

FACT SHEET NO.: 7 / 3

PERFORMED BY: PRO

A GENERAL INFORMATION		
A 1	Category	Research and Innovation
A 2	Subcategory	Technology - transport information systems, management & service
A 3	Transport policy measure (TPM)	Provision of real time traffic and travel information (RTTI)
A 4	Description of TPM	<p>Traffic participants are more and more confronted with traffic problems like congestion, delays, road works and accidents. The mobility of people and goods is growing and the rising demand cannot be fully supported by transport infrastructure investments. Furthermore, road works, traffic accidents and congestion hamper traffic flows cause delays which lead to significant extra costs for transport operators and society. In order to meet future mobility demands it will be crucial to find new ways to improve the current traffic network. Increase efficiency, by distributing traffic participants on the basis of real time mobility network loads, can fulfil traffic participants in their need to travel, without substantial investments in new transport infrastructure. This TPM, on the provision of real time traffic and travel information (RTTI), is designed to do so. [4]</p> <p>Currently, transport users and transport operators do not have the ability of making truly informed decisions before and during their journey. This TPM focuses on decision making just before and during a journey. This means, that e.g. the purchase of a vehicle will not be taken into account. The availability of real time traffic and travel information will not solely lead to changes (in travel behaviour); furthermore user behaviour plays a determining role in the success or failure of RTTI [1] [5] [6] [7] [9].</p> <p>Basically, there are two kinds of RTTI:</p> <ol style="list-style-type: none"> 1. Informing transport users before making their journey. This so-called pre-trip information will help traffic participants to choose between different transport modes (or combinations of transport modes) and avoid possible delays (and therefore be able to better predict travel times). Whether traffic participants will switch between transport modes is doubtful and requires significant changes in behaviour and preferences [7]. 2. Provide information during a journey. On-trip information informs traffic participants on the latest traffic conditions (accidents, congestion, weather, departure times, etc.). A fully functional on-trip information system demands a flexible attitude of traffic participants. Real time information will lead to less delays, but this can only be achieved by last-minute switching of routes and transport modes [1] [4].
A 5	Implementation examples	<ul style="list-style-type: none"> - The National Data Warehouse for Traffic Information (NDW) is a partnership between several Dutch authorities (mostly local governments), which are working closely together to develop a traffic database and aim to effectively use this data for traffic management and traffic information [2]. - DATEX II aims to provide a standardised way of communicating and exchanging traffic information between service providers, traffic centres, traffic operators and media partners [3].
A 6	Objectives of TPM	<p>The main objectives of the TPM are:</p> <ul style="list-style-type: none"> - Promote environmental friendly behaviour under transport users. Information on carbon- and environmental footprint of transport services and journeys enables passengers and transport operators to make more environmental friendly choices. - Meet future mobility demands without huge investments in additional transport infrastructure. When the entire mobility network is being used more efficiently by distributing traffic between different modes and routes, mobility demands can be fulfilled without major investments on traditional (road) infrastructure. - Promote multimodality by increasing the awareness on the availability of alternative modes and possible combinations of modes for single routes. - Increase safety by allocating traffic to less loaded parts of the network. Congestion and overloaded roads increase the possibility of accidents which can be reduced by distributing traffic flows. [1]
A 7	Key changes concerning:	
A 7.1	- Choice of transport mode / Multimodality:	Multimodal transport will become more attractive, but is uncertain whether this will encourage people to switch between transport modes [6] [7] [9].
A 7.2	- Origin and/or destination of trip:	No key changes
A 7.3	- Trip frequency:	No key changes
A 7.4	- Choice of route:	Will be more flexible and can be changed last-minute due to RTTI.
A 7.5	- Timing (day, hour):	No key changes. Pre-trip information will not lead to different (daily) timing, but can generate changes in hourly timing.
A 7.6	- Occupancy rate / Loading factor:	No key changes
A 7.7	- Energy efficiency / Energy usage:	Indirect impact: Energy efficient modes of transport will become more visible and energy use of transportation will be transparent for all users and operators.
A 8	Main source	[1]

B IMPACTS																																																																					
B 1	OVERVIEW ON IMPACTS	<table border="1"> <thead> <tr> <th colspan="14">AFFECTED SEGMENTS</th> <th colspan="2">Geographical level</th> <th colspan="2">Source</th> </tr> <tr> <th colspan="5">Passengers</th> <th colspan="5">Transport operators</th> <th rowspan="2">Employees in transport</th> <th rowspan="2">Residents</th> <th rowspan="2">Economy</th> <th rowspan="2">Public bodies</th> <th rowspan="2">Society</th> <th rowspan="2">1st level</th> <th rowspan="2">2nd level</th> <th rowspan="2">Source of assessment</th> <th rowspan="2">Spatial level of source</th> </tr> <tr> <th>Road</th> <th>Rail</th> <th>Air</th> <th>Public transport</th> <th>Slow modes</th> <th>Road</th> <th>Rail</th> <th>IWW</th> <th>Air</th> <th>Maritime</th> <th>Public transport</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	AFFECTED SEGMENTS														Geographical level		Source		Passengers					Transport operators					Employees in transport	Residents	Economy	Public bodies	Society	1st level	2nd level	Source of assessment	Spatial level of source	Road	Rail	Air	Public transport	Slow modes	Road	Rail	IWW	Air	Maritime	Public transport																			
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B 1.1	Summary	<p>By far the most important, the success or failure of RTTI will largely depend on changes in user behaviour. If traffic participants, despite the availability of RTTI, will not significantly change their behaviour (by keep choosing the same routes and modes as they used to do), the impact of the TPM will be moderate. The effectiveness of vehicle labelling shows that consumers are not changing their purchase behaviour (concerning passenger cars) after labelling passenger cars (environment friendliness label). Information on sustainability of modes of transport may not have the desired effect (switching modes, more sustainable behaviour) [5] [6] [7] [9].</p> <p>Despite the (uncertain) effect of RTTI for the behaviour of traffic participants, other major impacts are:</p> <ul style="list-style-type: none"> - Road passengers and road transport operators will benefit from the information provided by RTTI. They will be able to avoid congestion and decrease their delays due to pre- and on-trip traffic information [1]. - Railway passengers and rail transport operators will be better accessible due to extensive information on multimodal transport routes. The same counts for public transport passengers. This will probably lead to more users (how much will depend on the change in behaviour, e.g. how many people will switch from private vehicles to public transport). - Slow modes will become part of the end-to-end transport chain for traffic participants. To encourage multimodality RTTI will aim to promote all modes of transport and multimodal transport routes, including slow modes. - Residents near busy motorways will suffer less from environmental pollution (PM, NOx, Noise), because these parts of the network will be less loaded. Nonetheless, traffic will be distributed over a wider area which will lead to more hinder over a larger area. The advantage of RTTI is that traffic loads can be distributed according to changing preferences. - Public bodies will need to invest in RTTI infrastructure, but will save money in the long run because of less expenses in new road infrastructure (although vehicle mileage rises, routing will optimised which leads to less capacity problems on road infrastructure). 																																																																			
B 1.2	Summary: Income groups	Improved access to information will be advantageous for especially those people who have little or no access to transport. Still, just more information will only be advantageous for those who lack information. Multimodal transport (promoted by RTTI) will have a positive effect on income groups if multimodality will lead to lower prices [7].																																																																			
B 1.3	Summary: Age groups																																																																				
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B 2 TRAFFIC IMPACTS																																																																					
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B 2.I	Overall impacts on social groups																																																																				
B 2.II	Implementation phase	- Frustration or disappointment under traffic participants due to possible technological failures during implementation phase.																																																																			
B 2.III	Operation phase																																																																				
B 2.IV	Summary / comments concerning the main impacts	<ul style="list-style-type: none"> - Travel or transport time will become more predictable but not necessarily shorter. Due to RTTI it will be possible to plan your time of arrival without choosing a fixed route or mode of transport. RTTI will tell you before and during your journey which route or mode a traffic participant should take to reach the destination in time. Without additional infrastructure investments (objective of TPM), RTTI mainly will improve efficiency by distributing traffic participants all over the network. This will lead to smoother, well distributed traffic flows. This distribution (based on RTTI) is designed to prevent congestion and delays, not to shorten existing travel time (measured without congestion). Transport and travelling will not become faster (compared to a current situation without congestion or delays), but smoother and more predictable [8]. - Risk of congestion will clearly decrease due to RTTI. Traffic participants will be warned when certain parts of the transport network are nearly overloaded and forecasted to get congested. This information and information on alternative routes or modes, will provide enough options for traffic participants to anticipate, and therefore decrease the chance on congestion [1] [4]. - Vehicle mileage will increase for road transport (RTTI will lead to a different routing and hence increase the vehicle mileage) and rise in rail transport and slow modes. RTTI promotes multimodality and offers a smooth transport chain covering all modes of transport. This will increase the attractiveness of public transport and slow modes [1]. - RTTI is designed to improve service and comfort for all traffic participants [1]. 																																																																			
B 2.V	Quantification of impacts	- up to 25 % reduction in travel time/congestion [8].																																																																			

B 3 ECONOMIC IMPACTS		AFFECTED SEGMENTS													Geographical level		Source			
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B 3.1	Transport costs	↓				↓											R	N	E	
B 3.2	Private income / commercial turn over																			
B 3.3	Revenues in the transport sector																			
B 3.4	Sectoral competitiveness	→	→		→	→	→				→						N		S	I
B 3.5	Spatial competitiveness																			
B 3.6	Housing expenditures																			
B 3.7	Insurance costs																			
B 3.8	Health service costs																			
B 3.9	Public authorities & adm. burdens on businesses																			
B 3.10	Public income (e.g.: taxes, charges)																N		S	N
B 3.11	Third countries and international relations																			
B 3.I	Overall impacts on social groups																			
B 3.II	Implementation phase																			
B 3.III	Operation phase																			
B 3.IV	Summary / comments concerning the main impacts	<p>- A reduction in transport time will lead to reducing transport costs. This effect will be strongest for road transport due to less congestion on motorways.</p> <p>- RTTI enables traffic participants to switch easier between different modes of transport. The problem of public transport used to be that it failed to provide a fully frictionless 'end-to-end' journey. With the help of RTTI this will no longer be a major disadvantage of public transport. As a result, public transport will become more competitive compared to road transport. However, RTTI will also be beneficial for road transport (more predictable and less congestion). The success or failure will mainly depend on the number of traffic participants which will switch modes [1].</p> <p>- Public bodies will have to invest in RTTI in order to install, maintain and operate traffic information systems and data centers. However, expenses on traditional infrastructure (mainly new roads) will decrease (assuming that traffic will be shifted to other modes). In the long run, RTTI will probably save public income. Still, the net effect of savings is unclear at this time [2].</p>																		
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B 4.1	Health (incl. well-being)																			
B 4.2	Safety	→				→											N		S	N
B 4.3	Crime, terrorism and security																			
B 4.4	Accessibility of transport systems	→			→	→	→				→								S	I
B 4.5	Social inclusion, equality & opportunities																			
B 4.6	Standards and rights (related to job quality)																			
B 4.7	Employment and labour markets																N		E	
B 4.8	Cultural heritage / culture																			
B 4.I	Overall impacts on social groups																			
B 4.II	Implementation phase																			
B 4.III	Operation phase																			
B 4.IV	Summary / comments concerning the main impacts	<p>- Safety will increase by dynamic traffic management systems because their ability to display danger warnings, speed regulation and re-route traffic to lesser loaded parts of the network [4]</p> <p>- Accessibility of all transport modes will improve through RTTI. Information will become transparent and accessible for all traffic participants [1].</p> <p>3 level impact:</p> <p>- As indicated, vehicle mileage of passenger vehicles can increase without an increased chance of congestion. This could make travelling by car more popular and increase the sale of cars which will increase employment in the car industry.</p>																		
B 4.V	Quantification of impacts																			
B 5 ENVIRONMENTAL IMPACTS																				
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B 5.1	Air pollutants																			
B 5.2	Noise emissions																			
B 5.3	Visual quality of the landscape																			
B 5.4	Land use																			
B 5.5	Climate																			
B 5.6	Renewable or non-renewable resources																			
B 5.I	Overall impacts on social groups																			
B 5.II	Implementation phase																			
B 5.III	Operation phase																			
B 5.IV	Summary / comments concerning the main impacts	<p>- Although different modes of transport will become more attractive, it is questionable whether more information will encourage people to switch from car to public transport. For example, to optimise travel costs, a combination of walking, cycling, public transit and rented cars is favorable. Instead, motorised individual mobility by car is favored by society, not at least because of its status. In other words, people do not decide rational when it comes to choosing between transport modes [6] [7] [9].</p> <p>- Commuters: The decision to drive rather than use other modes is based more on symbolic than on functional motives [9].</p> <p>- Air pollutants, noise emissions and greenhouse gases emissions (like CO2 emissions) will decrease in highly congested regions (through traffic management) and will increase in other areas.</p> <p>- Promote awareness of the availability of alternatives to individual transport and information on carbon- and environmental footprints of transport modes. This information will raise transparency, but will not be a reason to switch modes. An study (ADAC) shows that labelling does not influence buying preferences for private vehicles [1] [5].</p>																		
B 5.V	Quantification of impacts																			
C REFERENCES																				
C 1	Other TPMs of this subcategory																			
C 2	References	<p>International</p> <p>[1] European Commission (2011): Commission Staff Working document . Accompanying the White Paper - Roadmap to a single European transport area. SEC(2011)391. Brussels</p> <p>[3] European Commission (2011): DATEX II - CEN TS 16157 - The key to successful information exchange, Brussels</p> <p>[4] SafetyForum (2007): Report of the eSafety Working Group on Real-Time Traffic and Travel Information (RTTI), Brussels</p> <p>[6] Steg, L., Gifford, R. (2005): Sustainable transportation and quality of life, Journal of Transport Geography 13: 59-69</p> <p>[8] European Commission (2008): Action Plan for the Deployment of Intelligent Transport Systems in Europe, SEC(2008) 3083, Brussels</p> <p>[9] Steg, L. (2005): Car Use: Lust And Must. Instrumental, Symbolic And Affective Motives For Car Use, Transportation Research A, Vol. 39: 147-162.</p> <p>National</p> <p>[2] National Data Warehouse for Traffic Information (2012): The database – explained, Utrecht: NDW</p> <p>[5] Gärtner, A. (2005): Study on the effectiveness of Directive 1999/94/EC relating to the availability of consumer information on fuel economy and CO2 emissions in respect of the marketing of new passenger cars, München: ADAC e.V.</p> <p>[7] Litman, T. (2011): Mobility As A Positional Good - Implications for Transport Policy and Planning, Victoria Transport Policy Institute</p>																		