Innovative approach for Road Safety

Introduction of the Road Safety Report System
During the International PRI Road Safety Workshop an introduction was given at the head quarters of Association Prévention Routière (APR). PRI, VIA.nl and TomTom explained their view towards an innovative approach for Road Safety.
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Just like any other (associated) National Road Safety Organisation, PRI strongly values the importance of further improving road safety worldwide. In these current times however, it is becoming more difficult to roll out and structurally address road safety.

Through working together with partners VIA.nl and TomTom, PRI has now developed a new method in order to achieve a structural and broad-based approach to road safety. The method behind the approach can be implemented in every country by the National Road Safety Organisation, leading to future improvement in road safety.

At the International PRI Road Safety workshop (25th November, 2011) an explanation concerning the precise nature of the process, which can be rolled out in each country in, given. This booklet provides a written documentation of the explanation.

Here at PRI we would appreciate any feedback on the proposed method, so that together we can improve road safety worldwide, as much as we possibly can.

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The subject of road safety always warrants the greatest possible attention. Projects designed to improve road safety are essential in reducing the number of casualties worldwide. VIA.nl has a vast amount of experience in this area, having supported the government in improving road safety for over 25 years.

Recently, PRI, TomTom and VIA.nl joined forces in order to offer every National Road Safety Organisation an innovative approach. It allows road safety to be improved through a structured and financially self-sufficient way, together with the relevant partners (such as road authorities, police, NGOs and residents) in their own environment.

I hope your interest into this process is further inspired after reading this booklet.

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These days more and more drivers are using navigation systems. This is not only improving accessibility for TomTom recommending road users alternative routes, but also improving road safety for road users no longer being distracted by studying road maps.

With the TomTom navigation systems we collect (on an anonymous base) the traffic information about road users. This traffic information can help governments in countries all around the world to reduce traffic problems. This traffic information also offers several exciting opportunities in road safety, for it is now possible to know the average speeds which are driven by traffic on particular roads and at particular times of the day.

Through the co-operation with PRI and VIA.nl, TomTom sees many opportunities to contribute to improving global road safety by providing our traffic information.

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What we offer?

Conferences often focus on the exchange of information. However here at the International PRI Road Safety Workshop (25th November 2011) we go a step further, for we also offer a practical method. A method that helps your National Road Safety Organisation to create a national database containing both subjective and objective traffic data. A database that will help your organisation to promote road safety and get it higher on the political agenda, to also be in discussions with road authorities (as representative of residents) and also allow you to organise your financial revenue.

It is the joining together of PRI, VIA.nl and TomTom that makes this possible. This booklet describes the model for road safety (Chapter 1), the role of data collection inside this model (Chapter 2). You can also read about the software available (Chapter 3), how it works (Chapter 4) and how you can use it in your own country (Chapter 5).
1. The success of Dutch road safety

Road safety in The Netherlands has greatly improved over the last decades. Despite a large increase in the quantity of travel, the number of casualties on the roads has drastically reduced and for many years now The Netherlands has been placed amongst the Top 3 Safest countries in the World.

Control model for road safety
The secret behind the success of the Dutch road safety has been combined by VIA.nl into what is referred to as the ‘Control model for road safety’.

The model consists of four phases:
1. Policy choice
During the process of creating a road safety policy measurable objectives must be created. These objectives are specific and have a deadline in which they should be completed by.

2. Data collection
During the time period suggested for the policy objectives the situation must be continuously monitored, for: data is knowledge. Measuring the policy objectives is only possible when data has been collected, which can be traced back to statistics on road safety.

3. Analysis & reporting
With the collected data (in line with the policy objectives) specific analyses can be carried out on the most problematic and most prevalent road safety bottlenecks. Structural research can also be set up.

4. Projects
Once the targeted analysis and structural research has been carried out, a comprehensive (multi-year) measure program for road safety can be considered. After the evaluation of this measure program the policy cycle for road safety is repeated.

Figure 1 shows how to ‘Control model for road safety’ can be seen.

A particular strength of the ‘Control model for road safety’ in The Netherlands is the data collection for traffic accidents. Through the recording of all the traffic accidents on the Dutch road network over many years certain trends have become clear and the conditions associated with the greatest number of traffic accidents have been able to be identified. It is therefore known which road users are most likely to be involved in traffic accidents as well as, the locations where most accidents occur and also the causes of these accidents.

This insight has helped road safety partners to take specific measures and so improve the road safety at the locations and also amongst the individuals most at risk.

Descriptive information about road users as input for road safety
In The Netherlands this knowledge about the safety issues and concerns involving road users has meant that the infrastructure and the behaviour of road users in The Netherlands has become more safe. Nowadays not only are objective descriptions of safety problems (for example; road accidents) being used, but also subjective descriptions of road safety problems such as reports created by road users/residents are being taken into account.

VIA.nl
VIA.nl is a traffic engineering consultancy firm based in Vught, The Netherlands. VIA.nl has over 25 years of experience in advising governments on road safety and accessibility. What makes VIA.nl unique is the transformation of this knowledge into web-based software applications specifically designed for policy makers, decision makers and residents. Using this all involved actors can contribute to traffic policy.
2. The importance of road safety data

Successful implementation of the ‘Control model for road safety’ in order to improve road safety is dependent mainly on data availability and the continuous collection of statistics.

Without the data concerning road safety it is not possible to effectively monitor the policy objectives and the greatest road safety bottlenecks can not be successfully identified. When limited data is available it is difficult to make informed and correct decisions for projects involving the improvement of road safety.

Safety data available within web-based software application ViaStat

In the Netherlands, VIA.nl through the web-based software application, ViaStat, makes road safety data available to policy makers, decision makers and other traffic professionals. Within ViaStat (after completion of an annual subscription) data is available which provides insight into the road safety on the Dutch roads. This data (linked to a GIS road map) includes information on traffic accidents, the speed of traffic, cycle routes/-bottlenecks and reports from residents about unsafe road situations.

Modules of ViaStat

All road safety data is accessed through the various modules of ViaStat. These can either be used separately or together. The objective road safety data (accident data & speed data) is gathered by public and private sectors: traffic police & TomTom, respectively. In addition subjective data (safety reports & school-cycle routes/-bottlenecks) is collected through public websites where residents and students can share their own safety problems, ViaClick & Safe2School, respectively.

Figure 2 shows a diagrammatic representation of the modules within ViaStat.
ViaStat Accidents
A full understanding of the circumstances surrounding traffic accidents is the basis for preventing similar accidents happening in the future. Worldwide road safety policies aim to reduce casualties. A large and informative database, containing the history of traffic accidents suitable for safety analysis, however is not standard available. The module ViaStat Accidents can be used to get a national accident database; accessible for reporting and analysis by all partners: the police, policy makers, road authorities etc.

ViaStat Accidents is a complete package. Only an internet connection via a PC is required. The package allows for a detailed registration, intended for an accident report and the formation of a statistic database. Accident data, persons and vehicles involved, the location and the manoeuvre chart are easily recorded. All data is linked to a GIS map which makes it easy to identify ‘black spots’, performing analysis on routes, areas, target groups and priorities.

ViaStat Speed Profiles
For years policy makers in the Netherlands have effectively developed road safety policies using the database containing all the recorded traffic accidents. As a result of a shift in priority of the traffic police regarding accident registration, there is a quality degradation within the accident database. For further improvement of road safety an increasingly growing desire for new information sources has risen, to be able to monitor and prioritize.

Speed information from TomTom, based on anonymous GPS-measurements from navigation systems, recently have become available to meet this need. Within the module Speed Profiles of ViaStat the TomTom speed information is recorded. This module gives insight into the average speed of traffic (at different times for everyday) on almost all roads. This may help policymakers (1) to make policy choices regarding speed-related safety & (2) to monitor/evaluate these policy choices. The Speed Profiles module makes it possible to identify unsafe locations, where speeding is a structural problem. Within the module it is also possible to examine the extent to which structural speed bottlenecks occur over a longer period of time.

ViaStat Safe2School
With Safe2School traffic education, research and approach are cleverly combined. It is a program in which students, aged between 10 to 15 years, draw their route to and from school and mark any traffic bottlenecks they have experienced on their route. Through educational assignments and questions the student’s knowledge, attitude and behaviour concerning traffic is mapped and students are made to consider their own traffic behaviour.

The students’ responses are collected and the data is presented in an annual report for the school containing specific recommendations for (custom) traffic education. Policy makers in governments gain insight into the collected data within ViaStat and can with this data review and optimise the measurements for road safety (concerning the specific target group of students aged between 10 to 15 years).

ViaStat Reports
Understanding the reports about unsafe traffic situations submitted by road users is an extremely valuable source of information. They are the experts who use the roads on a daily basis. Reports from road users are gathered through a reporting system and made accessible in ViaStat for policy makers and road authorities.

Each report begins with the resident identifying the specific location on a map. Then through a series of Question&Answer the reporting system helps residents to clearly and accurately give information about the road design, driver behavior, when and for whom the location is a safety issue and the solution that they have in mind. The reporter is also asked if he or she wishes to voluntarily participate in road projects: a volunteer survey!

Through ViaStat the national database containing subjective road safety information is combined with objective data, including: traffic accidents and speeds. Targeted action and measures on the cause of the problem as well as on the individuals’ feelings of concern can then be carried out effectively.
The role of Road Safety Organisations within road safety policy

In these current economic times it is becoming increasingly important for policy makers to create road safety measures that are effective. Projects are only being made if a safety concern (for road users) is really apparent.

The National Road Safety Organisation can fulfil an important role by positioning themselves between the road users (who experience the road safety problems) and the governments (who are in charge of implementing road safety measures). The National Road Safety Organisation has the power to represent road users during meetings with the government to discuss the problems concerning road safety.

The worldwide availability of the ‘Road Safety Report System’

In order to choose the most appropriate road safety projects it is vital that the road users’ safety concerns reach the appropriate policy makers and officials. In addition it is important that policy makers and officials have sufficient financial resources and human capacity at their disposal to make sure that these safety projects can be put into practice. Both challenges in the cooperation between PRI, TomTom and VIA.nl can be solved by:

1. Mapping the road safety problems experienced by road users in a simple and easily accessible way;
2. Stimulate and ask the road users to co-operate with the road safety projects in their residential area.

For this purpose we aim to introduce the Road Safety Report System worldwide. The system allows residents to submit reports about the unsafe road situation on the ViaClick website. These reports can then be analysed and monitored by policy makers within the module Reports of the web-based software application ViaStat. In ViaStat the report data can be combined with other data sources (such as accidents and TomTom-speed data). On the website of the Road Safety Report System residents can also register (when submitting reports) as a volunteer and participate in future safety projects in their local residential area.

Figure 3 illustrates the process of the Road Safety Report System.

View of PRI

Due to current developments in society, such as retreating governments, Private-Public Partnerships are becoming a necessary requirement. These are collaborations between a social organisation and a company and generally concern social issues (for example promoting safety, health or welfare).

PRI sees public-private partnerships as a promising and necessary way to achieve the main objective: to promote road safety at both a national and international level and encourage efficient actions in order to increase road safety.

PRI aims to support its members by providing a successful approach in order to increase road safety and sees many opportunities for this within a public-private partnership with TomTom and VIA.nl. This partnership provides National Road Safety Organisations the opportunity to represent road users in consultations with road safety partners. The National Road Safety Organisation is able due to the collaboration to identify objective and subjective road safety data, lead evidence-based discussions and work alongside policy makers on road safety.
Experiences of VVN with Road Safety Report System

Veilig Verkeer Nederland (VVN) - the Road Safety Organisation in The Netherlands – strives for a safe road environment in which everyone has equal opportunities; from the elderly to young children and also cyclists and motorists.

In order to make this possible several years ago VVN amongst others launched a telephone report system within one province in The Netherlands in which residents could report unsafe traffic situations. Eventually this telephone report system was applied to all regions in The Netherlands. The telephone report system allowed a subjective insight into the locations where road safety issues existed. However this telephone approach had no registration system and there was no way for all the reports to be kept together and for the residents who voiced their concerns to be kept in contact with. Also there was no link with the objective date (such as accidents and speed), and so the validity of the subjective information provided by residents could not be assessed.

In order to increase the contact with residents about unsafe situations and make it more structured, VVN has decided to uniform and digitalise the submitting of reports. To uniform, in order to create a national database containing subjective unsafe traffic situations, which the policy makers can analyse and base their policies on. To digitalise; in order to generate a greater capacity within projects; with less employees required. This eventually, in co-operation with VIA.nl, has lead to the creation of the Road Safety Report System.

So far in The Netherlands both VVN and policy makers have expressed very positive feedback concerning their experience of using the Road Safety Report System. VVN wants with the help of the Road Safety Report System to get the attention for road safety at policy making level. Also VVN wants to make a yearly report based on the ‘subjective road safety’ in The Netherlands.

The process concerning the ‘Road Safety Report System’

The Road Safety Report System combines road safety data from residents and also asks for their commitment to be involved further in projects which concern their road safety issue. This therefore provides a double benefit, because the system allows both of the (previously mentioned) challenges, for a successful safety approach, to be achieved.

Nevertheless, the Road Safety Report System asks for coordination between residents and policy makers. Through this coordination, opportunities for the National Road Safety Organisation are created. Through the Road Safety Report System they are not only the point of contact with the government for residents concerning unsafe traffic situations, but are also involved in the implementation of safety projects as manager of the database with volunteers. Due to the Road Safety Report System being a digital system, control and communication from a managing role is far easier to carry out.

Figure 4 shows a diagrammatic view of the process which is involved in the Road Safety Report System, including the role of the National Road Safety Organisation.

After The Netherlands now also other countries!

PRI has the desire to use certain aspects of the successful Dutch approach worldwide, in order that other countries are able to benefit from the approach. The first step to implement the Dutch approach to road safety is through the implementation of the Road Safety Report System in other countries.

For National Road Safety Organisations there are opportunities with the Road Safety Report System in the following areas:

- involving residents within road safety projects;
- bringing road safety bottlenecks to the attention of policy makers and decision makers.

Residents are at the centre of the Road Safety Report System! The system not only involves the safety projects connected to the safety problems which the resident experiences, but the system also supports and promotes the active participation of residents (‘residential participation’).
4. Worldwide role of the Road Safety Report System

The use of existing practices can contribute worldwide to a successful road safety approach. Road safety in the Netherlands is of a very high standard due to the successful combination of objective and subjective road safety data.

Through the cooperation between PRI, TomTom and VIA.nl this approach is now starting to become available in other countries. In addition to the Road Safety Report System, TomTom-speed data is also an extremely useful tool when creating and evaluating road safety policies.

The role of the National Road Safety Organisation

The management of the Road Safety Report System and the use of speed data from TomTom is something that regarding to PRI can be carried out by the National Road Safety Organisation:

• This organisation has contact with residents concerning road safety and therefore can successfully implement the Road Safety Report System;

• This organisation also has contact with road authorities concerning road safety and can therefore act as a representative of the residents in any discussions with the government and findings from the Road Safety Report System;

• This organisation has the opportunity to promote the Road Safety Report System amongst residents;

• Finally this organisation has also the opportunity to support their own financial status by selling ViaStat modules, giving training to governments concerning the use of ViaStat modules and the collaboration through safety projects.

The possibilities of TomTom

TomTom – Dutch manufacturer of navigation systems – aims to provide all drivers with the best navigation experience. Therefore TomTom makes use of community-feedback. By having a better understanding of the TomTom users’ desires, TomTom can be responsive to the needs of road users and help to create ‘an accessible and safe road network’.

TomTom has made this possible by using navigation systems to log anonymous GPS data automatically. This enables an ever expanding database to be created which contains the traffic speeds across the entire road network.

This traffic data is also used by TomTom in order to improve both accessibility and road safety. The accessibility is improved through TomTom recommending alternative routes during the rush hour periods. Road authorities can also use the database to get an insight into where traffic bottlenecks exist. Road safety is increased because road users are no longer distracted from the road due to having to study road maps in their vehicle. Road authorities also have a far clearer picture about the speeds that are driven across the entire road network and on that basis they are able to take particular measures in accordance with specific locations.

The debut international roll out of the Road Safety Report System has already happened. In Portugal, the National Road Safety Organisation, Prevenção Rodoviária Portuguesa (PRP), is extremely enthusiastic about the Road Safety Report System and the implementation process with VIA.nl has already begun.

If a National Road Safety Organisation is seriously considering the implementation of the Road Safety Report System, then VIA.nl will put the following steps into motion:

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**Try-out**

The try-out phase includes:

**Step 1: Preparation (lasting between 2-4 months), in which:**
- An introduction of VIA.nl and its software is given;
- Knowledge, experiences and traditions are exchanged;
- VIA.nl provides training on the practical use and application of the Road Safety Report System and its connection with ViaStat;
- The National Road Safety Organisation in consultation with VIA.nl takes care of translation of the Road Safety Report System into their own/preferred language (from English);
- The National Road Safety Organisation draws up a communication plan to encourage residents to make reports within the Road Safety Report System;
- The National Road Safety Organisation draws up a business plan for selling the ViaStat modules Reports and Speed Profiles to governments, as well as providing training to governments and organising road safety projects.

**Step 2: Online availability of the Road Safety Report System (lasting between 4-6 months), whereby:**
- VIA.nl will open, free of charge, the Road Safety Report System, so residents can begin to submit reports about unsafe traffic situations;
- The National Road Safety Organisation implements the communication to encourage residents to submit reports using the Road Safety Report System;
- The National Road Safety Organisation investigates to what extent governments are interested to purchase the ViaStat Module Reports (with reports from residents of the Road Safety Report System) and/or the ViaStat module Speed Profiles (with the speed data of TomTom). Part of the (annual) income from the ViaStat modules will be the benefit for National Road Safety Organisation.

**Evaluation**

If the try-out phase shows firstly that residents are submitting enough valid reports using the Road Safety Report System and secondly that governments...
If there is interest to purchase ViaStat Reports & ViaStat Speed Profiles, then VIA.nl and the National Road Safety Organisation will discuss the possibility of a full roll out. This involves an official partnership to be agreed and formed.

It involves the National Road Safety Organisation maintaining the Road Safety Report System for several years. The National Road Safety Organisation is also given the responsibility to encourage the majority of the government to purchase ViaStat Reports and ViaStat Speed Profiles.

The National Road Safety Organisation can therefore work with the Road Safety Report System in a structured way and is a serious partner to help form a relationship between the road user and the policy maker. It can also attract volunteers for road safety projects, as well as oversee the training for road authorities with regards to ViaStat. This provides, together with the commission of the ViaStat subscriptions, an extra income.

If the try-out phase shows that the proposed approach using the Road Safety Road System does not positively correlate with residents and/or governments, then, through mutual agreement between VIA.nl and the National Road Safety Organisation a decision will be made concerning whether the partnership should be continued.

Apps

The recent and rapid increase in the number of smartphones and tablets (such as the iPhone and iPad) makes the use of our software even easier. With our apps more possibilities are made available, especially to drivers and residents. The App is a unique communication tool that allows the desired information to be accessed anywhere and at any time. Monitoring objectives and consulting accident data during council meetings through an iPad is now reality. But also creating and submitting reports through a smartphone, demonstrates the app’s unique possibilities it is able to offer.
Roll out

After the evaluation phase and the GO / NO-GO decision, the partnership between the National Road Safety Organisation and VIA.nl will be made more official. Agreements will be made based on the objectives of partnership. The use of other traffic data can further be encouraged.

For example:
• Accident data;
• School routes & bottlenecks.

The final roll out of the Road Safety Report System becomes the responsibility of the National Road Safety Organisation. This applies also to the contact with authorities that (wish to) use ViaStat modules. In this phase VIA.nl will primarily focus on knowledge-exchange between different countries through PRI, in order that the Road Safety Report System remains up to date and continues to meet its requirements.

Road Safety Report System in Portugal

Prevenção Rodoviária Portuguesa (PRP) undertakes various activities to reduce traffic accidents in Portugal, such as: training, prevention and publicity campaigns and developing new studies. In order to continue these initiatives during these current times in which there are large expenditure cuts, PRP wants to generate extra income and initiate more effective road safety projects.

PRP has therefore been looking for possibilities in order to achieve this. This is why a partnership with VIA.nl was created, in which there is no need for own (software) investments. With the use of the Road Safety Report System, PRP is able to collect reports from residents about unsafe traffic situations. From these reports PRP can, together with the interested groups, create and implement road safety projects. Besides stimulating ‘residential participation’ PRP can, through this collaboration, also apply the various applications (reports, speeds, accidents and school-home routes) which ViaStat offers to road authorities. Not only does road safety in Portugal benefit, but it also enables PRP to generate revenue by selling the software applications and offering training/projects.
6. More information

For more information about the role that the Road Safety Report System can play in your home country please contact:

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Download this booklet