Passenger information includes static services such as schedules, prices, information on the terminal situation and offers at stations and junctions as well as dynamic information on unscheduled runs. Customer satisfaction in public transport can be sustainably improved by providing high-quality information.

Monitoring of the actual schedule and management of operating disruptions in public transport on roads

Deviations from the defined schedule can, for example, be caused by failed connections or the formation of unscheduled convoys. This naturally reduces the attractiveness of public transport. By monitoring the actual schedule, a reduction of the travel time is achievable for current users if implemented throughout the network. At the same time, intermodality is supported, which results in a reduction of the distances of passenger cars driven.

Number of sub-measures: 3

Mode of transport: rail, road

Traffic mode: PT

Information on weather-dependent, local danger spots (fog, slipperiness) on the low-level roadway network

Number of sub-measures: 0

Mode of transport: road

Traffic mode: MPT, PT

The recording and provision of information on regional danger spots is based on the automatic measuring of the critical parameters concerning road conditions. Depending on these conditions, dynamic, weather-specific hazard warnings are displayed, which have a positive influence on the attention of the driver and his or her driving.

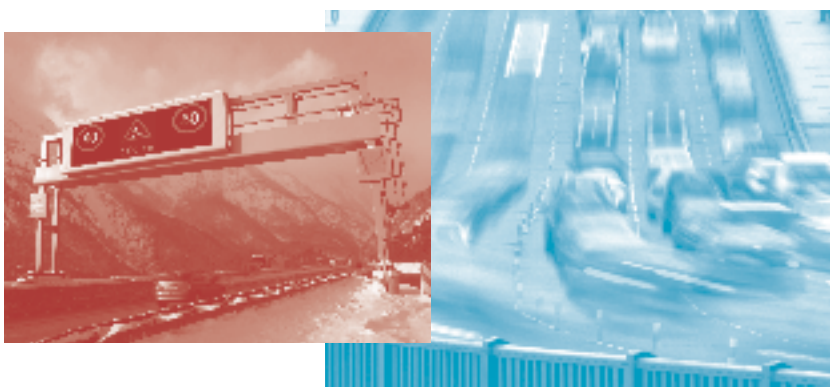
Monitoring of vehicle condition (individual transport, freight traffic/ transport of hazardous goods on roads)

The basic idea is an on-board monitoring of the vehicle's condition or the cargo as well as an automatic report on deficiencies or safety defects. The related error message or remote diagnosis can contribute to avoiding accidents and saving costs. This measure can mean an enormous improvement in safety particularly in dangerous sections.

Number of sub-measures: 5

Mode of transport: rail, road

Traffic mode: FT, MPT, PT



Recording and provision of dynamic information on the parking situation and parking space reservation (in car parks)

Number of sub-measures: 3

Mode of transport: road

Traffic mode: FT, MPT

The introduction of parking information systems increases reliability and plannability, thus the search for parking spaces is shortened and the average utilisation rate of parking spaces (car parks) can be achieved.

Recording and provision of information on space availability and reservation option at park&ride facilities

By providing adequate information, the utilisation of park&ride facilities can be controlled and the average utilisation rate of the facility can be achieved. Information on train departure times (connections) should also be displayed for the users.

Number of sub-measures: 2

Mode of transport: rail, road

Traffic mode: MPT, PT

Monitoring of traffic flows for recognising and managing disruptions on the low-level roadway network

Number of sub-measures: 2

Mode of transport: road

Traffic mode: FT, MPT

Road traffic accidents, particularly in regions with a sensitive ecological environment, with a high rate of traffic utilisation and in tunnels, pose an extremely high safety risk. Many events can be avoided in advance by the targeted application of telematics.

Management of access to intermodal freight traffic terminals

When the stowage capacity of a terminal is full, approaching vehicles are redirected to defined waiting areas in order to avoid tailbacks to adjacent public roads; traffic participants may continue their journey at an adequate point in time from these areas.

Number of sub-measures: 2

Mode of transport: air traffic, rail, road, waterway

Traffic mode: FT

Package of measures 3

Facilitation of access to public transport by convenient payment systems

Number of sub-measures: 0

Mode of transport: rail, road

Traffic mode: PT

The facilitation of access to the public transport system is intended to raise its attractiveness through the time-saving and automated collection of fares. For example, this could be achieved via a wireless communicating chip card processed by a central processing unit in a time and cost-efficient manner. Public transport operators gain a further advantage from the information gained on the behaviour of traffic participants through data logging and thus are provided with a further indication for constantly improving their services for customers.

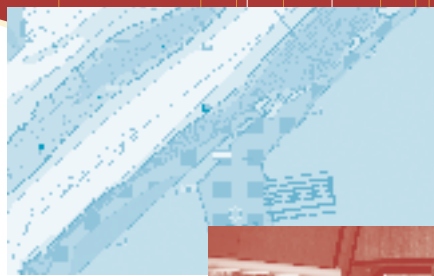
Speed- and demand-dependent influence of vehicles on traffic flows: trucks

The provision of autonomous facilities for influencing vehicles to facilitate stable driving are designed to support the driver, particularly under unfavourable visibility and weather conditions, by means of variable warnings such as keeping adequate distance, staying in one's lane, monitoring of conflict zones as well as speed. These functions guarantee individual safety and optimise traffic flows.

Number of sub-measures: 2

Mode of transport: road

Traffic mode: FT, MPT



The implementation

Traffic and transport are often subject to the conflicting interests of the individual actors. Thus, accompanying measures are required for implementing the recommended measures to the Austrian transport system. The Telematics Master Plan identifies the necessary instruments such as research and development programmes, service and construction mandates and accompanying management measures as well as the establishment of working groups, standardization activities, cooperation between federal and Länder bodies and international networking.

At the same time, the Federal Ministry of Transport, Innovation and Technology – as responsible authority for the Telematics Master Plan – is to establish an advisory council which will consist of high-ranking representatives from the most important actors. This advisory body will work on the fundamental harmonisation of the plan's implementation. A technical secretariat will be assigned responsibility for the operational execution of the Telematics Master Plan. The secretariat will be responsible for updating and further developing the knowledge base and the package of measure as well as for public relations work and the ongoing programme management.

The parties awarding contracts for the individual tasks (infrastructure operators, mobility service providers etc.) will – based on the expected benefits of the selected measures – raise the adequate funds to implement the relevant measures in their planning. They can rely on the Telematics Master Plan, which includes all modes of transportation, and on the harmonised accompanying measures.

Summary

According to the current traffic forecast for the European level, an average increase in the traffic performance in Europe of about 2% per year is expected for the next 20 years. A closer look shows that the increase at major sections of the transport network (e.g. in the high-level network) will be even higher with a growth rate of up to 4%. Especially such sections of the transport network have already reached their capacity limits today. The further expansion of these sections is difficult to finance, problematic for environmental reasons or is simply rejected by the population.

Thus, new approaches for the organisation of the transport system will have to be found. A change in paradigms will have to take place, for example, when specifying the selection of routes, the time of starting a journey or the selection of the means of transport – for freight as well as for passengers – within framework conditions such as available capacity or costs of use.

In this context, the necessity of the extensive application of telematics becomes obvious, as the movements of the means of transport within the transport infrastructure are subject to new steering mechanisms and regulations. These so-called cooperative systems – the interaction “infrastructure-vehicle-driver” – are already partly in use thanks to new technologies in aviation, inland navigation and in railway transport. However, these systems constitute major interventions in transport organisation and transport processes, which will have to be optimised at the macroeconomic level.

The inevitable redesign of the transport system requires the careful preparation by policymakers, the business sector and by traffic participants as well as the use of new technologies. The first step to achieve this aim is the definition of a clear strategy for applying telematics to the transport system and the definition of measures based on well-founded macroeconomic cost-benefit analyses.

The realisation of the expected benefits to the economy requires that the measures envisaged in a Telematics Master Plan be implemented rapidly and that the Telematics Master Plan be constantly developed and updated.

With the help of the Telematics Master Plan, Austria will be able to continue its active role at the intersection of major European transport routes, to take the necessary steps for adapting its transport system to the changed framework conditions after the EU enlargement and thus remain an attractive, innovative location for logistics and transport technologies.



Overview of the measures

Packages of measures

Packages of measures ranked by greatest benefit and corresponding time of implementation

1A

- Management of the transport infrastructure by a variable electronic toll for trucks on the low-level roadway network
- Dynamic monitoring and control of transport on the Danube waterway
- Demand-dependent influence of traffic flows through infrastructure measures – Control of traffic flows to the high-level roadway network
- Monitoring compliance with statutory provisions (monitoring of traffic flows by executive authorities) on the low-level roadway network
- Priority for public transport (traffic junctions and access to roads junctions)
- Demand-dependent influence of traffic flows through infrastructure measures – Control of traffic flows from high-level roadway network to low-level roadway network, especially in urban areas
- Monitoring actual schedules and management of operating disruptions on railways
- Guidelines for defining minimum quality when recording traffic data in order to create efficient transport information
- Access regulations for static and dynamic traffic data
- Linking traffic control centres for creating an intermodal transport system
- Recommendations for the development of Austrian guidelines for the application of telematics in the transport system including a uniform planning basis for the application of telematics on the low-level roadway network

1B

- Management of transport infrastructure by a variable electronic toll for passenger cars on the low-level roadway network
- Recording and provision of information on cargo (electronic consignment note) in intermodal freight traffic
- Increased efficiency of rail control operations
- Increasing efficiency, safety and quality in aviation by air traffic control measures
- Use of current operational data of rail freight transport for extended services

1C

- Speed- and demand-dependent influence of vehicles on traffic flows: passenger cars
- Recording and provision of dynamic traffic and travel information (incl. navigation) in road transport (real-time) on the low-level roadway network
- Recording and provision of dynamic information for cargo tracking in intermodal freight traffic
- Provision of a uniform “overall graph” of the Austrian transport system
- Use of the existing (toll collection) infrastructure as data source
- Use of the digital tachograph for consistent monitoring and enforcement of truck/bus traffic (total weight over 3.5 t)

2

- Recording and provision of dynamic intermodal traffic, travel and passenger information (incl. navigation)
- Recording and provision of dynamic traffic, travel and passenger information in public transport on roads and railway lines (real-time)
- Monitoring the actual schedule and management of operating disruptions in public transport on roads
- Information on weather-dependent, local danger spots (fog, slipperiness) on the low-level roadway network
- Monitoring of vehicle condition (individual transport, freight traffic/ transport of hazardous goods on roads)
- Recording and provision of dynamic information on the parking situation and parking space reservation (in car parks)
- Recording and provision of information on space availability and reservation option at park&ride facilities
- Monitoring of traffic flows for recognising and managing disruptions on the low-level roadway network
- Management of access to intermodal freight traffic terminals

3

- Facilitation of access to public transport by convenient payment systems
- Speed- and demand-dependent influence of vehicles on traffic flows: trucks