Ministerie van Infrastructuur en Milieu

ITS in the Netherlands

Progress Report 2010 - 2014

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Foreword

This report has been compiled in the context of the European ITS Directive (2010/40/EU) and The ITS Action Plan (2008/886/EU) and is based on the adopted guidelines for reporting by Member States (2011/453/EU).

In August 2011, the Netherlands reported to the Commission on the state of affairs regarding the implementation of technological applications in traffic and transport ('ITS in the Netherlands'). In August 2012, the Netherlands reported to the Commission about the country's ambitions, plans and projects for ITS in the coming five years: the 'ITS Plan the Netherlands 2013-2017'.

This report gives insight in the ITS projects and activities that have been started and actually realized in the Netherlands since 2010. The available data does not always correspond with the requested monitoring period, but this report gives the best possible insight into the costs, effects and locations of the projects, as requested by the European Commission.

Guide to this document

Chapter 1 includes an introduction, describing the progress made around the main ITS themes in the Netherlands, including the progress of the Connecting Mobility action programme and the Beter Benutten programme.

Chapter 2 describes a number of specific projects, activities and initiatives that are iconic for the Netherlands and that were launched over the past few years and have been (partly) realised in the first four priority areas in the European ITS Action Plan and the ITS Directive:

1 Optimal use of road, traffic and journey data
2 Continuity of management traffic and freight management
3 Traffic safety and the safety of freight transport
4 Integration of vehicles with the road infrastructure.

In Chapter 3, the results of the selection of ITS projects, activities and initiatives are plotted on the map of the Netherlands.

Lastly, Chapter 4 includes a conclusion and recommendations, as well as specific challenges for the European Commission, the Netherlands and other member states.

Appendix 1 contains a list of abbreviations, and Appendix 2 contains a list of all the ITS projects, activities and initiatives that have been carried out since 2010.

1 Introduction

1.1 Policy

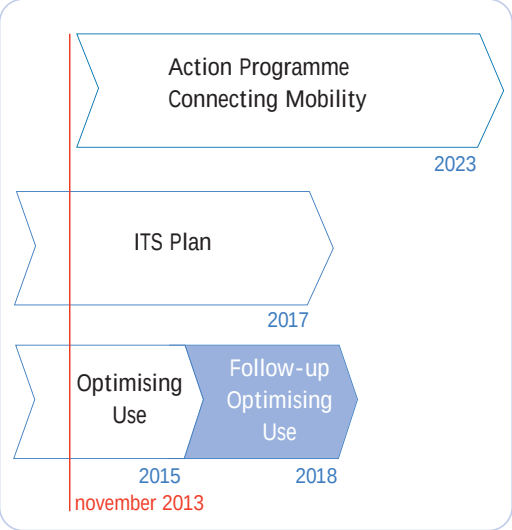
The importance of ITS (Intelligent Transport Systems) in the world of traffic and transport is increasing. Since the 1980s, the Netherlands has been working on implementing ITS as an integral part of its approach to mobility. The focus in the Netherlands is not on performances on input level, such as the number of active systems, but more on performances on output and outcome level. ITS is now high on the agenda of policymakers and administrators and is connecting public/private interests and parties in new ways. One of the driving forces behind this development is the increase in technological capabilities among market parties. However, the reduced financial circumstances among government organisations is also playing a role in this, which means there is less money.

Together with limitations posed by already intensive land use for alternatives for the construction of new roads have to be found. By more effectively utilising the country's roads and waterways, the Government is attempting, with less money, to nevertheless achieve the policy objectives in terms of accessibility, safety and quality of life.

The Letter to Parliament and the corresponding roadmap of 4 November 2013, 'Better Informed on the Road', has marked out the challenges that must be jointly tackled in the next ten years. The roadmap is the result of an intensive procedure in which government organisations, the business sector and knowledge institutes have jointly developed a vision for the future of traffic information and traffic management. The following six transition routes are central to the roadmap 'Better Informed on the Road'.

6 Transition routes in the 'Better Informed on the Road' roadmap

The Connecting Mobility action programme is responsible for the implementation and development of content of the Roadmap. This action programme is supplementary to the ITS Plan The Netherlands 2013-2017 and the short term ITS activities of the Beter Benutten programme. In terms of content, the focus of Beter Benutten (Optimising Use) is the concrete improvement of accessibility (i.e. reduction of lost vehicle hours) at regional level and the availability of data. The ITS Plan focuses on tangible improvements in safety services to road users. The program Connecting Mobility is aimed at encouraging and accelerating activities for the transitions. The following figure illustrates the relationship between these policy lines over time.



Policy lines with their corresponding timelines

This report will now discuss the characteristics of the different policy lines.

The Connecting Mobility action programme

The action programme started in November 2013 and has a 10-years horizon (2013-2023). One important objective of the action programme is to connect people, knowledge and projects with each other and to stimulate cooperation. The action programme is intended to act as a catalyst and a connecting platform, creating the necessary conditions and frameworks for a successful transition and monitoring the developments. At the same time, the action programme is consistent with the aspiration to position the Netherlands as a frontrunner in the field of innovation in traffic management, traffic information and cooperative systems or services.

The Connecting Mobility action programme is contributing to the following objectives in the Better Informed on the Road roadmap:

- Contributing to the policy objectives for accessibility, quality of life and safety of the Ministry of Infrastructure and the Environment (IenM): Better traffic information and traffic management can help to reduce congestion by stimulating road users to behave differently and by improving traffic flow on the road network. For example connected cars lead to a new way of driving, with less shock waves and more information in the car. Road safety will improve, if road users are able to rely on connected cars. Choices include the impact on the surroundings and the environment, such as whether or not to travel, location, when, how, and driving directions.

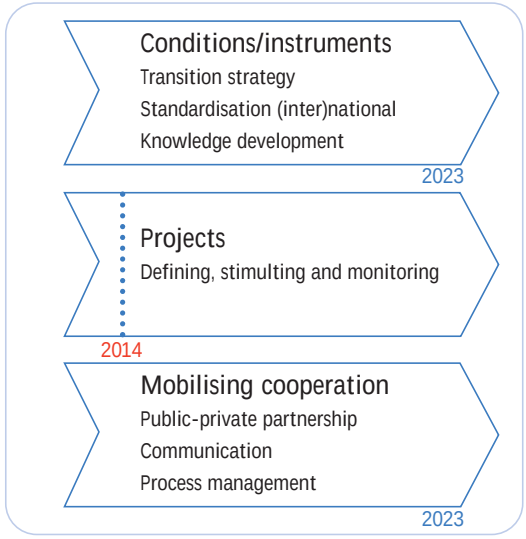
- Improving the services provided to travellers: Connected mobility enables road users to purchase applications and services geared more to the individual for their own use. In this way, motorists can rely on being able to travel safely, reliably, comfortably and efficiently in the future. For example, awareness of and satisfaction with updated information on local disturbances (such as events, road works and incidents), finding of parking spaces, driver support services for improved safety, such as keeping distance and speed advice.

- Improving the (cost) effectiveness and efficiency of public traffic management: When the traveller's self-reliance is increased through the use of products developed by the market, the road authority can concentrate on the main public task. The implementation of new communication technology enables the motorway authorities to interact directly and locally with vehicles and road users. Local disruptions can be resolved using local intelligence and local measures and not all traffic management services will need to go through traffic control centres. This makes it possible to realise entirely new services. The result? More effective and more efficient traffic management.

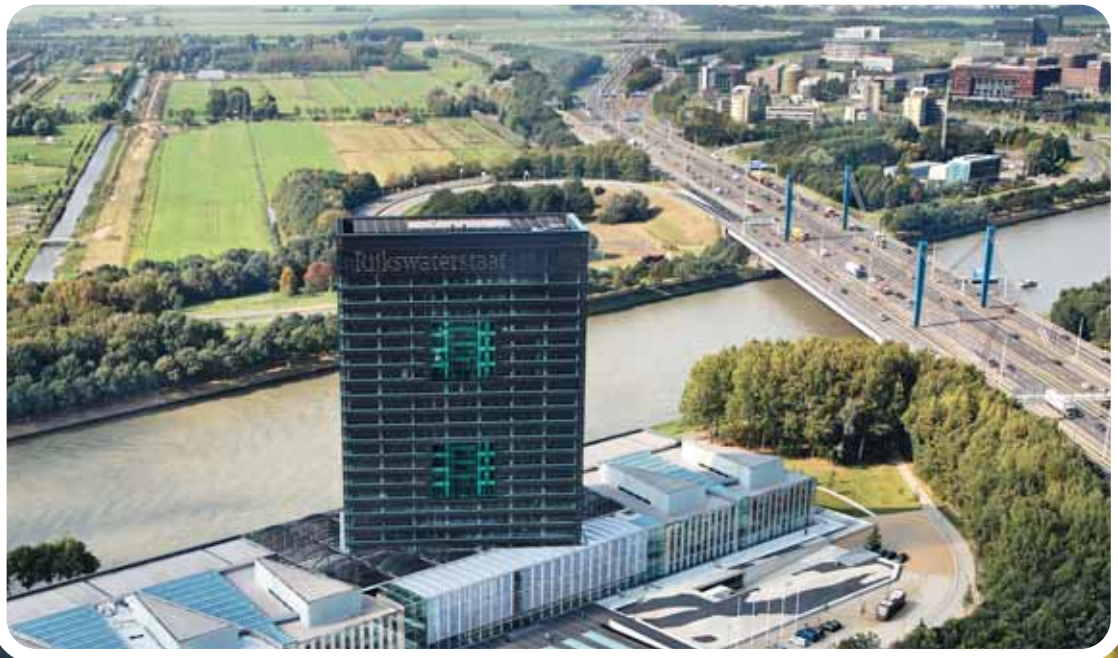
- Stronger competitive position of the Dutch business sector: Innovative products and services in the area of traffic information and traffic safety can (if internationally usable and scalable) become good export products. In addition, a flourishing sector for traffic information and traffic management can attract knowledge, skills and investments to the Netherlands. This will create a strong competitive position and generate employment.

For the action programme, a separate programme team has been set up at the national Road authority, Rijkswaterstaat (RWS). The team's focus is on the following three tracks, which relate to all transition routes.

To achieve these goals, Connecting Mobility is collaborating as much as possible with existing Dutch organisations and programmes in the field of ITS, such as Connekt/ITS Netherlands, DITCM and the Optimising Use programme.



Overview of focus Connecting Mobility



ITS-Plan the Netherlands 2013-2017

The ITS-Plan the Netherlands 2013-2017 was made in 2012 in response to the country's obligation in pursuance of the European ITS Directive. The plan sets out the aspirations and activities of the Netherlands, which will be implemented in relation to the European priority activities and action areas. In addition to the existing and planned ITS systems, projects and programmes, extra supplementary measures were also taken. After the plan for the complementary actions was worked out and budgeted and the contract was awarded by the Ministry of IenM, implementation of the plan began in mid-2013.

The plan includes five complementary activities issuing from the Netherlands' EU obligations - for which the policy Directorate General for Mobility and Transport is directly responsible - as well as activities for which the RWS, is the initiator.

The following activities are the most iconic and far-reaching in terms of implementation:

1 Expanding coded safety messages: a chain analysis was conducted and a proposal worked out to improve automatic messaging in the case of unsafe traffic situations, situations in relation to dangerous air quality, instructions issued by the road authority and the translation of area-based messages to a selection of roads. Planning: introduction in late 2014 by RWS. Costs: € 55.000.

2 Developing a quality methodology for safety messages: elaboration of the methodology to describe and measure criteria such as completeness, timeliness and correctness for eight unsafe traffic situations in the EU Regulation for activity C, including ghost driver incidents (driving against the traffic), unsecured accident locations, temporary icy roads and hazardous weather. Planning: introduction in late 2014 by RWS and in 2015 by service providers as part of self-assessment. Costs: € 180.000.

3 Upscaling ParckR application: improvement and expansion of a new information service relating to the current and expected availability of (secured) parking spaces for freight vehicles on international freight routes in the Netherlands, Germany, Belgium, Luxembourg and Northern France. Planning: launch of the Beta trial in September 2014 and the official launch in late October. Costs: public contribution of € 300.000 and an investment of € 200.000 from private parties.

4 Guidelines safety traffic information services: elaboration of a practical methodology for the developers (particularly apps) of safe traffic information services for administrators, in which criteria such as timing, prioritisation and work load are explained with examples. Planning: publication of the guidelines in September 2014. Costs: € 50.000.

5 Transfer 112 messages from incident rooms to traffic control centres with Infotool: unilateral automated information exchange in XML with dynamic internet page on monitor. On average, saves 5 minutes compared to telephone transfer for handling incidents on all incident management roads (main road network and underlying road network) and limiting the economic losses by around 10 million euros a year. The costs come to around € 100.000 initially and € 20.000 structurally. Planning: operational by summer 2014. An overview of the transfer of 112 messages is shown in the diagram on the next page.

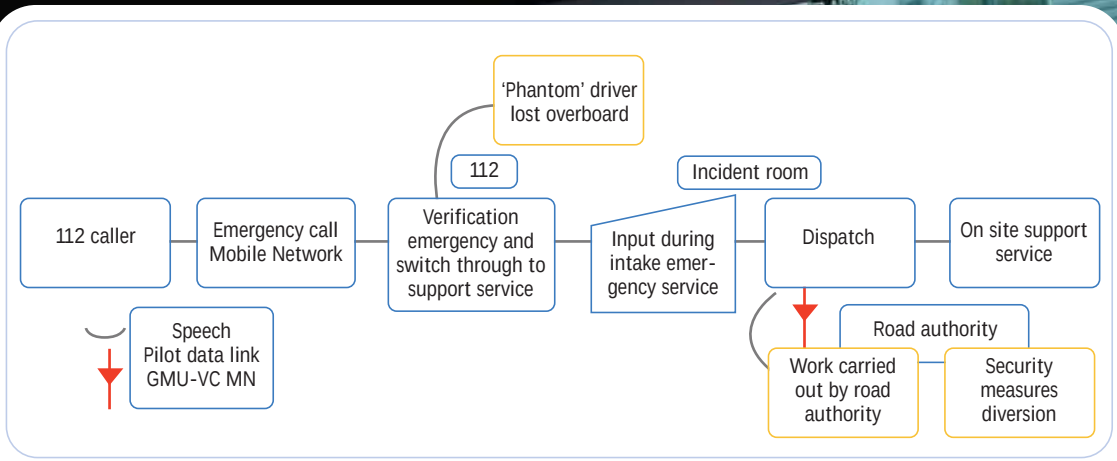


Diagram of the transfer of 112 messages

Optimising Use programme

In the Optimising Use programme, the Dutch government, regions and businesses are working together to improve road, waterway and railway accessibility in the busiest regions. We are aiming to reduce congestion at the busiest points by 20 percent in 2014, using a package of around 300 practical and quantifiable measures. The results of the effect analysis will become available in the spring of 2015. A package of more than 300 practical and quantifiable measures in 12 regions will be deployed to achieve this. ITS is one of the possible solutions. Based on a number of different ITS projects, the Optimising Use programme aims to give the available travel information a strong quality stimulus. In this way, the programme is stimulating market parties to develop new intelligent techniques and services for which no more structural government financing will be necessary in the long term. After all, more and more travellers have smartphones and vehicles are becoming increasingly intelligent. The new products and services must help to improve accessibility in the various regions in a concrete and quantifiable way and providing correct and up-to-date travel information to travellers and transporters.

In twelve regions, government organisations and the business sector are working together to realise the various ITS objectives in and with these regions. Measures can be classified into regional and superregional measures. Regional measures focus on dynamic traffic management (DVM) and traffic flow by means of 'Green Waves'. The superregional measures can be subdivided into seven mainstays: Multimodal Travel Information, Open parking data, Ghost tailbacks, Brabant In-Car III, Information services, Blauwe Golf Verbindend (Blue Wave Connecting) and the Top 5 Data Improvement (see Chapter 2 for a description of these projects). In addition, the Optimising Use programme for 2015-2018 is currently being set up. The aim of the follow-up programme is to achieve 10 percent shorter journey times from door to door in the busiest areas. ITS also has a prominent role to play in the follow-up programma. The following diagram gives an overview of the mentioned measures in Optimising Use.

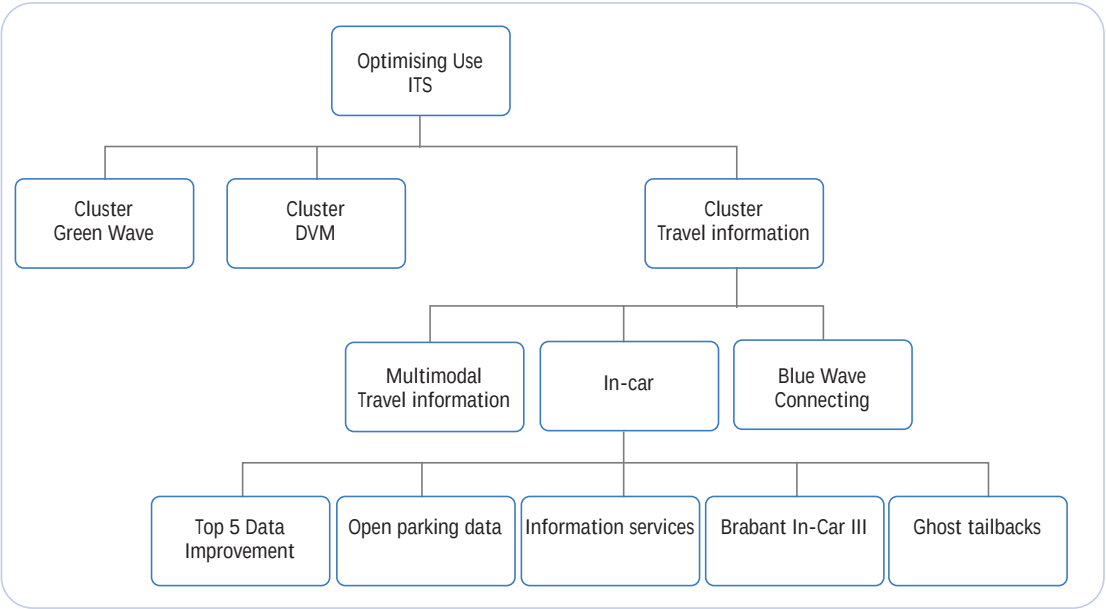


Diagram of the measures in the Optimising Use programme

The Optimising Use programme aims to lay the basis for a self-sufficient market of ITS services that provide good service. To achieve this, the financial efforts of government organisations need to be phased out in the long term. To this end, the Ministry of IenM is providing incentives to market parties and is asking them to produce sustained earning models and therefore market volume - among other things, for the development of new information services. On the government side, work is being carried out to improve the scale and quality of the data acquisition - for example, by making existing and new public data as accessible as possible, and preferably by making it uniformly available.
The Government also wants to link public control scenarios in dynamic traffic management and private information services to each other.

1.2 Expenditure

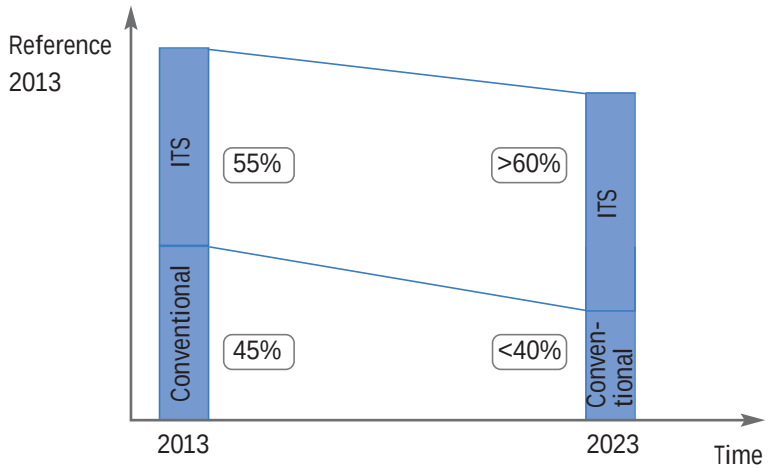
Spending on ITS by national government

In 2013 RWS conducted a thorough evaluation of the annual costs of traffic information/management systems and services on the highway infrastructure. This resulted in a new approach and a well-structured breakdown of structural costs (e.g. operation of tunnels/bridges, incident management and data services) and non-recurring (e.g. programme Optimising Use, Amsterdam Practical Trial) expenditures. In 2013, RWS spent an estimated 245 million euros on innovation and operation of traffic information/management on the highway road network. To compare, national government spends a total of around 0.9 billion euros per year on management and maintenance activities and around 1-2 billion euros per year on the construction of new infrastructure.

This estimation can be divided in approximately 45% for information dissemination services, 10% traffic rerouting services and 45% for capacity management services in which both ITS and conventional means are being used. The degree to which ITS is currently being applied differs per service area and is roughly estimated to 85% for information dissemination, 30% for rerouting and 25% for capacity management services. This results in an approximation that 55% (equivalent to 130 million euros) of the annual costs for traffic information/management systems and services on the highway infrastructure can be directly or indirectly linked to the development and deployment of ITS. These ITS investments aim for more effective and efficient public road-user services.

The increase of applying ITS in the future differs per service area and depends on the possibility and effectiveness of introducing ITS. For example, the transition of traffic information and rerouting towards in-car services offers more innovative possibilities for introducing ITS than capacity management such as the control and management of tunnels/bridges. RWS will continue to monitor these annual costs and the developing balance between conventional and innovative ITS services and systems. The evaluation will therefore be updated every two years.

In addition, funds have also been made available for the additional activities specified in the ITS plan, around 200,000 euros was spent in 2013. In 2014, around 1 million euros is made available for this purpose.



Distribution of investments between conventional and ITS means

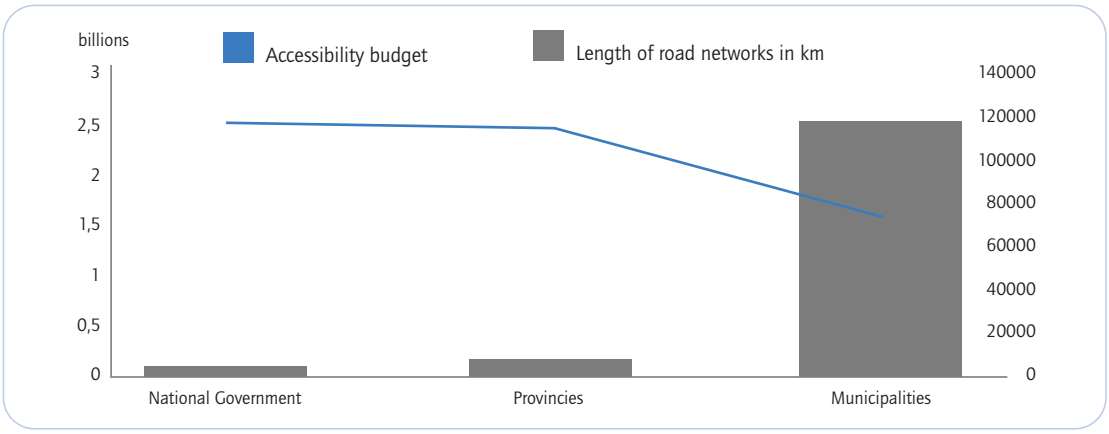
Provincial and municipal spending on traffic and transport

An analysis of the programme budgets of the Provincial Governments in the Netherlands shows that in 2014 spending on accessibility amounted to an estimated 2,47 billion euros. This estimate includes expenditure for traffic measures, the construction of infrastructure, public transport, traffic management, amongst others.

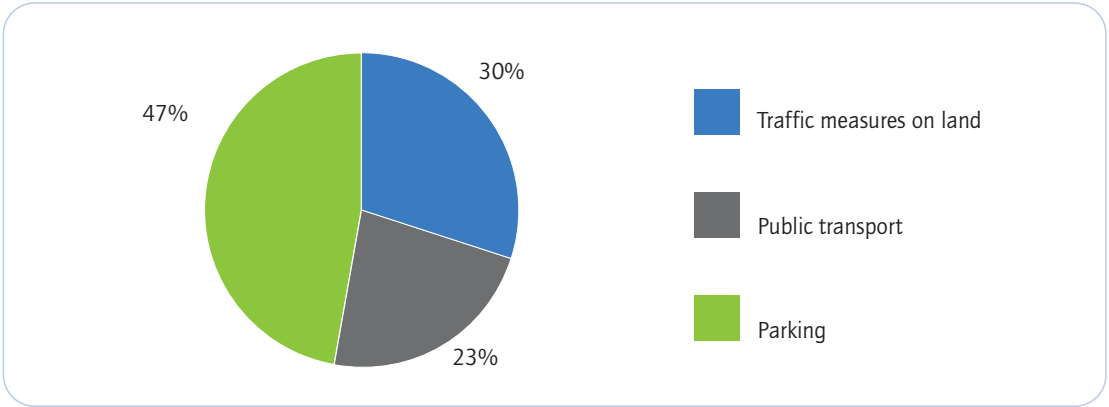
An analysis of the total budgeted municipal spending on traffic and transport (CBS, 2014) shows that it has increased from 1,32 billion euros in 2010 to 1,59 billion euros in 2014. This is an increase of almost 17 percent, caused by the higher expenditure for the Parking and Public Transport cost items. Parking expenditure is partly (about 20%) being compensated by parking benefits.

This rise in expenditure does not apply to all municipalities. Large municipalities with more than 150.000 residents have experienced an increase of as much as 42 percent. Smaller municipalities with fewer than 100.000 residents are actually spending less on traffic and transport, a decrease of around 6 percent.

For each resident, municipal spending on traffic and transport rose by an average of 80 euros in 2010 to 95 euros in 2014. The diagram at the bottom displays the breakdown of the 'total traffic and transport' cost item. The following diagram displays the difference between the budgets of the Governments and the corresponding length of their road networks.



Accessibility budgets of the Governments and the corresponding length of their road networks



Breakdown of the budgeted expenditure for traffic and transport (all municipalities 2014)
Source: Statistics Netherlands(CBS), edited by Connekt.

Survey of market parties

In the framework of this progress report, a survey was compiled and carried out among market parties active in ITS in the Netherlands. The aim of the survey was to assess investments and turnover in the private sector. Thirteen major market parties participated in this survey, who indicated that since 2010 they had experienced a growth in turnover from ITS road traffic products and/or services. The increase in turnover is indicative and depends on the market parties specific activities and products. The growth in turnover is also distributed over several market segments. The median of the data provided is a 20 percent growth in turnover. None of the respondents has experienced a drop in turnover for ITS activities.

The survey also shows that the majority of ITS products and/or services are destined for central or local government. Nevertheless, a majority of the respondents said that companies and individual end users are also purchasing their ITS products and/or services.

Lastly, market parties were asked to indicate their Top 3 of the most recognisable transition routes, from the 'Better Informed On the Road' roadmap (see Chapter 1), over the past 3 years regarding their ITS products and/or services.

This resulted in the following Top 3:

1 From government control to public-private cooperation and alliances
2 From ownership of data to maximum openness and availability of data
3 From collective influence to a smart mix of collective and individual services.

The latter transition route is expected to become more in reality in the course of time. The same applies to the other transition routes: 'From B2G to B2C and B2B' and 'A changing role for roadside systems'. The development of valid business models is a precondition for the roll-out of individual traffic services - and therefore the shift from fixed to mobile. This continues to be a challenge in a rapidly changing market.

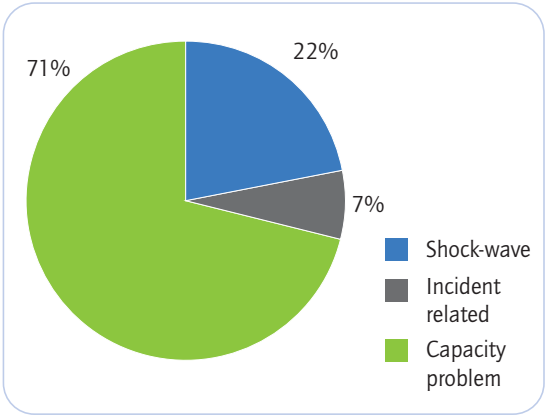
1.3 Effects

In general, the effects of ITS measures are described on project level in Chapter 2. On overarching level, there is only a limited amount of recent data available about the role of ITS in achieving the policy objectives. Research was also conducted into the effects of driver assistance systems on the traffic flow.

All ITS projects in Optimising Use programme are monitored and evaluated. This largely involves regular project evaluations. For a number of projects, these evaluations together are part of a data chain. For these projects, in addition to project monitoring, which mainly focuses on project output, monitoring will also focus on the chain so that the effects of the data chain can be assessed. The results of the Optimising Use ITS projects are expected in the spring of 2015.

Effects on accessibility

Travel time/accessibility is negatively affected by congestion on the main road network. Congestion has a number of causes, which can be divided in the Netherlands into roughly three categories: shock-wave traffic jams, incident-related traffic jams and traffic jams due to a capacity problem. See the figure below for a breakdown of these causes (TNO, 2011).

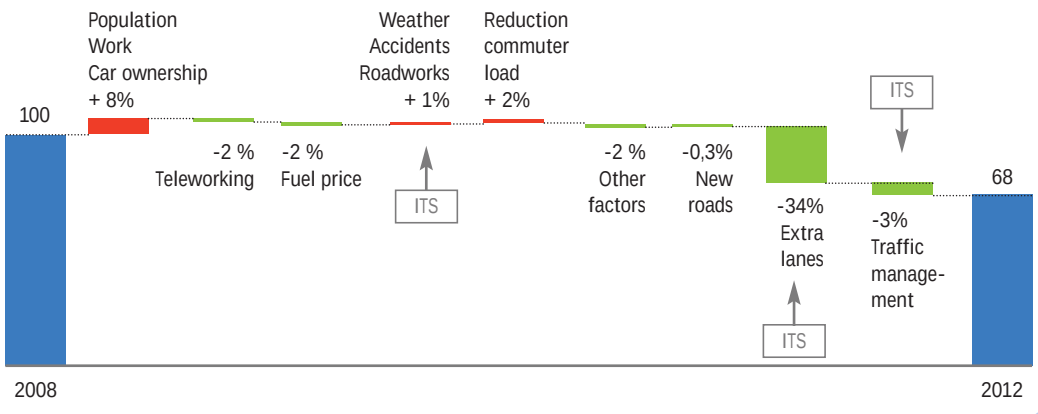


Causes of traffic jams on national roads in 2011

Every year, the Knowledge Institute for Mobility Policy (KiM), part of the Ministry of IenM, maps out the effects of various measures. These effects are published in the Mobility Balance (Mobiliteitsbalans) and show that in the period from 2008 to 2012 the vehicle hours lost in congestion on the main road network decreased by a total of 32 percent. Three percent of that decrease is due to additional traffic management (dynamic route information panels and ramp metering systems), and 34 percent to the construction of extra lanes, many of which are rush-hour lanes. The rush-hour lanes are managed using ITS systems, which means that ITS also in this way contributes to a reduction in lost vehicle hours.

In addition, existing ITS systems also have an impact on the limited increase in lost vehicle hours caused by accidents and roadworks due to the deployment of incident management. Given the large amount of traffic on the Dutch roads (see page 22) the increase in lost vehicle hours would be many times higher. Apart from the extra effects created the last 3 years, the deployment of traffic and incident management during the past decades has generated a basic level of accessibility without which performance would deteriorate significantly. The measures that effected the lost vehicle hours are shown in the figure on the next page.

The effects of traffic management on the reduction in lost vehicle hours differ for each region. For example, traffic management in the Randstad North-Wing helps to reduce lost vehicle hours by 12 percent. The reduction in the lost vehicle hours is expressed in social benefits and therefore also justifies the investments in ITS measures to increase accessibility.



Factors with their corresponding effect on lost vehicle hours

In addition to the effects on travelling time, the Mobility Balance has also identified a reduction in the unreliability of travelling time. In accordance with the recommendation of the OECD (2010), unreliability is defined as the extent to which travelling time is longer or shorter than the travelling time that the traveller expected beforehand. This definition covers both the structural, daily variations and the incidental minor and major disruptions. The unreliability was measured between 2001 and 2012. During this period, total unreliability dropped by 9 percent. The factors that affect unreliability have roughly the same effects as the factors that affect lost vehicle hours. For traffic management, that means a 9 percent contribution to the reduction over the period from 2001 to 2012.

One indication of the potential effect of ITS is the difference in congestion between (summer) holidays and other periods in the Netherlands. During the (summer) holiday period, there is around 10-15 percent less traffic on the road and hardly any congestion. This justifies the ITS measures to more effectively distribute demand and also to more effectively gear the supply to the demand.

Effects on traffic safety

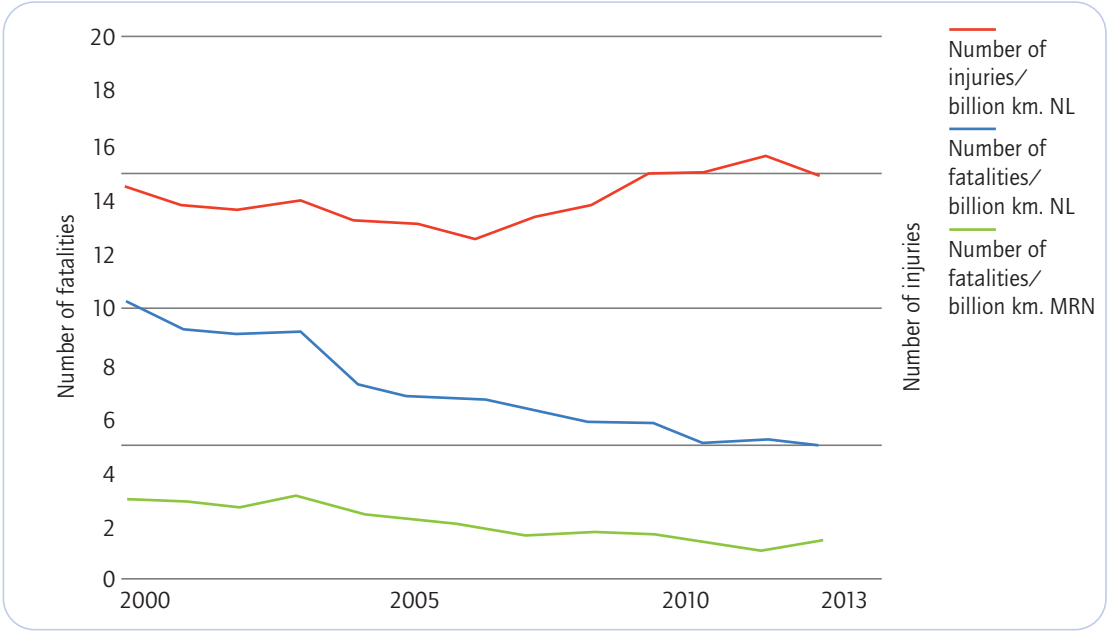
The following numbers illustrate the current situation on road safety in the Netherlands. These numbers are published by CBS in collaboration with the Department for Transport and Water management of the Ministry of IenM.

The number of fatalities in traffic has decreased from 640 in 2010 to 570 in 2013. When a distinction is made between the main road network (motorways) and the secondary road network, it is seen that 12% of the number of fatalities is registered on the main road network. Most of the fatalities have been registered on the secondary road network. Vulnerable groups are the elderly, about 230 fatalities, and young people between 18 and 24 years (approximately 83 fatalities). In the past three years there has been a rise in the number of traffic fatalities amongst the elderly, where the number of fatalities has decreased amongst young traffic users. When these numbers are broken down by mode of transport, it is clear that cyclists and motorcyclists are vulnerable targets, where an increase in the number of fatalities is observable.

It is unknown what the contribution of ITS has been on the decline in the number of fatalities. Based on these numbers there is potential for ITS systems for road safety on secondary roads and accidents involving vulnerable groups such as youth/elderly and slow traffic. An example of the potential of ITS on the main road network are the signalling systems. About 1.000 km (41%) of the Dutch motorways is equipped with signalling systems. According to Elvik (2009), signalling devices can achieve a 16% reduction in the number of follow-accidents and achieve a reduction of 44% in the number of accidents in traffic jams.

There will be tests done with in-car systems to reach the same effects.

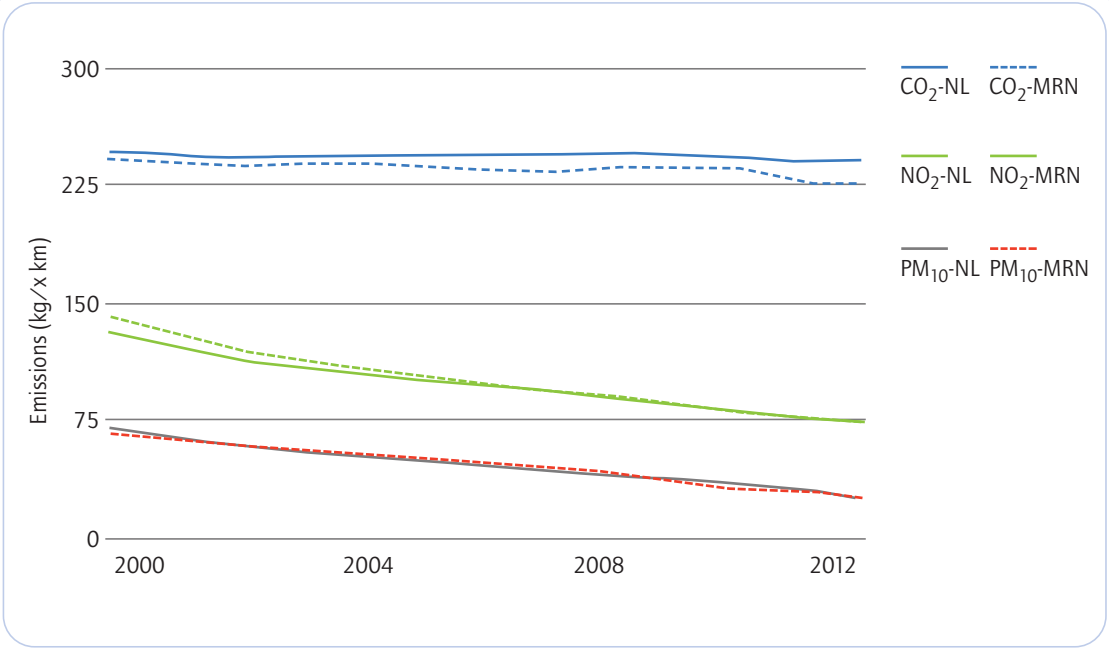
Occupational safety can also benefit from signalling systems, because it can be used in incident management and work in progress. Lanes can be released and the speed can be reduced. Furthermore, there is no need to set up temporary signalling when permanent signalling systems are already in place. The temporary placement itself also brings risks with it for those who have to set this up on the roads.



Source: 'Verkeer in Nederland 2014', Traffic Quest. (MRN = Main Road Network)

Effects on Sustainability

In the area of sustainability, no statistical effects are known on national level for the last couple of years, but there are promising effects on project level such as Freilot descriped on p. 44, with minus 13-14% on CO_2 en NOX. The figure on the next page shows the results on the reduction of CO_2, PM10 en NOx since 2000. It can be assumed that less congestion and the use of Advanced Driver Assistance Systems result in reduced fuel consumption and therefore to lower emissions. We are currently working hard to increase our understanding of the effects of ITS on achieving sustainability objectives. In this area, research is in any case being conducted into the way traffic information (also in-car) is enhancing accessibility. In public-private cooperation, a process is taking place in which indicators are being mapped out on the level of project output, on the effects achieved, and on the relationship between them. In the coming years, this overview will have to serve as the basis for monitoring the contributions of the specified transitions in the area of ITS.



Source: 'Verkeer in Nederland 2014', Traffic Quest

1.4 Platforms

The Netherlands is very active in the area of platforms for cooperation between organisations and sectors. Examples include DITCM, LVMB and Connekt. An overview of our platforms is included in the interactive map: www.itsplan.nl.

International

The Netherlands is also active on various international platforms and activities. A few examples include:

- Contribution to the further development and maintenance of DATEX II, the language-independent data exchange standard that makes it possible to exchange traffic information Europe-wide. The Netherlands assumed the chair of the strategy group in 2013.
- RWS is member and through CEDR chairman of the Amsterdam Group. This is a collaboration between Car2Car consortium, CEDR, ASECAP and POLIS. Here, the direction of services and standards are proposed for amongst others the Corridor NL-DE-AT.
- The Netherlands also participated in drawing up the following proposals that were submitted and honored on the basis of the 2013 TEN-T MAP calls: the context of the EasyWay programme for the EIP and EIP+ horizontal projects, and the ITS implementation Corridors, Ursa Major and Arc Atlantique. Hereby the Netherlands, i.e. RWS, often plays a coordinating role. The main goal is to continue cooperating, regarding harmonized implementation, with fellow-road authorities all over Europe on operational and tactical level, and to develop joint deployment guidelines.
- Various provinces in the Netherlands contribute to projects such as COMPASS4D.
- RWS, DITCM and TNO contribute to the international standardisation of ITS, through ETSI, CEN and ISO.

DITCM (Dutch Integrated Testsite for Cooperative Mobility)

DITCM Innovations is an open innovation organisation in which government organisations, industry and knowledge institutes are working together on the successful introduction of cooperative systems to support sustainable mobility and accessibility. DITCM Innovations has almost 30 partners who jointly operate a development and test environment for new forms of intelligent vehicles and the related intelligent roadside systems. Their goal is to accelerate smart mobility solutions.

LVMB

The National Traffic Management Consultative Committee (LVMB) is a national consultative body for traffic management, consisting of RWS, Provincial Governments and municipalities. By harmonising more closely with each other, these road authorities can divert traffic on time and in that way reduce the number of traffic jams. Founded in 2009, local government organisations and Rijks-waterstaat are working together in LVMB to make agreements in the area of traffic management. In 2010/2011, LVMB launched 'control teams' that focus on regional cooperation.

Connekt/ITS Netherlands

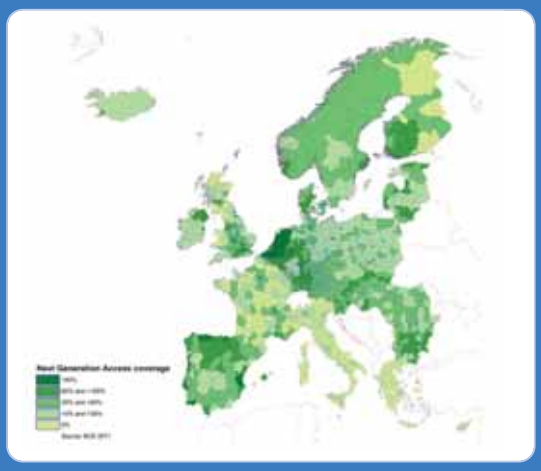
The Connekt/ITS Netherlands network consists of approximately 120 members and over 250 additional members in the Lean and Green network. This includes relevant organizations and companies in the field of traffic and transport in the Netherlands: both the Government and local authorities, as well as companies from logistics and ITS industry, research institutes and other stakeholders.

The network is based on three principles: connect and collaborate, trust, and personal approach. Based on these three principles and the representation of major Dutch ITS industry in the Connekt network, Connekt is able to bring parties together, so they can make decisions that are widely supported by a decisive part of both government and industry, without necessarily having 100% of the stakeholders covered.

Connekt/ITS Netherlands also has access to a large international network and international knowledge and has MoU's with ITS countries worldwide. Connekt employs this access in various way: to share international knowledge and developments in the Netherlands, to influence international developments and to promote the Dutch mobility sector abroad. Connekt provides continuous disclosure of (inter)national knowledge in the field of traffic and transportation, in order to anticipate both quickly and efficiently on current developments.

This chapter has given insight in our current policy lines, platforms, investments and national effect on ITS. The specific projects and their results are presented in the next chapter.

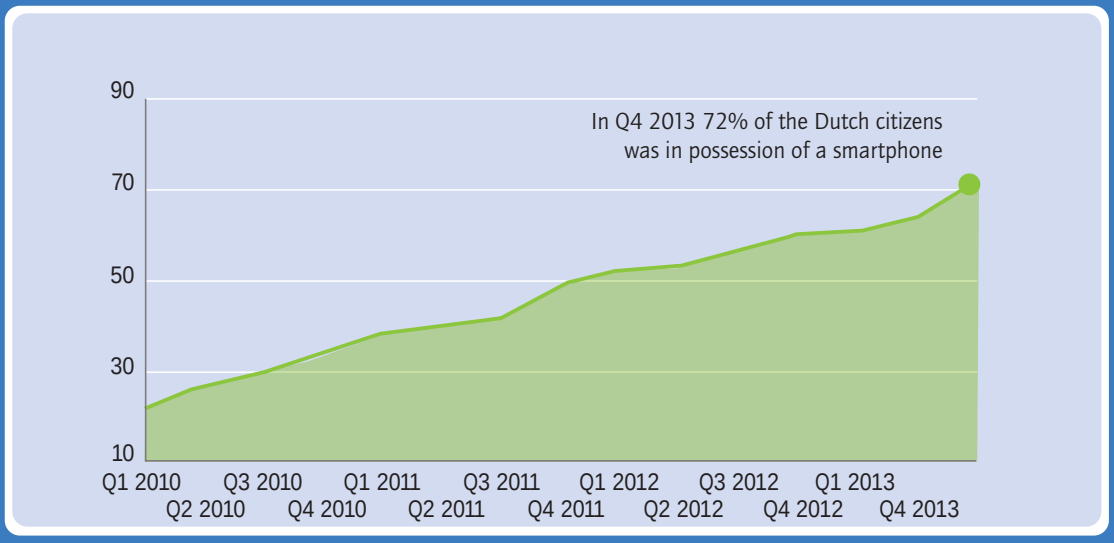
Connectivity in The Netherlands



4G Coverage

3G Coverage

In the Netherlands, there is a noticeable shift from roadside systems to more and more in-car services and services to end users. This shift is being facilitated by the growing connectivity of end users. Ninety-three percent of the Dutch population has access to the internet from home. This percentage is far above the EU average (72 percent for 28 countries) (Source: Eurostat, 2013). The availability of 3G and 4G in the Netherlands is high compared to other countries.



Penetration smartphones

Trends

Car use of among young adults aged 18-29 years old decreased between 1995 and 2009, both in terms of the number of trips undertaken and number of kilometers travelled. This was partly due to decreases in the number of employed young people and increases in the amount of students who especially reside in urban areas (KiM, Mobility Balance 2013).

Another prominent trend in the Netherlands is 'car-sharing'. In 2013, more than 5,200 cars were being shared. People in three-quarters of all Dutch municipalities are now sharing their cars. Car-sharing is particularly prevalent in the highly urbanized areas, accounting for approximately 57 percent of shared cars. (source: KpVV, 2012). Little is known about how shared cars are used (the number of journeys, kilometers driven, reasons for travelling) (KiM, Mobility Balance 2013).

Trends such as car-sharing are interesting to mention because it facilitates the transition to mobility as a service. Apps and online services that reveal information about the supply and demand of car-sharing appeared at almost at the same time as the term 'car-sharing'.

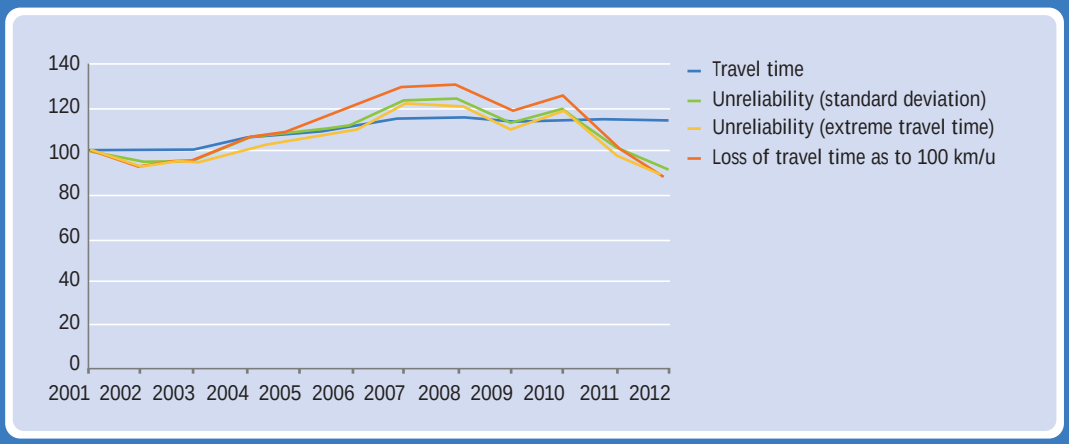
Trends

Road	Section		2009	2012
15	Kp Ridderkerk 1	Hendrik Ido Ambacht	239.728	239.400
4	Kp Prins Clausplein	Delft Noord	241.296	239.200
4	Hoofddorp	Kp De Hoek	208.287	215.800
10	Kp De Nieuwe Meer	Amstelveen S108	202.591	213.000
12	Utrecht	Nieuwegein Noord	220.652	208.500
	RO Brussel: Zaventem-Machelen		-	202.382
	RO Brussel: UZ Jette-Wemmel		181.325	199.360
	RO Brussel: Zaventem-H-st. Stevens-Woluwe		-	183.107
	M25 - M4-Heathrow		185.633	207.485
	M25 - Heathrow-A30		195.360	196.279
Engeland	M60 - A572-M602		184.002	190.044
Duitsland	A3 AD Heumar - Köln		183.869	185.422
	A100 Dreieck Funkturm - Kurfürsterdamm		186.100	169.422

Traffic intensity on international routes

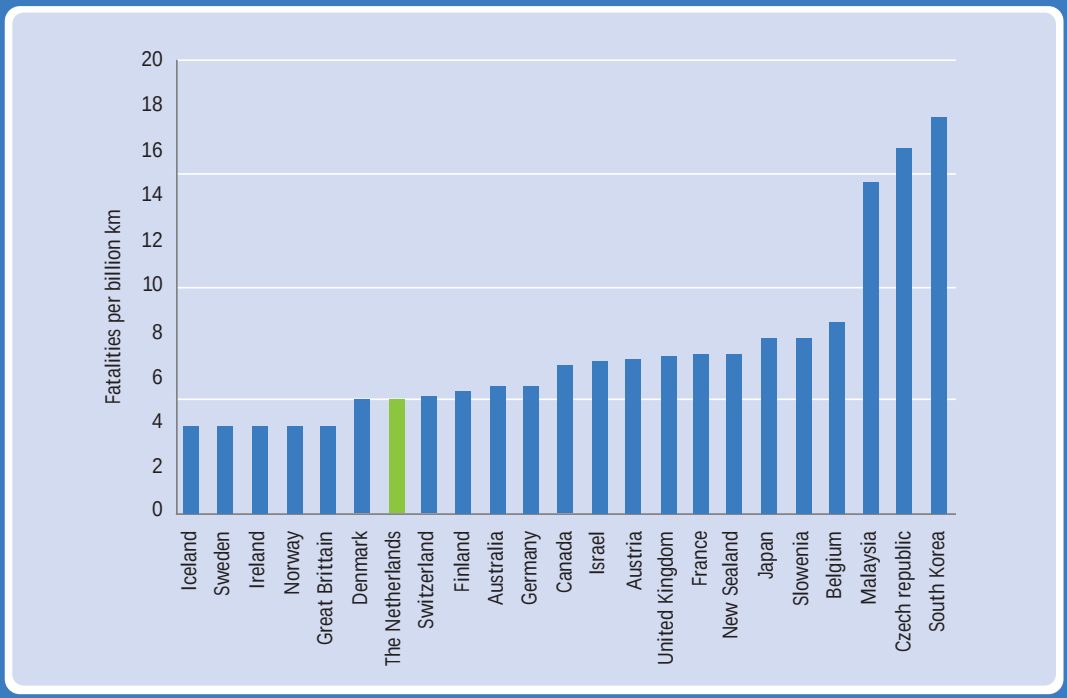
In 2012, journey time loss due to traffic jams and congestion on the main road network was 5 percent higher than in 2000. During the same period, traffic volumes on the main road network increased by 16 percent. In 2012, journey time loss was 14 percent lower than in 2011, while traffic volumes remained at the same level. Autonomous developments receive a great deal of attention in the Netherlands. In the Netherlands, a relatively high number of motor vehicles, as both lorries as passenger cars, have navigation systems.

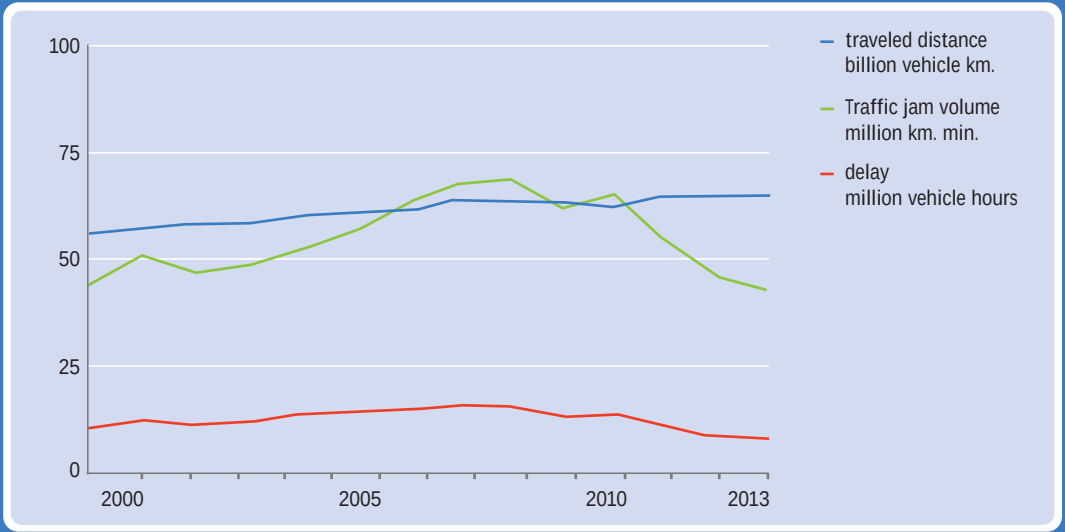
Traffic and transport in The Netherlands



Relative travel time and reliability on main road network (source: RWS, edited by KiM)

Traffic and transport in The Netherlands





Indicators of congestion for main road network (source Traffic Quest, 2014).

2

Projects, activities and initiatives

2.1 Foreword

This chapter contains a selection of high-profile projects, activities and initiatives in the field of ITS in the Netherlands that have been operational since 2010. Not only the national Government is active in the area of ITS; many local government organisations have also been very active for many years in the development and roll-out of ITS services for traffic management and incident management, amongst others. Many private parties are also working hard – either autonomously or in cooperation with public parties - to develop ITS in the Netherlands. In addition, government organisations and private parties are continuing to invest in the management/ maintenance and control of existing traffic management systems and are constantly involved in further optimising these systems.

This chapter focuses on the developments that are now taking place in each action area in the European ITS Action Plan and the ITS Directive using examples of projects, activities and initiatives that have been launched and partly completed. The examples in this chapter are considered to be the most influential in terms of developments on a national and international level over the past few years.

The action areas in this chapter are:

1 Optimal use of road, traffic and journey data
2 Continuity of management traffic and freight management
3 Traffic safety and the safety of freight transport
4 Integration of vehicles with road infrastructure.

We only have included projects and activities that are physically present or that have been realised, and for which the budget has been spent and there is sight on the effects. Besides these projects, Appendix 2 includes a table displaying a more complete overview of all projects that were launched or completed between 2010 and 2013. The example projects are described in more detail in the following sections. Section 2.6 also looks at a number of new developments in the Netherlands that are interesting for European developments and are iconic for ITS in the Netherlands. These projects are now being planned so that they can be implemented in the short term.

Development into projects

The selection of projects in the following sections gives a good idea of the current state of affairs of ITS in the Netherlands. Many of the projects presented here are currently still ongoing or are still going through the completion phase. Some projects have actually been completed.

In the past few years, there has been a significant move towards collecting traffic data and making it available. This is also evident from the number of projects and initiatives in Area 1. What is also striking is that the theme of traffic safety is reappearing in almost every project as part of the integral view of the projects. At the moment, many projects are being launched in Area 4. Attention is needed for projects that are focusing on data protection and liability in the context of mobility. The Netherlands is looking for mainly international cooperation in this area - for example, in the Cooperative ITS Corridor project and architecture/ standardisation activities.

2.2 Action area 1: Optimal use of road, traffic and journey data

In general, over the past few years there has been a very significant move towards collecting traffic data and making it available. The initiative for this is coming from both government organisations and market parties. In this context, government organisations are creating frameworks by making data available and accessible, while the market parties are deciding how to use the data. This is helping to realise one of the six transition routes in the Better Informed on the Road roadmap.
The available data involves both traffic data (including parking data) and data about public transport. The data is being made available through major national organisations, such as the National Data Warehouse (NDW) and National Data Project for Public Transport (NDOV), but there are also a number of regional initiatives, such as Open Data FWD. When the data is made available, the necessary attention is paid to standardisation using platforms such as MOGIN, BISON and DVM Exchange.
Based on this data, a strong growth in innovative services (apps, etc.) has recently become perceptible. This is being partly stimulated by the Government (for example, in Optimising Use programme) and partly being developed completely privately. This growth of services is a bottom-up development, in which the apps are increasingly multimodal but can also partly overlap.

NDOV (NATIONAL DATA PROJECT PUBLIC TRANSPORT)

Stakeholders	The State, Provincial Governments and City Regions market parties
Status	Ongoing
Area of realization	National
Expenses	€ 650.000 / every year / public

DESCRIPTION

The State, the Provincial Governments and the City Regions launched the National Data Project Public Transport (NDOV) in 2009. Transporters (and government organisations in relation to public transport stop data) make their source data available to a point of access that passes on the unchanged data to purchasers. Interested market parties must submit a proposal to the Government to set up a point of access. The focus of the NDOV is on opening up flows of raw data and validating them, where necessary.

TARGETS

The aim of this project is to make source data for travel information for public transport available to purchasers. The purchasers can then use the source data to develop travel information services for travellers.

RESULTS

Two parties, 9292/Reisinformatiegroep and Stichting OpenGeo, have shown that they are willing and able to offer a point of access for public transport (or transit) data. All parties want to realise further optimisation of travel information. Government organisations and transporters are working to achieve continuous quality improvement and make the data uniform so that it can be used as travel information. They will work together in an organisation in which government bodies and transporters are represented and both points of acces are assigned an advisory role. The base data in the NDOV project consists of static and real-time data needed for travel information for travelers, schedules, stops, fares, actual position of the vehicles and approximately 50.000 public transport stops. In 2014, every public transport stop will be assigned a unique number and the missing information will be added. This should lead to a single public transport stop database for each public transport authority and a single total database. This total database can then be refreshed every day at the NDOV points of access.

NATIONAL DATA WAREHOUSE FOR TRAFFIC INFORMATION (= NDW)

Stakeholders	24 roadauthorities, service providers
Status	Ongoing
Area of realization	National
Expenses	€ 71 million / 5 years / public

DESCRIPTION

NDW started to operate in 2009 and has developed to a unique alliance in which 24 public authorities are working together to collect, store and distribute traffic data. This data is being used to provide traffic information, ensure effective traffic management, and perform accurate traffic analyses. The NDW database provides an insight into the current traffic situation on the participating authorities' motorways, highways and urban through routes. The database also provides status data, such as information about roadworks. In 2013, the real time traffic data became available as open data, and this was followed by the status data in 2014.

TARGETS

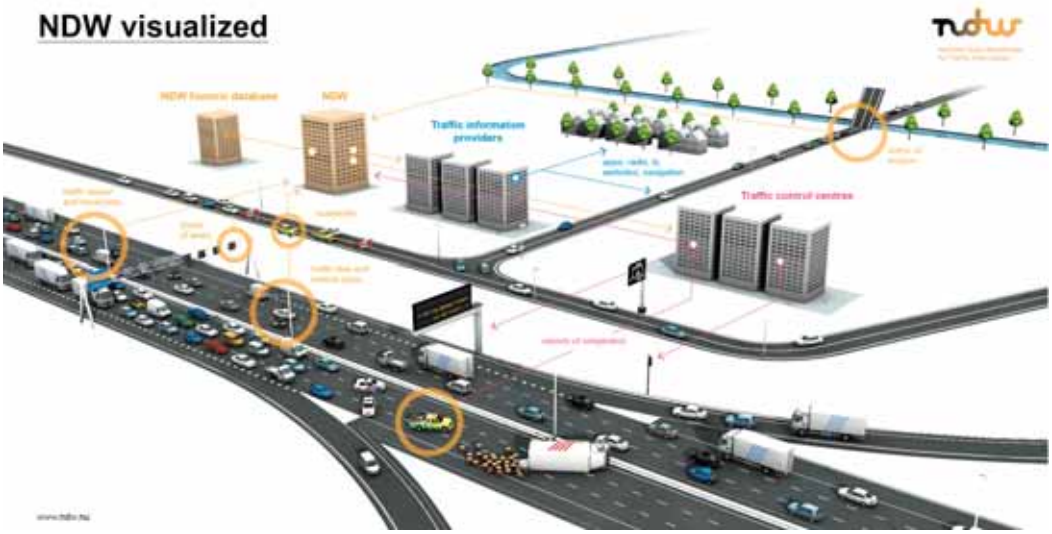
Priorities in the NDW Businessplan 2014-2017:

- Stimulating the use of data.
- Realising economies of scale for participating road authorities.
- Acting as a central portal for open data.
- Stimulating innovation.
- Acting as a provider of Big Data for the participating road authorities.

RESULTS

A central source of information for road authorities to ensure effective traffic management and to conduct accurate traffic analyses. A central source of information for service providers for traffic information. Open Data Service for app and website builders. Real time data about 6.000 kilometres of roads, 24.000 measurement sites, processing 150.000 data items every minute.

Planning information about roadworks on practically all roads. Working on adding real time data about roadworks to the database. The historical database contains 200 terabytes of data and has been used 10.000 times (April 2014) to conduct a historical analysis.



OPEN PARKING DATA

Stakeholders	RDW, Municipalities, Car park operators, Service providers, Traffic information, Suppliers of parking systems
Status	Ongoing
Area of realization	Local (15 municipalities)
Expenses	€ 1 million / 1 year / public

DESCRIPTION

Open parking data is responsible for 5 to 20 percent less 'search' traffic in cities with regulated parking. This is made possible by providing access to dynamic parking data. Service providers can then notify road users about where and when there are free parking spaces. The project has a multi-stage goal: by the end of 2014, 35 municipalities should have made their dynamic parking data accessible. By late 2015, 95 percent of those cities must have made their dynamic parking data accessible.

TARGETS

The aim of Open parking data is to achieve 5 to 20 percent less 'search' traffic in the cities with regulated parking as well as qualitative goals such as the reduction in CO_2 and Nox emissions. In addition, the project has the following objectives:

- 'More efficient government'; by managing open data and expanding it at the RDW, a generic and nationwide infrastructure can be developed to which municipalities can become connected.
- 'Provision of good data quality and quality of services'; most of the static data is already present in the National Parking Register, so it is efficient to use this source. Data that is not available for the RDW is supplied by the commercial operators, such as P1, Q-Park, and so on.
- 'Active participation in changes in the chains'; this is being realised by helping to develop new information services.

RESULTS

The following results have already been achieved:

- Number of transactions up to May 2014: 35.820.
- 141 municipalities with information about 'on-street' paid parking.
- 65 municipalities and 13 private parties with information about 'Garage parking'.
- 22 municipalities and 9 private parties with information about 'site parking with barrier'.
- 6 municipalities and 3 private parties with information about 'P+R sites'.
- 15 interested parties for the purchase of Parking data.
- Already two cities publishing their dynamic parking data in July 2014.

ELECTRONIC PUBLICATION OF TRAFFIC DECISIONS

Stakeholders	Ministry of IenM, BZK/KOOP, VNG, RWS and other road authorities, Falk and other map makers
Status	Completed
Area of realization	National
Expenses	€ 500.000 / once-off / public, € 200.000 / every year / public

DESCRIPTION

From 1 January 2013 onward, all public road authorities in the Netherlands were obliged to publish new traffic decrees (mandatory for bans/ orders and other regulatory measures lasting longer than 4 months) in a standardised electronic format for the Government Gazette. That makes it easier for map makers to keep their maps up-to-date and saves money spent by road authorities for publications in newspapers. This project was launched in 2011 and was completed in 2012.

TARGETS

The goal of the project is to improve route information for road users (qualitative); this can be measured indirectly by consulting with map makers and examining case studies, where relevant. The aim is also to save the costs of publication in newspapers.

RESULTS

The savings in publication costs by road authorities were estimated at an average of 7.500 euros a year. For more than 400 road authorities, that amount can increase in the long term to more than 3 million euros for around 9.000 traffic decrees per year. An evaluation is planned in the autumn of 2014.

PLATFORM MOBILITY AND GEO INFORMATION NETHERLANDS (MOGIN)

Stakeholders	Open Platform
Status	Ongoing
Area of realization	National
Expenses	€ 100.000 / every year / PPS

DESCRIPTION

MOGIN stands for Platform Mobility and Geo Information Netherlands. MOGIN is a neutral platform within which discussions are held about functionality and the technical translation of that functionality into standards. In this way, the mobility sector is entering into broad-based agreements about how location-based mobility information is exchanged between parties. MOGIN also serves as a platform for the preparation of the relevant decision-making in European standardisation forums, so that the Dutch interest can be presented unambiguously in Europe. MOGIN was launched in February 2011 and is still active.

TARGETS

Goal: standardisation of Dutch mobility information.

RESULTS

Public and private parties are entering into agreements about the use of the standards. The Traffic information location database (VILD) is being managed in the context of MOGIN. The desired changes are being made in the VILD. In addition, MOGIN includes a number of study groups. For example, there is a study group that is managing the RDS TMC table. There is also a Location Reference study group working on a standard so that location data can be shared and exchanged. Lastly, there is a study group focusing on refining the DATEX-II in terms of the Dutch profile. Recently they have contributed to a proposal for a DATEX parking profile.

TOP 5 DATA IMPROVEMENT

Stakeholders	Ministry of IenM, 11 Optimising Use regions, NDW, RWS/CIV, Coordination Group of the LVMB
Status	Ongoing
Area of realization	Regional
Expenses	€ 3 million / 1 year / public

DESCRIPTION

The idea is that well informed travellers travel more smartly. That leads to fewer delays and better utilisation of the roads. Good travel information requires reliable, up-to-date and complete data as a raw material. Data supply is part of the information chain. The project is monitored in terms of the data that is being supplied. At the request of market parties, data about roadworks, location reference, maximum speeds, time remaining indication incidents and traffic measures in control scenarios is made available. The market parties have indicated that this is the most useful Top 5 as it enables them to provide good services to road users through private information services.

TARGETS

The aim of the project is to access data from public organisations and structurally guarantee that access. The project is being monitored on the basis of the data being supplied. In cooperation with other Optimising Use projects, an insight is gained into the effect of the chain on accessibility (VVUs).

RESULTS

The initial deliveries of the data took place on February 15, 2014. At that time, the private service providers also presented their first version of the information services, partly based on this data, and made it publicly available (for example, through an app store). These apps are obliged to use the data in the Top 5 Data Improvement. Now the focus of the work is on improving and safeguarding the data. Completion of the project is scheduled for 1 September 2014.

OPEN DATA FWD

Stakeholders	Municipality of Amsterdam, Municipality of Utrecht, Municipality of Rotterdam, Municipality of The Hague, Waag Society
Status	Completed
Area of realization	Urban (G4)
Expenses	€ 90.000 / 1 year / public

DESCRIPTION

Opening up more data in the largest four municipalities (G4) in the Netherlands in the field of mobility (bicycle, public transport, car & parking) and stimulating smart applications for the reuse of open data in the G4 by means of a 'challenge'.

TARGETS

The aim of Open Data FWD is to open up more data, to stimulate app development, to stimulate the smart use of open data that enables government mobility objectives to be achieved (reliability, safety), and to stimulate more uniformity in open data nationally by working together with several municipalities and using a single platform to access the open data of numerous road authorities (citySDK).

RESULTS

The project attracted in 20 entries for the challenges, with winners in each category. The winners will be given the opportunity to further develop and realise the application.

DATABASE OF HEIGHT AND WIDTH RESTRICTIONS

Stakeholders	RDW, Road Authorities, Geonovum, Kadaster (Land Registry), Software Developers, Sector organisations, Law enforcement
Status	Completed
Area of realization	National
Expenses	€ 1 million / once-off / public

DESCRIPTION

Database containing information about the heights of bridges and tunnels, weight limitations and other useful information for special vehicles. The database contains information that is relevant for the drivers of exceptional road transport. The database is a precondition for ITS for these vehicles.

TARGETS

Effectiveness: data quality, open data, fewer illegal transports, better law enforcement.
Efficiency: lower management costs.

RESULTS

The results are positive: in the old situation a transport company would request an exemption for an average of 11,8 road authorities. Nowadays transport companies request exemptions for an average of 80 road authorities. This is an increase of factor 7 which indicates that the amount of times that an abnormal transport illegally transported on a road has reduced. Transporters pay a small amount with every exemption they apply for, so a return of investment is expected within five years.

BISON

Stakeholders	Open Platform
Status	Ongoing
Area of realization	National
Expenses	€ 400.000 / every year / public

DESCRIPTION

The BISON platform has been working on national uniform information standards for public transport travel information since 2008. The BISON platform was commissioned in 2008 by the (then) National Mobility Consultation Body (NMB), and was set up to manage, develop and exploit information standards that are important for the accurate exchange of information between parties in public transport. Here, the emphasis is particularly on dynamic travel information. The BISON organisation, affiliated to Connekt/ITS Netherlands, is facilitating this process and publishing the definitive standards.

TARGETS

Since its foundation in September 2008, BISON has been focusing on its core activities: harmonising and standardising information exchange in public transport, expanding the existing framework with new functionality, thinking along with parties in the application of those standards in their practical situations, and involving new parties in Dutch public transport.

RESULTS

The subject of European Standardisation is now structurally on the agenda. The BISON platform is facilitating structural participation in the European meetings of NeTEx. The 'Delta's' interface, intended to communicate deviations from the timetable, has been developed. A standard has been developed for dynamic platform allocation. This is a standard for exchanging information for decisions taken by systems for dynamic platform allocation at bus and tram stations. Research is being carried out into the quality of the standards.

DVM MANAGEMENT EXCHANGE

Stakeholders	Open Platform
Status	Ongoing
Area of realization	Regional
Expenses	- / every year / PPS

DESCRIPTION

The development of an open standard for communication between central systems in the domain of regional dynamic traffic management. DVM Management Exchange is the open standard that is optimising the communication between various network management systems.

TARGETS

The aim of DVM management Exchange is to arrive at an open standard for dynamic traffic management. The latest version of the standard was made public at the end of 2013. The platform was set up in April 2012 and is still active.

MULTIMODAL TRAVEL INFORMATION

Stakeholders	5 market consortiums through PCP, Ministry of IenM, 5 regional government organisations,
Status	Completed
Area of realization	National
Expenses	€ 1.6 million / once-off / PPS

DESCRIPTION

The Ministry of IenM is working together with the Provincial Government of North Brabant on the Multimodal Travel information project (MMRI). They are receiving support from the regions of Twente, Assen-Groningen, Arnhem-Nijmegen and Maastricht. What makes dynamic journey planners innovative, is the fact that they can use multimodal travel information to link all types of public transport to each other. Information about the train, bus, metro, tram and ferry is included in a personalised planner that is kept up-to-date about the latest modifications. This enables travellers to make well-informed transport choices both before and during their journey. That leads to better utilisation of rail, road and waterways.

TARGETS

The development of five multimodal journey planners for public transport that use realtime and transfer data. The effects of the project are being calculated in cooperation with the other projects in the information chain.

RESULTS

As part of the MMRI project, five new journey planners have now been realised and were launched on March 28, 2014, that are providing real time travel information and that have a monitoring function. The knowledge acquired in this area is now being broadly distributed among commercial parties for further development and application (largely open source).

2.3 Action area 2: Continuity services for management traffic and freight

In action area 2, the Netherlands is focusing mainly on logistics, given that logistics is regarded as one of the top sectors. The Netherlands has already taken many steps in the area of traffic management, and is aiming to make the biggest improvements mainly in the cooperative systems (action area 4).
The main characteristic in action area 2 involves the large public-private cooperative ventures in the logistical chain, where information exchange is the main enabler. One interesting development is the national public-private cooperation on the Neutral Logistic Information Platform (an open ICT platform for the exchange of logistical data). A special programme has been launched in the Netherlands for the optimisation of transport on waterways (IDVV). IDVV is focusing on more efficient planning in the chain and better utilisation of the waterways.

The Netherlands is paying specific attention to the optimisation of cross-border transport (customs clearance, etc.). Projects greatly depend on international developments, such as the electronic consignment note, for example. This only works when several countries are taking part.

NEUTRAL LOGISTIC INFORMATION PLATFORM (NLIP)

Stakeholders	Topteam Logistics, Connekt, EVO, Schiphol Group, Port of Rotterdam, TLN, Fenex, VRC, ECT, KLM, Ministry of Finance (Customs), Rijkwaterstaat, Ministry of Economic Affairs, Cargonaut, Portbase, Amsterdam Authority, LINC, ACN, APMT, Frugiventa, Flora Holland, Logius, TU Delft
Status	Ongoing
Area of realization	National
Expenses	€ 2,5 million / 3 years / public

DESCRIPTION

The introduction of the Neutral Logistics Information Platform (NLIP) signals a breakthrough for logistics in the Netherlands. The NLIP is an open ICT platform on which businesses and government organisations are sharing data. We can use that shared data to optimize logistical flows by combining more trips and thus make sure that trucks are driving with full truck loads. This also enables the Government to more effectively harmonise its processes. By means of the NLIP, government organisations and companies are exchanging not only logistical data, such the type of and amount of goods, the destination and the expected and actual arrival time, but also information about congestion on the roads, waterways and railways and data about the release of goods or inspection results. The intention is for all of this data, which improves harmonisation between the parties in the chain, to be made available by the NLIP.

TARGETS

In 2020, we want 90 percent of all platforms in the Dutch supply chain to be affiliated to the NLIP and all companies and government organisations to be communicating with each other through this platform in a standardised way. The result: a faster turnaround time, a reliable arrival time, fewer transport movements, better accessibility, lower costs and less burden on the environment.

RESULTS

Based on the shared data within the NLIP, several projects are initiated and implemented. These projects continue to make use of the NLIP as an ICT platform. One of the concrete NLIP projects involves the realisation of Paperless Road transport.

IMPULS DYNAMIC TRAFFIC MANAGEMENT WATERWAYS (IDVV)

Stakeholders	Port authorities, Inland ports, Seaport terminals, Inland port terminals, Container terminals, Shipping companies, Deep-sea Carriers, Shortsea Carriers, Container operators, Barge operators, Shippers, Logistics service providers, Shippers, Orchestrators, Distribution centres, Airport, Forwarders, Portbase, Cargonaut, European Commission, Topsector Logistics, Rijkswaterstaat, Ministries, Provincial Governments, Municipalities, Regional cooperative ventures, Police, Dutch Royal Military Constabulary, Customs, Inspection Service Information Services, Traffic control centres, Universities, Knowledge institutes, Telecom companies, Mail delivery service, (ICT) Consultancy firms, Sector associations and Interest groups.
Status	Ongoing
Area of realization	National
Expenses	€ 100 million / once-off / public

DESCRIPTION

The aim of the Impulse Dynamic Traffic Management Waterways programme is to more effectively utilise the space on the waterways by facilitating better planning in the chain. In order to stimulate and facilitate the expected growth of container transport, there is a need for predictable travelling times, a more informative process, a better proposition of inland shipping and new logistical concepts.

TARGETS

A number of different projects have been launched in the context IDVV. The approach and objectives of these projects vary, but the common themes of the IDVV programme are cooperation, stimulating information exchange and concrete substitution from road to water. The main objectives of IDVV are therefore:

- Creation of predictable travelling times over water.
- Improvement of the informative process.
- Attractive inland shipping proposition.
- Development of new logistical concepts.

RESULTS

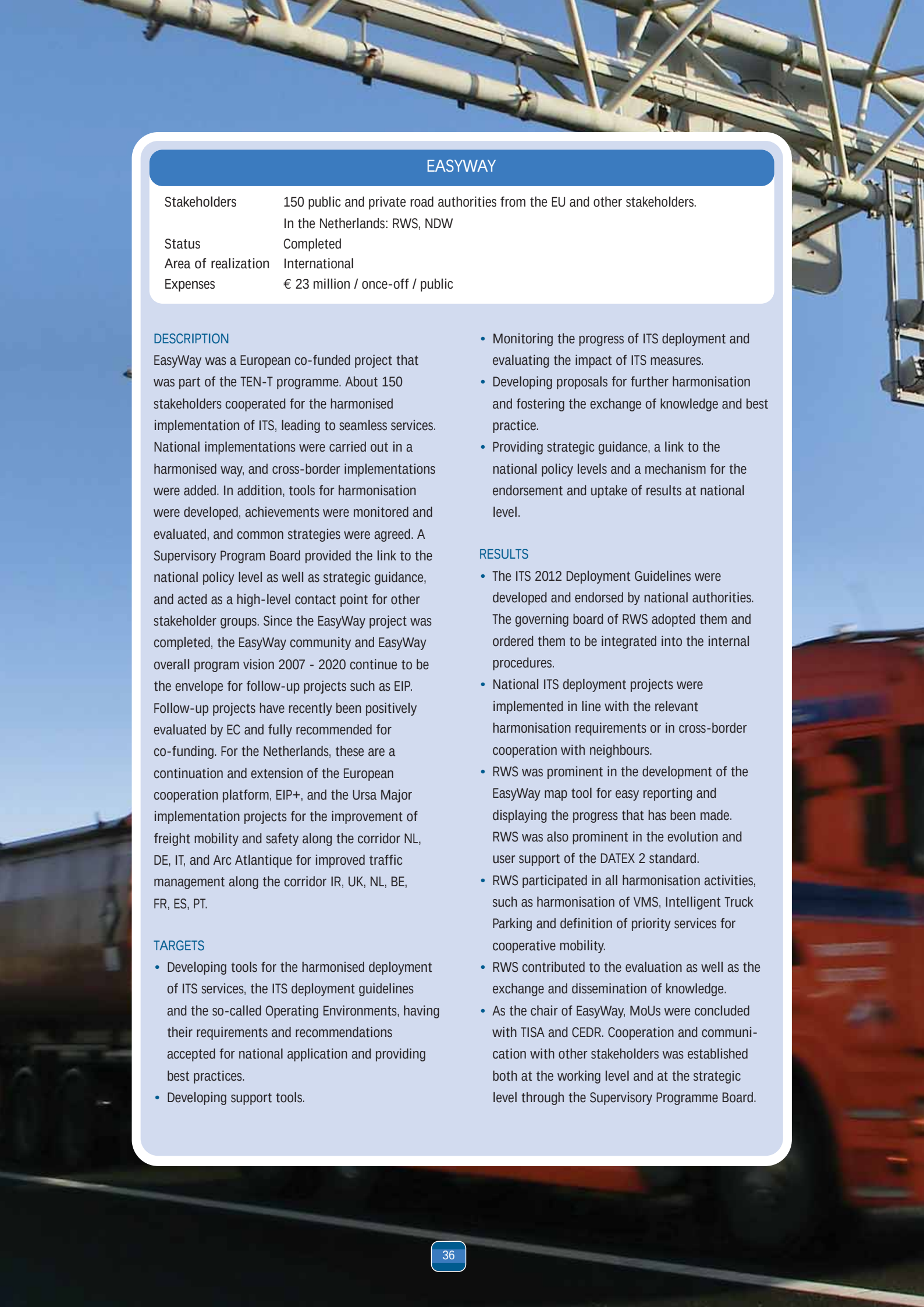
A large portfolio of projects has been developed in which all the important chain parties (groups) are involved, including the end users (shippers). The participating barge operators and terminal operators represent more than 60 percent of the total business of their respective business groups. In almost all projects, the IDVV programme has been found to give a real incentive to both horizontal and vertical cooperation between market parties throughout the logistical chain. A portfolio of dozens of projects in now being managed, and these projects are being implemented by consortiums of market parties. The following results have been achieved with these projects

- Number of TEU relocated from road to water: around 133.000; between 160.000 and 220.000 TEU are expected to be relocated in 2014.*
- Number of road kilometres saved: around 12,8 million kilometres.
- CO_2-reduction: around 6,500 tons.

One of the projects in IDVV is Lean and Green Barge. Lean and Green Barge is a shipper-driven initiative that focuses on facilitating horizontal cooperation between shippers by combining cargo flows. The goal is to help achieve a modal shift from road to water. From 2014, attention is also being paid to the modal shift to rail, thus developing a synchronous, modal perspective.

- Number of participating shippers that have entered their transport data: 83.
- The total annual number of TEU in this database has grown from 515.049 to 538.152.
- The modal shift, including ongoing pilots, has grown from 41.666 to 54.019 TEU.

The total number of containers transported every year by inland shipping is around 3,2 million TEU. The total transhipment of containers in the Port of Rotterdam was around 11,9 million TEU in 2012 (source: Rotterdam Port Authority's annual report), including the containers that are then transported further by sea.



EASYWAY

Stakeholders	150 public and private road authorities from the EU and other stakeholders. In the Netherlands: RWS, NDW
Status	Completed
Area of realization	International
Expenses	€ 23 million / once-off / public

DESCRIPTION

EasyWay was a European co-funded project that was part of the TEN-T programme. About 150 stakeholders cooperated for the harmonised implementation of ITS, leading to seamless services. National implementations were carried out in a harmonised way, and cross-border implementations were added. In addition, tools for harmonisation were developed, achievements were monitored and evaluated, and common strategies were agreed. A Supervisory Program Board provided the link to the national policy level as well as strategic guidance, and acted as a high-level contact point for other stakeholder groups. Since the EasyWay project was completed, the EasyWay community and EasyWay overall program vision 2007 - 2020 continue to be the envelope for follow-up projects such as EIP. Follow-up projects have recently been positively evaluated by EC and fully recommended for co-funding. For the Netherlands, these are a continuation and extension of the European cooperation platform, EIP+, and the Ursa Major implementation projects for the improvement of freight mobility and safety along the corridor NL, DE, IT, and Arc Atlantique for improved traffic management along the corridor IR, UK, NL, BE, FR, ES, PT.

TARGETS

- Developing tools for the harmonised deployment of ITS services, the ITS deployment guidelines and the so-called Operating Environments, having their requirements and recommendations accepted for national application and providing best practices.
- Developing support tools.
- Monitoring the progress of ITS deployment and evaluating the impact of ITS measures.
- Developing proposals for further harmonisation and fostering the exchange of knowledge and best practice.
- Providing strategic guidance, a link to the national policy levels and a mechanism for the endorsement and uptake of results at national level.

RESULTS

- The ITS 2012 Deployment Guidelines were developed and endorsed by national authorities. The governing board of RWS adopted them and ordered them to be integrated into the internal procedures.
- National ITS deployment projects were implemented in line with the relevant harmonisation requirements or in cross-border cooperation with neighbours.
- RWS was prominent in the development of the EasyWay map tool for easy reporting and displaying the progress that has been made. RWS was also prominent in the evolution and user support of the DATEX 2 standard.
- RWS participated in all harmonisation activities, such as harmonisation of VMS, Intelligent Truck Parking and definition of priority services for cooperative mobility.
- RWS contributed to the evaluation as well as the exchange and dissemination of knowledge.
- As the chair of EasyWay, MoUs were concluded with TISA and CEDR. Cooperation and communication with other stakeholders was established both at the working level and at the strategic level through the Supervisory Programme Board.

PAPERLESS TRANSPORT

Stakeholders	TLN, FENEX, Ministerie van IenM, Topteam Logistiek, NLIP, Connekt, Beurtvaartadres, EVO
Status	Ongoing
Area of realization	National
Expenses	€ 700.000 / 3 jaar / PPS

DESCRIPTION

The project Paperless (road) transport focusses on the establishment of applicable European standards for electronic exchange in (road) transport and a proof of concept of the exchange process. Within this project there are established standards for electronic transport orders, delivery notes and invoices.

TARGETS AND RESULTS

The project has resulted in the following results so far:

- Completion of four TNO-developed standards for electronic exchange in the (road) transport:
  - Transport Execution Plan (TEP) request
  - Transport Execution Plan (TEP)
  - Waybill
  - Invoice.
- A platform with various connectivity options that helps businesses to implement an easy solution, such as a Web browser or workshops paperless transport.
- Several practical tests of the offered solutions have shown that the use of the standards and the platform easily lead to the digitization of documents. Therefore a digital process is possible, resulting in a faster, cheaper and more accurate process.
- Greater awareness for the need of electronic information exchange in the sector due to communication activities. Several meetings, presentations, interviews, discussions and articles
- Developed standards have been tested in practice
- Practical experience and knowledge for the benefit of scaling up the project.

2.4 Action area 3: Applications for traffic safety and security

There are various initiatives in action area 3, mainly initiated by the national Government, which are aimed at traffic safety and social safety. One of the main projects in this action area is the eCall pilot, aimed at preparing for the European introduction of eCall.

In addition to the following projects, many projects in other action areas also have an influence on traffic safety. This is because the same integral approach is used in all the projects.

HEERO 1 HARMONISED ECALL EUROPEAN PILOT

Stakeholders	Ministry of Security and Justice, Ministry of IenM, Police, RWS, RDW, Nationwide Incident Room Organisation in formation, Fire Department, Ambulance
Status	Completed
Area of realization	International
Expenses	€ 2,7 million / once-off / public

DESCRIPTION

The implementation of an operational eCall pilot in a trial area aimed at implementing any necessary adjustments to the eCall standards and assessing organisational and financial frameworks to achieve a roll-out of eCall in the Netherlands and its consequences.

TARGETS

- The Netherlands had an active role and worked on standards for a minimum set of data (MSD) and also for expansions including Heavy Good Vehicles and Third Party Services Up and running test system for receipt of eCall
- Technical and procedural design information flow
- 112/MK to RWS
- Mutual communication between road authorities
- Interoperability
- VIN decoder
- Extra services/after-market other than freight
- Freight/VGS
- Testing method
- TPS
- User survey
- Promotion

RESULTS

With the help of the Dutch, an established MSD standard was adapted for use in freight transport and Third Party Services. This also helped to make the MSD future-proof. Because there was no OTA, it was decided to realise a test system that was as similar as possible to the operational system. It was used to partially implement the technical tests and the scenario tests. The functional design was realised and tested prior to the pilot. This provided an insight into the adjustments that were needed. In 2012 and 2013, two national conferences were held, as well as a demonstration at the iMobility Challenge in Valkenburg in the Netherlands in 2013.
(Source: Final report HeERO - NL, January 24, 2014)

WEIGH-IN-MOTION

Stakeholders	RWS, Service Water, Traffic and Environment, Central Information Supply (CIV), Environmental and Transport Inspectorate (ILT)
Status	Ongoing
Area of realization	National
Expenses	€ 4 million / once-off / public

DESCRIPTION

Weigh-in-Motion (WiM), the common international term for dynamic axle load measurement systems, is an efficient means, in combination with cameras, of mapping out transport flows on the Dutch motorways and reducing overloading. RWS has been building WiM systems (weighing points) on main roads since 2001. The WiM II project expanded these WiM systems into a national network of 20 measurement points in 2013.

TARGETS

In 2010, RWS and the Human Environment and Transport Inspectorate (ILT) decided to tackle the overloading problem through structural cooperation. This decision was recorded in a protocol with a period of validity from 2011 to 2014. The protocol describes a joint objective to realise a reduction of at least 5 percentage points, which means that the current infringement percentage of 15 percent for overloading will be reduced to less than 10 percent. Intended effects are the prevention of damage to roads and false competition.

RESULTS

The protocol was signed by Director-General RWS and Inspector-General ILT and will be evaluated after the period of validity has expired.

AOS (ANTI ACCIDENT SYSTEMS)

Stakeholders	Ministry of IenM, Connekt, TNO, Buck Consultants International, Sounding board group: SWOV, TU Delft, RWS-DVS, Askary, Consultancy group: TLN, BOVAG, KNV, EVO, VERN, Clifford Electronics (in cooperation with Octo Telematics), Carrierweb, installation team of 75 specialists and dealers, suppliers of lorries in the Netherlands: DAF, Volvo, Scania, MAN, Mercedes, Iveco and Renault, Dozens of dealers in a dealer network, 123 participating shippers and transporters
Status	Completed
Area of realization	National
Expenses	€ 10 million / once-off / public

DESCRIPTION

The Ministry of IenM (FileProof) commissioned Connekt to conduct a large-scale practical study of systems that support the driving task for lorries, called anti-accident systems (anti-ongevalsystemen (AOS)). Over a period of 8 months, five different anti-accident systems and a registration system were tested on the national roads. During the test period, the effects on the driving behaviour of a large number of lorries were measured and then translated with the available knowledge into effects on traffic flow and safety on the Dutch motorways. The results were presented in 2010.

TARGETS

The aim of the project was to ascertain the extent to which AOS can contribute to traffic flow and traffic safety when (a large number of) lorries in the Netherlands are equipped with the system.

RESULTS

For the practical test, around 2.400 lorries were equipped with data registration systems to track and measure vehicle behaviour. During that period, 77 million kilometres were driven using the system. At the end of the period, the systems became the property of the participating transport companies. The measurement results from the practical test showed that the AOS has an effect on the way the driver performs the driving task. The systems reduced the risks of accidents to a greater or lesser degree, with the following main indicators: steadier driving, lower risk of overturning and fewer unintentional line crossings.

SECURE LANE

Stakeholders	The Ministries of IenM, Security and Justice, Economic Affairs and RWS, TLN, EVO, Association of Insurers, VNPI, Horeca Nederland (Dutch catering sector), VEBON
Status	Ongoing
Area of realization	Regional
Expenses	€ 2 million / once-off / public, € 200.000 / every year / PPS

DESCRIPTION

Secure Lane is a camera tracking system in parking areas for heavy goods vehicles, business parks and service stations along motorways. The system, which is connected to the police network, is aimed at improving safety for drivers, cargoes and lorries.

TARGETS

The aim of Secure Lane is to set up and operate, on a cost-recovery basis, an integral, area-based system of camera monitoring, video image storage, alarm-response incidents in the safety chain and regular video surveillance to reduce transport crime and increase safety for users in transport corridors.

RESULTS

During the period prior to the current Secure Lane South project, there were around 70 incidents of cargo theft every year on the Rotterdam–Venlo route. An average cargo theft usually involves losses of around 100.000 euros, but the damage is actually many times greater. For example, it can also mean the loss of a good customer, loss of image and ultimately a negative effect on the business climate and the position of the Netherlands in the global community.

From early 2013 up to the present day, there has been no vehicle crime along the entire secured route of Secure Lane. The question of part of the vehicle crime has been moved to other routes has not been studied. Also the effects on other types of criminal behaviour were not a core objective and were therefore not studied. Secure Lane has a clear (preventative) effect on vehicle crime. The total benefits of Secure Lane for society are much greater than the total costs.

HEIGHT RESTRICTION DRIPS VELSERTUNNEL

Stakeholders	Rijkswaterstaat
Status	Completed
Area of realization	Local
Expenses	€ 100.000 / once-off / public

DESCRIPTION

To and including 2010, a pilot supplementary to the current system used an adapted pre-warning system to detect excessively high loads. Drivers of heavy goods vehicles with excessively high loads are shown a photograph of their excessively high loads on a roadside DRIP (dynamic route information panel). This is designed to ensure that the driver decides not to continue through the Velsertunnel but to take the next exit for an alternative route.

TARGETS

The aim of the pilot is to reduce the number of excessively high loads being driven through the tunnel.

RESULTS

The number of excessively high loads being driven on the A22 motorway to the Velsertunnel has dropped by approximately 20 percent. The number of excessively high loads that are obliged to stop at the entrance to the Velsertunnel has decreased by 40 percent. Traffic flow has improved and the number of lost vehicle hours has decreased by 25 percent as a result of the trial. In addition, fewer tunnel repairs and tunnel closures are required. It has been decided to equip the Velsertunnel with a permanent system of DRIPs, which is currently being installed and will be ready by the end of 2014.

2.5 Action area 4: Integration of vehicles and infrastructure

The number of projects in the area of cooperative systems is growing significantly (see also section 2.6: New developments). Besides an increase in the numbers of projects, the scale of projects is also growing. Current projects often have the format of field operational tests (FOTs) with an extremely large branch of research, mainly in the area of human factors. The transition to actual implementation and upscaling is currently taking place. As a result, the nature of smaller bottom-up initiatives is changing into a more coherent (partly managed) development, including pre-conditional aspects that are being tackled nationally. There are also a number of uncertainties in Area 4, mainly on the level of financing and business cases. Government investments in this phase are therefore necessary and the Government often has to take initiative.

COMPASS4D

Stakeholders	Thirty-one partners in the industry, research and government sectors
Status	Ongoing
Area of realization	International
Expenses	€ 10 million / once-off / PPS

DESCRIPTION

European (CIP) project. Testing and deploying C-ITS services, aimed at improved traffic flow, reduced emissions and greater traffic safety in urban areas. The project was launched in 2013 and is will be concluded in late 2015. The project is running in seven European cities: Copenhagen, Newcastle, Bordeaux, Thessaloniki, Vigi, Verona and Helmond. The pilot phase involves around 350 vehicles (buses, emergency vehicles, freight vehicles and passenger cars) and 550 users.

TARGETS

The project is focusing on increasing energy efficiency and improving traffic flow and traffic safety. No targets were defined in advance.

RESULTS

The results will be available in late 2015, and the pilot phase will start in Q3 2014.

FREILOT

Stakeholders	Helmond Municipality, Helmond Fire Department, Van den Broek Logistics Helmond Helmond Ambulance Service, Peek Traffic, Volvo - Renault
Status	Completed
Area of realization	International
Expenses	€ 4 million / once-off / PPS

DESCRIPTION

As a part of the FREILOT project, 14 intersections in Helmond have been equipped with an Energy Efficient Intersection Control (EEIC) system, a priority system based on 802.11p cooperative communication. The system uses the existing network traffic control system to provide public transport-like priority to FREILOT scheme member lorries. As a spin-off, the same system is used to provide absolute priority to a number of fire-service vehicles and ambulances. After priority is requested, the lorry driver is provided with feedback about the remaining red or green time. This information can be used by the driver to anticipate changes in the traffic lights, further reducing the number of stops. To maintain road safety, the EEIC system verifies that the driver does not exceed the local speed limit. When a speed violation is encountered, the priority is cancelled immediately.

TARGETS

The central goal of the FREILOT project is to reduce fuel consumption and emissions in large lorries. One method used to reduce fuel consumption is to decrease the number of stops in an urban environment. In Helmond, the Netherlands, this has been implemented with a cooperative priority system at 14 major intersections, giving priority to a specific fleet of lorries. Measurements of the behaviour of the lorries and the traffic controllers were collected during a year of real-life operation.

RESULTS

Positive effects have been identified: the EEIC system results in a 13 percent reduction in CO_2, a 14 percent reduction in NOx and improved traffic flow due to a reduction in the number of stops, without any negative impact on traffic network performance. The cooperative EEIC installation in Helmond has led to unforeseen positive side-effects (emergency services). This strengthens the business case for cooperative systems. The project results provide a solid basis for sustainable implementation and extension to other fleet owners, other stakeholders and other ITS applications. The project partners are ready for the next step: finalising business and organisational models that lead to commercial contracts for sustainable implementation.

BRABANT IN-CAR II

Stakeholders	Four project proposals were selected, and the market parties involved are now developing their projects in consortiums. RWS, the Provincial Government of Brabant, and the Ministry of IenM are also involved.
Status	Completed
Area of realization	Regional
Expenses	€ 5 million / once-off / PPS

DESCRIPTION

Brabant In-Car II is the second phase of Brabant In-Car with less focus on the demonstration of technology, but more on the scaling up of technology towards large-scale market introduction. Meanwhile Brabant In-Car III has started, based on the success of the second phase (see 2.6). Four Brabant traffic trials with smart in-car technology and driving behaviour are leading to the accelerated large-scale availability of new information systems and administrator support. Around 600 test subjects received up-to-date information in their cars that make driving safer, faster and cleaner. Systems with individual recommended speeds for the 'green wave' can function as a good alternative to existing roadside signs. It was found that there are plenty of applications possible for a traffic system linked to the sensor information in cars, such as warnings about icy roads or mist and recommendations for driving more economically.

TARGETS

The main goal of the second phase of the Brabant in-car subsidy scheme is to stimulate innovations aimed at changing the behaviour of road users by presenting in-car information stimuli. The subsidy providers want to know more about the effects of the information stimuli on changes in behaviour and want to measure and analyse them. They also want to ascertain the possible effects on traffic flow, safety and the quality of life.

RESULTS

The results of this project are diverse and have been broken down into the in-car innovations that were developed in Brabant In-Car II:

- The evaluation of Contrast (in-car recommended speeds) shows a reduction mainly in the variation of the speeds but not in the average speed. This effect can be explained by the fact the participants approached intersections more slowly due to the recommended speeds. Acceleration and deceleration behaviour also changed. Both decreased by around 5 percent, indicating less aggressive acceleration or more braking.

- Participating drivers were given advice about which parking spaces on their route were full. The occupation rates at service stations were calculated on the basis of Floating-Vehicle-Data and supplemented with feedback from the drivers using a smartphone app. This system worked in practice, except that the feedback from the drivers was limited due to the probably limited scale of the trial. Because of this, it was also not possible to give reliable advice.

- Participants quickly responded to a given recommended speed with regard to a green wave. It was found that around 15 to 25 percent of participants were already driving at the desired speed at the start of the recommended speed zone. After 250 metres, that percentage has risen to 60 to 70 percent. No major effects on traffic flow, measured by taking the average speed and variations in that speed, were detected.

- Around 120 taxi drivers from Cibatax took part in the trial that focused saving fuel. The trial showed that fuel consumption in urban areas decreased by a little more than 1 percent, primarily because people adapted their driving style. The fuel saving of approximately 1 percent is in line with expectations.

SENSOR CITY MOBILITY

Stakeholders	DySI, Elevation Concepts, Gemeente Assen, Goudappel Coffeng, Peek Imtech, Magicview, Mobuy, NXP, 9292, Parkingware, Quest Traffic Consultancy, Stichting Sensor City, TNO en TomTom
Status	Completed
Area of realization	Urban
Expenses	€ 12,6 million / once-off / PPS

DESCRIPTION

From 2010 to 2014, the 'sensor city' of Assen functioned as a living lab for the Sensor City Mobility innovation project. The project was implemented by the Mobility consortium, consisting of 14 parties from government and the business sector in the Netherlands. During the project, a large-scale urban sensor network was realised in Assen. The project was aimed at promoting innovation in travel information and traffic management services. The project concluded with an experiment in which more than 150 travellers in and around Assen tested a number of new services using sensor technology in their cars and on their smartphones. These smarter services enable drivers to anticipate rather than react to the prevailing traffic situation. In this way, travellers with personal travel advice can make easier, smarter and more productive travel choices. At the same time, the new mobility services help to achieve collective mobility goals, such as promoting traffic flow, safety and reduced vehicle emissions.

TARGETS

The goal of Sensor City Mobility is to develop and test innovative travel information and traffic management services. Participating travellers were able to use the personal travel advice obtained through the services to make easier, smarter and more beneficial travel choices. At the same time, the new mobility services helped to achieve collective mobility goals, such as promoting traffic flow on the road, safety and reduced vehicle emissions.

RESULTS

The Sensor City Mobility project was evaluated in detail. The developed services produced mixed results, however because of the limited number of participants, approximately 130, the results aren't always representative:

- The Driving Style monitor produced a service that gives participants immediate feedback about their driving style, expressed as an indicator, which enabled participants to see how they could improve their driving style. The indicator improved as the project progressed.
- The Smart Routing service produced a proof of concept for a service that uses a route planning method that takes changed, current and future traffic situations into account and that distributes traffic demand over all available routes.
- The Parking service produced a service that can quickly and smartly lead participants to a car park in Assen and in that way limit the amount of 'search' traffic.
- The Multimodal Travel advice in the Car service produced a service that can issue multimodal travel advice in cases where switching to another modality can result in travel benefits.
- The ReisAlarm App service produced an app that can give participants travel advice for car journeys, public transport and transfers at P+R facilities. In addition, the ReisAlarm app issues travel advice about the best time for travellers to leave in order to get to their appointments on time.

AMSTERDAM PRACTICAL TRIAL (APT)

Stakeholders	RWS, the City of Amsterdam, the Provincial Government of North Holland, the Amsterdam metropolitan region, Universities and especially the Technical University of Delft, Private companies for both the in-car and the roadside track
Status	Ongoing
Area of realization	Urban (Amsterdam)
Expenses	€ 50 million / once-off / PPS

DESCRIPTION

The Amsterdam Practical Trial is a trial aimed at reducing congestion in the Amsterdam region. What makes this trial special is that it is a large-scale trial with innovative use of technologies in the car and on the road. Road users are supplied with personal travel information in the car so that they themselves can make the best travel choices. Traffic lights and electronic signs react to traffic jam prediction in a coordinated way. In that way, road users arrive at their destinations faster and can count on a reliable travelling time. Government, the market and the science sector are working together in an innovative way in APT to find solutions for better accessibility in busy regions. Where cost-effectiveness is demonstrated, it presents possibilities for national and international applications and opportunities for the Dutch business sector. In this way, APT is combining trend-setting developments in traffic information and traffic management and contributing to the Better Informed on the Road action programme: together from A to Better.

TARGETS

Testing (two tracks) of automated, proactive network management. Innovative and customised in-car travel advice in practical situations.
The action plan for the integral evaluation includes the following criteria:

1 The added value of Coordinated Network-wide Traffic Management (GNV) in the Amsterdam region (in terms of the effects on traffic flow, the cost-effectiveness of measures and their effect on the cooperation between road authorities)
2 The effect of the measures on the behaviour of road users
3 Options for upscaling to other regions.

APT involves three phases. Phase 1 is now operational and Phase 2 is being prepared.

RESULTS

A full policy evaluation is not yet required. It is only at a later phase that it will be possible to present an overall picture of aspects such as cost-benefit (in phase 1 imbalance due to a relatively heavy development component), traffic safety and environmental aspects over a larger network, because it is only then that the network effects (with side-effects) and costs and benefits for realisation on a larger scale can be presented. However, these aspects will have to be dealt with in phase 1, but then more qualitatively (or as a follow-on from the traffic management effects).

GREEN WAVE TEAM

Stakeholders	Local government organisations in the Netherlands. Up to the end of 2012, three market parties were involved in supervising the content.
Status	Ongoing
Area of realization	National
Expenses	€ 800.000 / once-off / public

DESCRIPTION

The Green Wave Team (Groene Golfteam (GGT)) was launched in 2006 and since then has studied around 1.000 traffic regulatory systems used by road authorities throughout the Netherlands and has issued advice on them. In 2011, besides traffic regulatory systems GGT started to tackle the traffic management of other traffic systems managed by RWS (DRIPs, MTM and TDIs). For this work for RWS, part of the GGT was transferred to the Nationwide Traffic Management Team, which is a structural component of VWM. Alongside this internal task, GGT was still active up to the end of 2014 in helping other government organisations to set up traffic management for their own systems. By providing policy-related advice and support, GGT helps other government organisations to implement traffic management as effectively as possible, because extensive gains can always be made for society in this area.

TARGETS

The implementation of traffic management is helping to improve traffic flow, safety, the living environment and credibility for road users.

RESULTS

Research conducted by MuConsult has shown that the cost-benefit ratio of traffic management for traffic regulatory systems is 1:20. This relates particularly to social benefits and has been calculated on the basis of averted lost vehicle hours.

2.6 New developments

This section includes an overview of new developments. It also includes a number of projects that were launched recently and are worthy of mention.

Project	Action Area	Planning
CHARM CHARM is an acronym for Common Highways Agency Rijkswaterstaat Model. The objective of the programme is to migrate to an ATMS, supporting all the required business processes for network management in an integrated way.	Area 2	The CHARM programme plans to deliver the first TMCs by 2016 and to complete the implementation of all TMCs by 2018.
SpitsLive The concept is to develop a flexible open in-car platform (CMD, Cooperative Mobility Device) that uses smartphone and tablet technology. The strength of the concept is its joint use of an open cooperative platform combined with traffic data exchange between private and public parties.	Area 4	The first goal of SpitsLive is to have 20.000 vehicles on the road in 2015.
Innovative Traffic control centre In the summer of 2013, the Minister of IenM decided to relocate the Southern Netherlands traffic control centre to Helmond. RWS opted for this location so that it can link the operational traffic control centre and innovative automotive developments.	Area 4	Rijkswaterstaat's Southern Netherlands traffic control centre will move from Geldrop to Helmond at the end of 2014.
Development of architecture for cooperative and connected mobility In the spring of 2014, the Connecting Mobility programme took the initiative to combine forces in the Netherlands and create a national reference architecture for cooperative driving and connected car systems.	Area 4	The first draft of the reference architecture is scheduled for completion by the end of 2014.
Ghost tailbacks on the A58 motorway The Provincial Government of North Brabant, SRE, IenM and RWS are working together with market parties in a Pre-Commercial Procurement procedure to devise solutions that prevent or counteract Ghost tailbacks. The focus is on cooperative applications (both short-range and long-range).	Area 4	In Q3 of this year, the first (connected) services will become operational on the A58 motorway, followed by the cooperative services in Q2 2015.
Brabant-In-Car III In Brabant In-Car III, market parties are being challenged to improve traffic flow. Through a subsidy scheme, three consortiums were selected and are now working on an in-car solution.	Area 1/4	The projects will actually start running on the A67 motorway in Q3 of 2014.

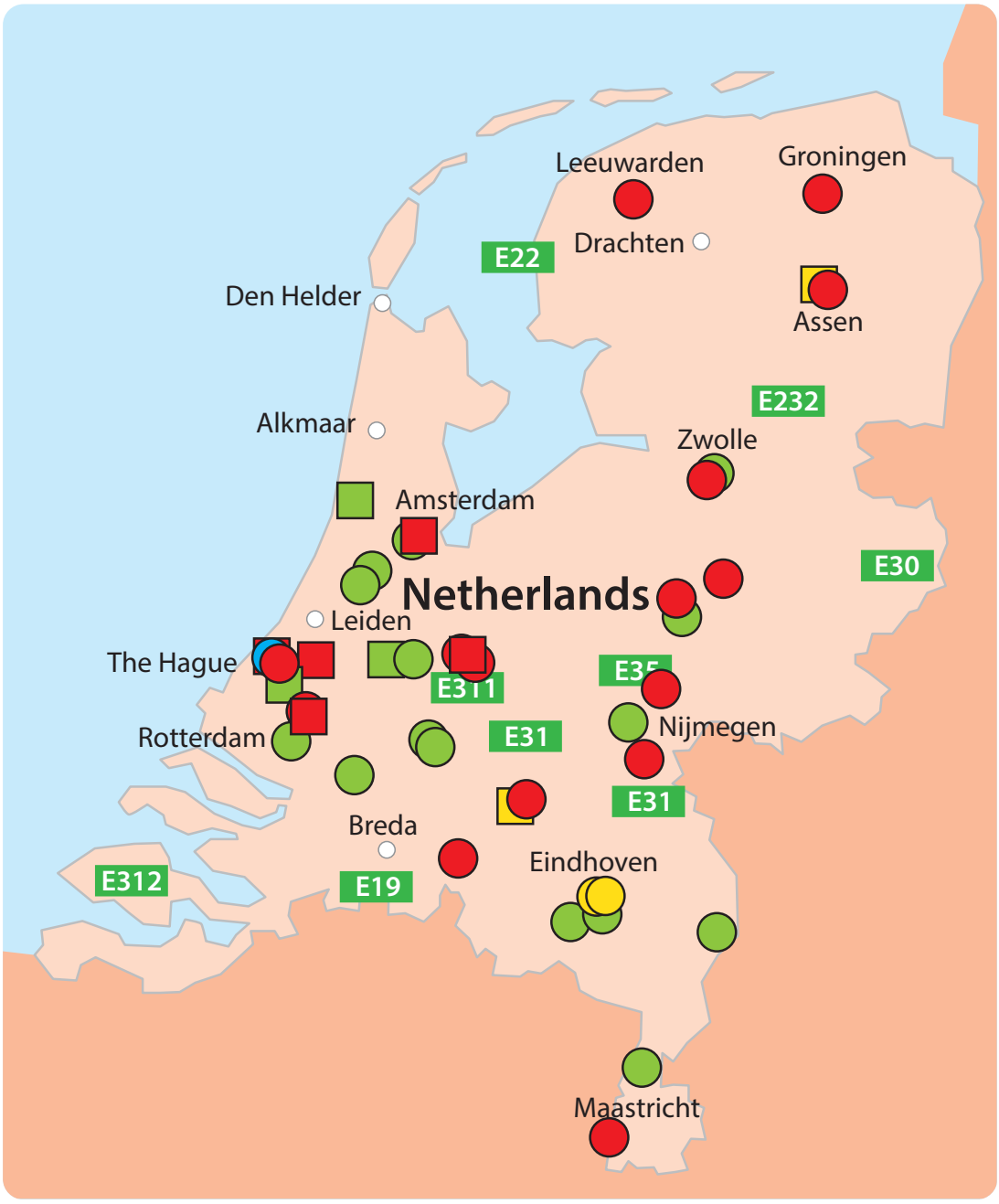
Project	Action Area	Planning
DAVI (Dutch Automated Vehicle Initiative) The high-quality infrastructure, combined with the positive cooperation between the automotive industry, the science sector and Government, mean that the Netherlands is an extremely suitable country for the intended innovation, development and application of the self-driving car.	Area 4	Various parties, including TNO, TLN, DAF and Scania, are working on initiatives to enable independently steered lorries to be linked to each other on the road ('platooning') within five years. To prepare the integration of automated verhicles on public roads, the national regulation will be made flexible and also the procedure for vehicle approval.
Cooperative ITS Corridor; Rotterdam - Frankfurt/Mainz – Vienna In the cooperative ITS Corridor, two cooperative applications are initially being deployed: 1 Roadworks Warning, mainly roadworks during the day, from the roadside infrastructure and the traffic control centres 2 Collection of data by vehicles (Probe Vehicle Data), where the vehicles send information on the traffic situation to the road authorities to be processed.	Area 2/4	From 2015 onward, a roadside cooperative infrastructure will be built up for the first applications in the Cooperative ITS Corridor.
Blauwe Golf Verbindend (Blue Wave Connecting) The aim of the Blue Wave Connecting project is to create, enrich and (mutually) share better (context-specific, personal, up-to-date, reliable, congruent) information about operating objects on the waterways and the availability of berths.	Area 1/4	The Blue Wave Connecting portal is online. Two regions have been connected, and two others will follow this year. Then the connection of more regions will be examined.
The Digital Road Authority The Digital Road Authority is a type of hub that electronically connects government organisations and market parties to each other. In practice, in addition to a physical road authority every area will have a virtual, public/private variant, the Digital Road Authority.	Area 1/2	An app is being developed and the structure of the pilots is being worked out in detail. Aim: initial results in November 2014.
Udrive UDRIVE is the first large-scale European Naturalistic Driving Study (meaning that the behaviour or road users is observed unobtrusively in a natural setting) of cars, lorries and powered-two wheelers.	Area 3	Over a period of two years, UDRIVE will collect naturalistic data on passenger cars, trucks, and powered two-wheelers. All data will be collected continuously to bring knowledge in the various research areas well beyond the current state-of-the-art. The end date of the project is September 30, 2016

3

Overview of actual realisation on a map of NL

In this chapter, the ITS projects, activities and initiatives are plotted on the map of the Netherlands. We also have included a map of each individual action area. The interactive map, which is also available on the internet, can be used to obtain more information about the project.
View the interactive map on: www.itsplan.nl.

3.1 Overall view



Extract from the interactive map with all the projects specified in Chapter 2.

3.2 Overview per action area

LEGEND

Ongoing project

Completed project

Action Area 1
Action Area 2
Action Area 3
Action Area 4

Clockwise from top left: Area I Optimal use of road, traffic and journey data; Area II Continuity of management traffic and freight management; Area III Traffic safety and the safety of freight transport; Area IV Integration of vehicles with road infrastructure.

4

Conclusions and recommendations

4.1 General

The information in the previous chapters shows that the Netherlands is working hard to develop and implement projects and activities involving Intelligent Transport Systems and services so that it can realise its policy objectives in the area of traffic flow, safety and sustainability. It is doing this on many levels, with a major role for the policy lines and platforms, mentioned in chapter 1. With a focus on operationalizing of set objectives to KPI's and methods to monitor the project, activities and initiatives. Focusing on public-private cooperation and maximum openness and availability of data have become evident over the past few years.

For the further serious development of services that help to achieve the policy goals (by market parties and/or government organisations), a long-term commitment of a structural nature is vitally important. The involvement, influence and possible supervision in this area by the European Commission is also indispensable. For that reason, in this chapter the Netherlands wishes to draw attention to a number of issues. We also like to give attention to our offer, which we have included in our national ITS plan, on how we might be able to help our partners in Europe.

4.2 What the Netherlands can offer

Public-private cooperation

Over the years, the Netherlands has gained considerable experience with cooperation between public and private parties. This relates both to dialogue on a strategic, tactical and operational level and to the development of innovative services in the area of ITS.

Cooperative systems

In the Netherlands, significant steps are being taken in relation to communication between vehicles and the infrastructure because we expect the most concrete results in this area till 2020. The knowledge and experience that has been jointly gained in this area by the business sector and Government can be used to upscale the trials both in the Netherlands and in other European countries. The Netherlands supports the development of automated vehicles by using flexible regulation and admission tests, whereby we prefer to cooperate with the EU and other member states. Foreign parties are welcome to make use of our test environment and facilities, such as DITCM.

Exchange of data and information

For many new ITS services, reliable, available and usable data and information is of the utmost importance. In various areas of mobility in the Netherlands, experience has been and is being gained rapidly with the exchange of data and information. This relates to road traffic as well as to public transport and logistics. Moreover, the Netherlands has also gained extensive experience with both national projects and regional activities.

Multimodality and synchromodality

In the Netherlands, a great deal of experience has been gained in combining modalities both in passenger traffic and in the supply chain. That can be done by linking the infrastructures closely to each other, but also by making sure that the information chains are well connected to each other. Synchromodality in the logistics involves more than just combining modalities - it should also make it possible for users to make last-minute choices for particular modalities.

4.3 Specific challenges for ITS

A need for KPIs for monitoring

At the moment, the Netherlands is assigning the highest priority to setting up a quality method to measure effects on traffic flow, safety and sustainability, for example. In the Netherlands, there is a greater need for a testing framework and for the requisite KPIs so that the effects of ITS projects can be assessed. It is hereby important to cooperate with other member states, as already happens in the EIP for the quality method of safety messages and actual traffic information.

Focus on human factors

At various locations in the Netherlands, testing has started with in-car systems. When using these systems and services, the way road users process the information is vitally important. It is therefore important to understand in which way road users process and react to signals and information in order to determine the effectiveness and acceptance of these systems. The Netherlands therefore invests in research and knowledge in this area. For example a guideline for safe use of information services while driving (especially apps) will be available next autumn.

The EU can support the development and application of this knowledge in other countries. The Netherlands offers a practical addition to the rather theoretical ESoP.

Expanding the testing framework

The impact of EU-regulation is now calculated with a general cost-benefit analyse. The NL suggest to extend this impact study with the dimensions ´adminstrative burden´and ´business cases´. With a chaired methodology it will be possible to analyse this on meso level and win support from the private sector.

Working on conditions

The Netherlands would like the EU to further contribute to frameworks for projects on a national and international level to gain more knowledge and promote standardised implementation. This should take into account the various requirements of ITS services, Member States, large and small companies, as well as differences between urban environments and main roads.

There is also a need for clear conditions. Concrete examples of such conditions include:

- One crucial point is the availability of micro-wavebands 5.8 and 5.9 GHz, which should remain available for traffic and mobility purposes, such as electronic toll collection and connected mobility, with no interference. This is essential for preventing traffic safety issues caused by interference by possible other users in the same range. It also means that there should be adequate requirements for new parties when standards are being developed for their commercial use.

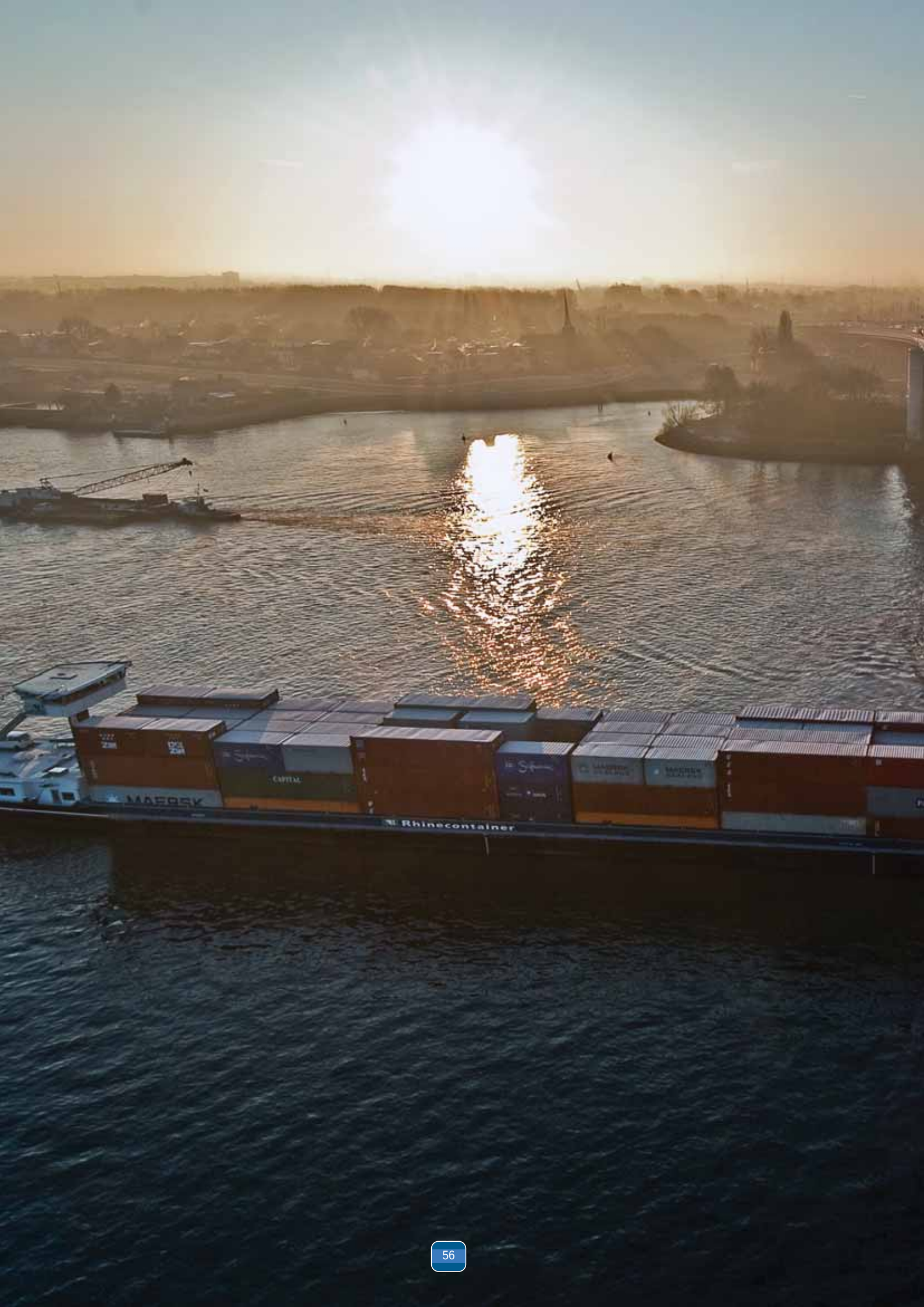
- Themes such as security, liability and privacy require standardisation and an efficient management chain. The Member States themselves can implement projects with these themes, but a framework must first be created and developed centrally by the EU.

- Harmonisation in the area of infrastructure for cooperative systems is important for the further development these systems. The Netherlands is doing this by encouraging public and private parties to communicate clearly about the requirements for cooperative systems and how to deal with information exchange, for example.

Harmonising the accessibility of data

The Netherlands has a progressive approach to making data available. Many projects in Action Area 1 have focused on making data available and accessible as open as possible regarding conditions for (re)use such as the price. We consider different approaches from other member states not so supportive for the development of cross-border and harmonised services. This can be done by harmonize and standardize the conditions in the different member states.

With this progress report, we hope to have given an clear insight of the progress and effects of our ITS project, activities and initiatives. We would like to thank you for reading this progress report. Considering our progress and early results, we see a bright future for the ITS in the Netherlands and the EU and are ready to keep investing and continue to excel in ITS.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Appendix 1

Abbreviations

BABW	Decree on Administrative Specifications for Road Traffic
BAS	Policy Assessment System
BB	Optimising Use programme
BZK	Ministry of the Interior and Kingdom Relations
CAN	Controller Area Network
CBM	Cross Border Management
CBS	Central Bureau of Statistics
CEDR	Conference or European Directors of Roads
DGB	Directorate General Accessibility
DITCM	Dutch Integrated Testsite for Cooperative Mobility
DRIP	Dynamic Route Information Panel (see VMS)
DVM	Dynamic Traffic Management
EC	European Commission
EL&I	Ministry of Economic Affairs, Agriculture and Innovation
ELSA	European Large Scale Actions
EU	European Union
FEHRL	National Road Research Centres in Partnership
GNV	Large-scale Network-wide Traffic Management
GOVI	Borderless Public Transport
GPS	Global Positioning System
HTSM	High Tech Systems and Materials
HWM	Main Road Network
ICT	see IT
IDVV	Impulse Dynamic Traffic Management Inland Waterways
IenM	Ministry of Infrastructure and the Environment
IM	Incident Management
ILT	the Human Environment and Transport Inspectorate
IT	Intelligent Technology
ITS	Intelligent Transport Systems
KIM	Knowledge Institute for Mobility Policy
KLPD	Dutch National Police Service
LVMB	National Traffic Management Consultative Committee
MOGIN	Mobility and Geo Information Netherlands
MSD	Minimum Set of Data
ND-OV	National Data Warehouse for Public Transport
NDPV	National Data Warehouse for Parking
NDW	National Data Warehouse
NL	The Netherlands
NLIP	Neutral Logistics Information Platform
NWB	National Roads Database
OECD	Organisation for Economic Cooperation and Development
PPS	Public-Private Partnership
PSI	Public Sector Information Directive
RDS	Radio Data System (for RDS-TMC, see also TMC)
RDW	Road Traffic Department
RWS	Rijkswaterstaat (Department of Waterways and Public Works)
SPL	Strategic Platform Logistics
SWSR	Smart Work, Smart Travel
TDI	Slip road filtering system
TMC	Traffic Message Channel
UWKS	Universal Roadside System
VI	Traffic Information
VM	Traffic Management
VMS	Variable Message Sign
VRI	Traffic Regulatory System
WiM	Weigh in Motion
Wob	Dutch Government Information Act

Appendix 2

Project overview

Short description	Status	A1	A2	A3	A4	A5
Easyway	Ongoing		✗			
EIP	Ongoing		✗			
Trade Compliance and Border Management			✗			
National Data Warehouse for Traffic Information	Ongoing	✗	✗			
NDOV		✗	✗			
Open parking data		✗	✗			
Electronic publication of traffic decisions	Ongoing	✗	✗			
The Digital Road Authority	Ongoing	✗	✗			
Impuls Dynamic Traffic Management Waterways (= IDVV)	Ongoing	✗	✗			
Neutral Logistic Information Platform	Ongoing	✗	✗			
Dynamax	Completed			✗		
HeERO 1	Ongoing			✗		
Udrive	Ongoing			✗		
Weigh-in-Motion	Ongoing			✗		
Amsterdam Practical Test (APT)	Ongoing		✗	✗		
Cooperatieve ITS corridor	Ongoing		✗			
Compass4d	Ongoing		✗		✗	
Spitslive	Ongoing				✗	
Brabant in-Car II	Ongoing	✗			✗	
Innovative Traffic control centre	Ongoing				✗	
BISON	Started	✗	✗			
DVM-exchange	Ongoing	✗	✗			
SLIM uit de spits	Ongoing	✗				
SLIM werken goederenvervoer:	Ongoing					
Accident Prevention System for lorries	Completed			✗		
Blind Spot Detection and Signalling Systems	Completed			✗		
Contrast	Completed	✗			✗	
Databases for heights of bridges, weight limitations	Ongoing	✗	✗	✗		
Displays at PT-stops	Ongoing	✗				
DRIPS	Ongoing	✗	✗	✗		
Infrastructure data collection systems (Loops (MONICA), bluetooth, cameras)	Ongoing	✗				
Intelligent Speed Alert Tests	Completed			✗		
MOGIN	Ongoing	✗	✗			
ODYSA	Ongoing	✗		✗	✗	
P+R route guidance (dynamic)	Ongoing	✗				
Parking route information system	Ongoing	✗				
RDSA Radio Dynamic Speed Advice	Completed	✗			✗	
RDS-TMC	Ongoing	✗		✗		
Sensor City Mobility	Ongoing	✗	✗			
Smart-In Car	Completed					
SPITS	Completed	✗	✗			
Travel time prediction in transport management	Completed	✗	✗	✗		

Short description	Status	A1	A2	A3	A4	A5
Truck Parking Occupancy Information	Ongoing		✗		✗	
Top 5 Data Improvement	Ongoing	✗				
Ghost tailbacks A58	Ongoing				✗	
Multimodal Travel Information	Ongoing	✗				
Blue Wave Connecting	Ongoing	✗			✗	
ParckR	Ongoing		✗			
CHARM	Ongoing		✗			
Virtual central/regional desk of BEREIK!	Ongoing		✗			
Architecture WIFI P	Ongoing					✗
Security C2X and C2C communication	Ongoing					✗
Specifications development of networkmanagementsystems	Ongoing					✗
FREILOT	Completed		✗		✗	
Secure Lane	Ongoing	✗	✗			
Enforcement transmission security messages	Ongoing					
Open Data FWD	Completed	✗				
Open Data Rotterdam	Ongoing	✗				
Open Data Amsterdam	Ongoing	✗				
Alcohol Lock	Ongoing			✗		
Height Restriction Drips Rotterdam	Completed			✗		
Green Wave Team	Ongoing				✗	

A1 = Optimal use of Road, Traffic & Travel Data
A2 = Continuity of Traffic & Freight Management
A3 = Road Safety and Security
A4 = Integration of Vehicle & Transport Infrastructure
A5 = Data Protection & Liability

Connekt
ITS Netherlands