



SUMMARY

Multimodal ITS strategy and action plan for Sweden





1 ITS can contribute to meeting the challenges in the transport system

Efficient and robust transport systems are a prerequisite for welfare and continued growth. But at the same time, the transport system accounts for a significant and growing proportion of the greenhouse gas emissions. The emissions from urban traffic also involve hygienic risks. Parts of the transport system also suffer congestion and capacity problems. Access to the transport system varies for different groups and in different parts of the country. Accidents and incidents still occur far too often. Forming tomorrow's transport systems and combining the needs for mobility with demands for a good environment, safety and security are therefore the major challenges we face.

A number of different measures are needed, both nationally and internationally, in order to arrive at an efficient and more climate-friendly, safe and secure transport system. It involves, not least, better utilization of the existing resources and capacity in the transport system, offering new and attractive solutions for both passenger and goods transport, and employing a variety of regulatory measures and incentives. ITS (Intelligent Transport Systems and Services) can play a much greater role in this context than it does today. According to estimates made for road transport in Europe, CO₂ emissions could be reduced by 10 – 20%, accidents and incidents by 5 – 15% and congestion by 5 – 15% by employing different ITS solutions.

2 Multimodal ITS strategy and action plan for Sweden

The Government has appointed, the Swedish Road Administration to draw up a multimodal transport strategy and action plan for the use of ITS.

Terms of reference

In September 2009, the Government instructed the Swedish Road Administration (SRA), together with other authorities, enterprise and organizations involved, "to draw up a multimodal transport strategy and action plan for the use of intelligent transport systems and services (ITS) in the transport system". The objective is to expand the use of ITS solutions in order to exploit the potential of ITS for contributing to the attainment of the transport policy targets. The opportunities offered by ITS are not currently exploited to a desirable extent for increasing the efficiency and usability of the entire transport system. The strategy and action plan must cover both freight and passenger transport.

The EU Commission has also found that the introduction of ITS in the transport system is progressing too slowly. An "ITS Action Plan" has been drawn up, and six of the proposed measures have been given priority and are included in a directive to which the member countries must live up. The European plan comprises road transport and interfaces to other modes of transport. Sweden and Finland are so far the only countries in Europe to have developed ITS plans that are of an intermodal nature.

The work of developing a strategy and action plan for ITS should also be viewed as a natural continuation of the ITS World Congress held in Stockholm in September 2009. This was run in collaboration between authorities, enterprise and academia.

Many have contributed

Many contributors have collaborated in the development of the strategy and action plan. The congress management committee from the ITS World Congress 2009 has served as the steering committee. A working group with representatives from the authorities and from

enterprises together with a secretariat, has produced the source information, analyses and proposals. The proposals of the investigation emanate principally from workshops. The points of departure for the proposals were the problems and obstacles to the introduction of ITS, which were identified by the participants. An information meeting was held in the final stages of the investigation, with a collective discussion concerning the proposals of the investigation. The strategy and action plan proposals were submitted to the Ministry for Industry on 1 March 2010. This document is a summary of the full report.

Points of departure

The points of departure for the work of the ITS investigation were as follows:

- Transport policy goals
- Enterprise policy goals
- Experiences/results from the congress work
- Multimodal transport perspective
- EU plans with a bearing on ITS
- User perspective and usefulness
- Identification of obstacles and problems for expanded use of ITS
- Time perspective up to 2015

One of the underlying thoughts has been to identify the measures that could be implemented within the specified time perspective and that could also serve as catalysts for further ITS solutions in the short and long terms.





The major bottlenecks

ITS is already being used today in the Swedish transport system. It has long been used, principally in railways and aviation, but under other names. There are many applications, but most concern each mode of transport individually. This means, among other things, that there are many obstacles to overcome in order to achieve several multimodal transport solutions. The most important of these can be summarized as follows:

- Access to fundamental, multimodal transport, quality assured data and information on traffic networks, terminals, traffic, etc. This applies to both static data and real time data.
- At the same time, there is a great deal of data per transport mode, but it is not always easy to access and to combine with one another, Different conditions and systems of rules make matters more difficult.
- Open interfaces and standards are needed.
- There are many standards, but there are shortcomings in observance and introduction.
- Responsibilities and roles need to be clarified.
- For passenger transport, there are many systems for planning, booking, payment and purchase of a journey, but they are not integrated. Travellers demand simplicity.
- For freight transport, the most serious obstacle is the information interchange between players.
- For freight transport, it is particularly important to find solutions that are also internationally viable.

There are also problems that are not of an ITS nature but that still impede increased use of ITS solutions. This concerns, among other things, the fact that many players must cooperate to enable journeys and transport to be carried out as an unbroken chain from origin to destination.

3 Strategy and action plan

The proposals of the ITS investigation for measures that jointly form an action plan for ITS in Sweden up to 2015 are included here. The proposals are based mainly on the results of workshops, where problems and obstacles have been identified, together with solutions and the benefits that these can produce

3.1 Overall targets and strategies

The ITS investigation has taken as its point of departure the overall targets and strategies listed below, which should be the guiding lights for the proposed measures:

Targets:

- Increased use and quicker introduction of ITS should
 - contribute to the development of a sustainable, secure and safe transport system
 - be useful for individuals, companies and society
 - facilitate multimodal journeys and transport from door to door
 - strengthen the competitiveness of Swedish industry and contribute to new job opportunities

Strategies:

- Set off from the needs of users and have respect for personal integrity
- Stimulate solutions that are appropriate from climatic and environmental aspects, and focus on robust services and products
- Cooperation between public and private players, with clear roles and responsibilities
- Put to use existing infrastructures and solutions, nationally and internationally
- Use pilot projects, field trials and innovative procurements as steps in the implementation
- Take the initiative within the EU and in standardization work

The measures included in the action plan are those that are most beneficial, have a strong link to the transport policy goals, comprise fundamental conditions for increased use of ITS in the transport system, can be implemented up to 2015, and strengthen Swedish enterprise.

Many of the measures are of multimodal transport nature, but there are also measures that concern only one transport mode. However there are many more measures that are needed but are not included in the

action plan. Some will be implemented regardless of this plan, while others will be found within the framework of the cooperation initiated here. The prioritized measures from the "EU ITS Action Plan" included in the ITS directive also recur in the Swedish action plan.

3.2 Focus areas selected

The proposals for action have been collected under six focus areas, and there are targets and strategies for each of these. The first two areas comprise measures that provide the basis for ITS and for developing the services in areas 4 – 6. Area 3 comprises both conditions-creating measures, and also some proposals for services. The total comprises 40-odd measures that are briefly described. In addition, the organisations responsible and the implementation time are identified. It is suggested that the first player specified under "Responsibilities" should take the initiative for getting the proposed activity started. This work includes assembling the players and interested parties involved who see a common value in the results and are willing to invest the necessary resources. These players together must draw up time schedules, costs and how financing, etc. should be solved.



3.3 Targets, strategies and measures within the focus areas

3.3.1 Planning of and innovations in the transport system

This includes how ITS can be used in the physical planning and the important conditions for ITS being able to exert greater impact in planning and implementation, and the knowledge accumulation and innovations within the ITS area.

Targets:

- ITS must be a tool that is always taken into account when the transport system is planned and designed
- More effective utilization of existing infrastructures by means of ITS
- Knowledge accumulation and innovation chain for ITS that are

operative in the long term

Strategies:

- Addressing the potential of ITS in planning (the 4-step principle)
- Develop collaboration forms in which industry, the authorities and researchers jointly contribute to innovative and efficient development work.

Action plan – Measures	Who is responsible	Time
Planning of and innovation in the transport system		
<i>1.1 Increased use of ITS in the transport system</i>		
Available effect relationships	Swedish Transport Administration and municipalities	Ongoing
Carry out evaluations and draw up effect relationships	The one responsible for the infrastructure	Ongoing
Competence development	Swedish Transport Administration	Ongoing
<i>1.2 Long-term knowledge accumulation</i>		
Internationally competitive research and innovation	VINNOVA, Swedish Transport Administration and others.	2011 -
Evaluation of ITS research academy	VINNOVA and others	2011 – 2012

3.3.2 Data and Information

Under denna rubrik återfinns åtgärder som avser tillhandahållande av data och information till samtliga övriga fokusområden. Det utgör basförutsättning för att utveckla tjänster.

Target:

- Access to quality assured data and information

Strategies:

- To clarify roles and responsibilities for different players
- To create clear conditions for the interchange of data and information
- To use open interfaces

Action plan – Measures	Who is responsible	Time
Data and information		
<i>2.1 Road and traffic data</i>		
Available data on transport network, etc.	Swedish Transport Administration and others	2010 -
Available traffic regulations, etc.	Swedish Transport Agency	2010 -
<i>2.2 Real time data</i>		
Available traffic data in real time	Swedish Transport Administration and others	2011 -
Available traffic safety data	Swedish Transport Administration and others	2011-
<i>2.3 Establish a market place for data and information for ITS services</i>		
Pilot project: Market place	Swedish Transport Administration together with players involved	2011 pre-study 2012 project



3.3.3 Vehicles/vessels, communication and physical infrastructure

There is great focus on road transport in this area and it also includes many measures. There are already many ITS solutions introduced in the other sectors. In the road sector, there are a number of systems and services that produce, above all, good road safety effects, but they have not yet been introduced on a major scale. In addition, a great deal of development work is in progress – not least in Europe – in which Sweden participates very actively. It is also within this area that much of the development within ITS will lie in the future and, if Sweden wants to be at the leading edge of ITS development, strong involvement and knowledge are essential.

Targets:

- Increased market penetration of support systems in vehicles/vessels that contribute to the transport policy goals
- Reliable continuous communication between vehicles/vessel and physical infrastructure
- Uniform, homogeneous standard of physical infrastructure that is utilized by vehicle-borne support systems
- Establishment of interacting systems (vehicles, mobile units and infrastructure)

Strategies

- Stimulate increased market penetration and use of safe, integrated support systems
- Develop safe user interfaces in vehicles (HMI)
- Utilize and develop further mobile communication solutions
- Accelerate the use of flexible, internationally harmonized communication solutions with open interfaces
- Develop test environments for large-scale tests and interacting systems
- Take into account the need for communication between vehicles/ vessels and physical infrastructure for new investments and improvement measures

Action plan – Measures	Who is responsible	Time
Vehicles/vessels, communication and physical infrastructure		
<i>3.1 Deployment of systems and services</i>		
Alcohol interlock in all transport modes	Swedish Transport Agency	2011 -
Continued introduction of ISA	Public players and others	Ongoing
eCall	Government offices	2011-2013
ERTMS	Swedish Transport Administration	2008 – 2015
eNavigation	Swedish Maritime Administration and others	2010 -
<i>3.2 Pilot projects and field trials</i>		
Full-scale trials on selected ITS services	Swedish test arenas and others	2010-
Pilot project on "Pay as you drive"	Insurance companies and others	2010 – 2012
<i>3.3 Cooperative systems</i>		
Open in-vehicle platform architecture, including standard interfaces for the provision of ITS services	Automotive industry, Swedish Transport Administration	2011-
Introduction plan for multimodal transport cooperative services based on usefulness and safety.	Swedish Transport Administration, automotive industry, ICT industry	2011-12
Definition of uniform standard for road markings, road signs, etc.	Swedish Transport Administration and others	2010 - 2012
Development and trials on the road as sensor	Road maintenance authority	2011 -
<i>3.4 Communication</i>		
Specifications for communication between infrastructure and vehicles for cooperative systems.	Swedish Transport Administration, automotive industry, and ICT industry	2010 – 2014
Development and testing road safety services based on both short-range and mobile communication	Test arenas, etc.	2012 -
<i>3.5 Road charges</i>		
A national road charging system	Swedish Transport Agency and Swedish Transport Administration together with players involved	2010 – 2013
Implementation of EETS Directive	Swedish Transport Administration and Swedish Transport Agency	2010 -2014
Monitoring concept for road charging system	Swedish Transport Agency	2011 – 2013



3.3.4 Freight transport

The area covers national and international freight transport for all transport modes. Measures that also comprise freight are also included under the areas "Data and information" and "Urban mobility".

Targets:

- Better information support for more efficient, intermodal transport chains
- Internationally harmonized services

Strategies:

- To safeguard information supply by collaboration between public and private players in all transport modes
- To assist in ensuring that traffic information can be integrated into planning and implementation of freight transport
- To integrate the ITS concept of Green corridors and intermodal terminals
- Sweden should actively take steps to ensure that the work initiated via the EU Logistics Action Plan and other EU initiatives are jointly planned and jointly operated with national ITS-related activities

Action plan – Measures	Who is responsible	Time
Freight transport		
<i>4.1 Swedish forum for ITS freight</i>		
A Swedish forum for ITS freight and logistics	Ministry for Industry/ Logistics forum	2010
<i>4.2 Pilot project</i>		
Pilot project for one single electronic document (eFreight)	Transport Group together with players	2011 – 13
ITS in green corridors	Ministry for Industry/ Logistics forum	2011 – 2015
<i>4.3 Terminals and safe parking sites</i>		
Common description of terminals	Swedish Transport Administration and others	2011- 2012
Secure parking places	Swedish Transport Administration and others	2010 – 2011

3.3.5 Passenger transport

This area comprises measures with a national character. Measures for passenger transport are also included under Data and information, and under the heading Urban mobility.

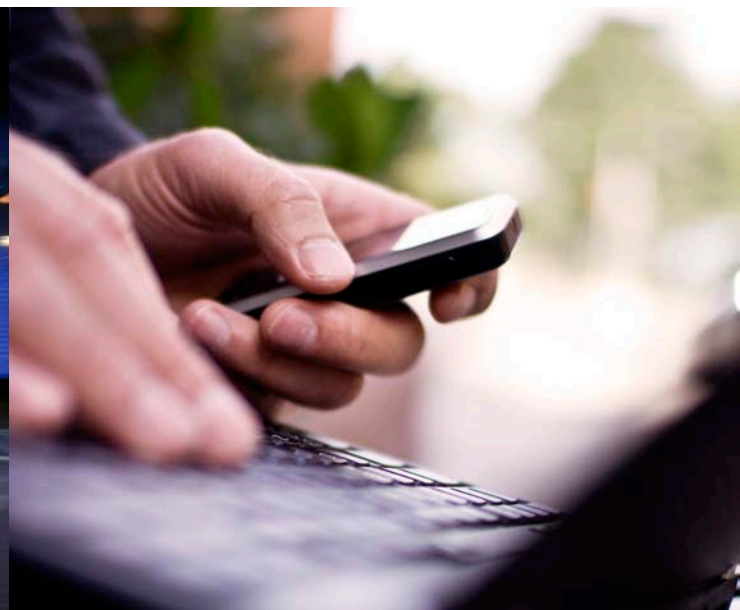
Targets:

- To reach a larger number of road users with relevant information before and during the journey
- Simpler booking, purchasing and payment for journeys
- Improved security during the whole journey

Strategies:

- To safeguard and provide information by cooperation between different players
- To increase the marketing and use of ITS services
- To increase the use of ITS for improved security

Action plan – Measures	Who is responsible	Time
Passenger transport		
<i>5.1 Travel information</i>		
Available multimodal travel data	Swedish Transport Administration and others	2011 -
Negotiator for providing collective information at terminals	Swedish Transport Administration and others	2011 – 2012
<i>5.2 Joint systems for booking, tickets and payment</i>		
State negotiator – a platform for booking and buying tickets for collective journeys	Ministry for Industry	2010 – 2011
State negotiator for a joint payment system	Ministry for Industry	2010 – 2011
<i>5.3 Security project</i>		
Create a collective plan/pilot study for security measures for journeys of the individual	Municipalities and other	2011



3.3.6 Urban mobility

The problem and potential for ITS is highest in urban areas. This section includes measures that have particular bearing on big city regions.

Targets:

- A reliable, climate-appropriate, safe and secure transport system with less congestion and attractive public transport
- Well-informed travellers and transport providers

Strategies:

- To create more favourable conditions for public transport, pedestrians and cyclists
- To provide the right information at the right time and the right place
- To optimize the distribution traffic
- To utilize the existing infrastructure more efficiently
- To use incentives, levies and charges for influencing the pattern of transport
- To collaborate with other urban regions in Europe

Action plan – Measures	Who is responsible	Time
Urban mobility		
<i>6.1 Planning and cooperation</i>		
A national urban mobility forum	Swedish Transport Administration with players involved	2010
ITS plans for multimodal transport	Swedish Transport Administration and others	2011 – 2012
<i>6.2 Pilot project</i>		
Pilot project: Attractive travel services	Swedish Transport Administration and others	2011 – 2015
Pilot project: City Logistics	Municipalities and Swedish Transport Administration with players involved	2011 - 2015
<i>6.3 Traffic management</i>		
Traffic signals for multimodal transport and climate-appropriate guiding of traffic	Swedish Transport Administration and others	2011 – 2013
Information in the event of major disturbances	Swedish Transport Administration and others	2011 – 2013

4 Implementation and follow up

Important tools for implementing the plan are pilot projects and field trials, as well as innovative procurement. The ITS investigation has regarded these as important steps in an introduction process and has therefore proposed several such tools. Another tool that can be used in certain cases in order to accelerate the introduction is the proposal of the ITS investigation to appoint a negotiator who can convene the parties and find solutions. This has been used successfully in other areas. Last but not least, the work involves cooperation in many different forms.

4.1 Establish an ITS Board

It is proposed that the Government should make the Swedish Transport Administration responsible for implementing and following up the multimodal transport strategy and action plan for the use of ITS in the transport system.

It is proposed that the Government should also appoint an ITS Board that can support the Swedish Transport Administration in this role. The Board can also be an arena for the interchange of information and consultation between the authorities, enterprise and academia. Information interchange and cooperation could thereby be facilitated, without coming into conflict with competitiveness legislation or the internal strategies of companies. It is important for Sweden to influence events in Europe in a systematic manner. The ITS Board should consist of representatives from public organizations, industrial organizations, enterprise and academia.

It is suggested that the Board should be given the task, at strategic level, to:

- Support the implementation of the ITS action plan
- Regularly follow up the work and take the necessary initiatives
- Annually report to the Ministry of Enterprise, Energy and Communications how the work is progressing as regards the Swedish action plan and ITS Action Plan, the ITS directives and other important international Action Plans and initiatives for each transport mode
- If necessary, initiate revision of the strategy and action plan for ITS
- Coordinate the following tasks:
 - Collaborate in the work of planning for the implementation of the ITS action plan



- o Coordinate the implementation of the ITS Directive, report on the situation in accordance with the requirements in the Directive and, if necessary, initiate Swedish legislation and standardization
- o Prepare and process matters of common national interest in the field of ITS
- o Contribute to development in the field
- o Contribute towards better coordination between the relevant authorities, enterprise academia and the international participation of Swedish players
- o Monitoring of the surrounding world, and the exchange of information and experience in the field

An ITS secretariat should be established at the Swedish Transport Administration for organizing, administering and coordinating the work on the national ITS strategy, and for coordination of and support in the implementation of the ITS Directive. The secretariat should also provide support to the ITS Board.

4.2 Responsibilities and roles

Cooperation between many different players is necessary for the implementation of a Swedish action plan for ITS. This means that the various parties must accept responsibility in various forms as regards both economic and personnel resources.

The action plan includes many proposals for measures that require discussion forum groups of interested parties. As regards enterprise and the various sectors, the ITS investigation sees an opportunity for creating coordination responsibility at ITS Sweden, comprising the following typical tasks:

- Arrange annual information meetings concerning the implementation of the activities mentioned above
- Take the initiative towards forming forums and activity groups in various areas that require collaboration
- Serve as the coordinator in the Swedish multimodal transport proposal with an international orientation
- Issue continual information on EU programmes, etc.
- Maintain contact with ERTICO, Asia Pacific and ITS America
- Maintain contact with national ITS organizations
- Compile and disseminate information on national and international events in the field of ITS

Representatives of industrial associations and also of individual companies can participate in these activities, depending on the nature of the issue and its contents.

The ITS investigation highlights the need for increased cooperation between the public and private sectors and that the collaboration forms should be clear. In this manner, the development of ITS could be run more efficiently and the introduction of ITS solutions could be accelerated. The roles of the public and private sectors in the field of ITS need to be clarified. The state cannot generally steer the market or technical developments. The task of the state is to create good conditions for the market, to eliminate obstacles to development and to provide good conditions for effective competition. In certain cases, public intervention may be justified, such as when public interests cannot be met by the market players themselves.

Supplementary models/agreements to those existing today are also needed in order to facilitate efficient interaction/collaboration based on commercial grounds between public players and private companies. Drawing up suitable models/agreements should be included in the framework of the continued work.

In order to improve customer benefit and contribute to better attainment of the transport policy goals, the players need also be better at converting development results into new services and products. For this process to perform satisfactorily, public players and enterprise need to collaborate with the aim of finding forms for the way that the entire innovation process can be strengthened.



Swedish Road Administration

781 87 Borlänge

www.vv.se vagverket@vv.se

Telephone: 0771-119 119. Text telephone: 0243-750 90. Fax: 0243-758 25.

