

May 2014

Challenges and barriers for a sustainable transport system – exploring the potential to enact change

This is deliverable 4.2, due on Dec. 31st 2013, according to the
TRANSFORuM *Description of Work*, Annex I of Grant Agreement
No. MOVE/FP7/321565/TRANSFORUM

Document Details	
Deliverable no.	4.2
Dissemination level	Public
Work Package	WP4
Editor	Sonja Forward
Co-author(s)	Bertil Hylén (VTI), David Barta (CDV), Ernest Czernański, Joanna Dickinson (VTI), Jirina Vesela (CDV), Jonas Åkerman (KTH), Karolina Isaksson (VTI), Olga Dębicka, Ralf Brand (Rupprecht Consult), Sonja Forward (VTI) and Zdenek Hrebicek (CDV) (in alphabetic order).
Further contributions from	Claus Eriksson (VTI), Claus Hedegaard Sørensen (DTU), Florian Kressler (ATE), Jonna Nyberg (VTI) and Lucas Weiss (ATE).
Status	Final
Project Start Date and Duration	01 February 2013, 24 months

Table of content

1	Executive Summary	4
2	Introduction	8
3	Aim of the report	9
4	Part 1: Findings from the one-day workshops within the First Joint Forum Meeting in Gdansk	10
	4.1 Participants	10
	4.2 Method and procedure	10
	4.3 Results	11
	4.4 Goal 1: Urban Transport	12
	4.5 Goal 2: Freight Transport	13
	4.6 Goal 4: High Speed Rail	15
	4.7 Goal 8: Intelligent Transport Systems	16
5	Part 2: Interview study	17
	5.1 Participants	17
	5.2 Method	18
	5.3 Interview results	19
	5.3.1 Goal 1: Urban Transport	20
	5.3.2 Goal 2: Freight Transport	25
	5.3.3 Goal 4: High Speed Rail	28
	5.3.4 Goal 8: Intelligent Transport Systems	32
	5.4 Summary	35
	5.4.1 Urban Transport	35
	5.4.2 Freight Transport	36
	5.4.3 High Speed Rail	37
	5.4.4 Intelligent Transport Systems	37
6	Part 3: How to overcome the barriers	39
	6.1 Urban Transport	39
	6.1.1 The introduction of new fuels and new technologies	39
	6.1.2 Political (EU, national, regional and local)	40
	6.1.3 Public and stakeholders attitudes	41
	6.1.4 Institutional conditions	41
	6.1.5 Urban and transport planning	42
	6.1.6 Market demand	42
	6.1.7 Conclusion	43
	6.2 Freight Transport	46
	6.2.1 Political (EU, national, regional and local)	46
	6.2.2 Institutional condition – Getting prices right and fair	46
	6.2.3 Quality of transport services	47
	6.2.4 Conclusion	48
	6.3 High Speed Rail network	50
	6.3.1 Political (national, regional, local)	50
	6.3.2 Operational and organizational	51
	6.3.3 Institutional conditions	51
	6.3.4 Market demand	51
	6.3.5 Conclusion	52
	6.4 Intelligent Transport Systems	54

6.4.1	Political (EU, national, regional and local)	54
6.4.2	Operation and organization	54
6.4.3	Institutional conditions.....	55
6.4.4	Market demand.....	57
6.4.5	Conclusion.....	57
7	ANNEX 1 Questionnaires for interviews	58
7.1	Questionnaire for goal number 1: Urban Transport	58
7.2	Questionnaire for Goal number 3: Freight Transport, Goal number 4: High Speed Rail, and for Goal number 8: Intelligent Transport Systems.	61

1 Executive Summary

The TRANSFORuM project provides a platform to engage stakeholders in all areas of the European Transport sector with the aim of developing a common view and strategies of how four key goals of the 2011 White Paper on Transport can be achieved. TRANSFORuM will result in

- implementation-oriented roadmaps addressing the four selected White Paper goals;
- targeted and specific recommendations for policy and implementers;
- a detailed strategic outlook into the future European transport system.

Deliverable 4.2 of the TRANSFORuM project focuses on barriers and challenges to achieve the goals of the 2011 European Transport White Paper connected to clean urban transport (goal 1), freight transport (goal 3), high speed rail networks (goal 4) and a multimodal information, management and payment system (goal 8).

This report is divided into three parts; the first part summarizes the results from a workshop conducted within the TRANSFORuM project. The second part presents the results of interviews carried out with different experts discussing the different goals and their perceptions of what might prevent or delay appropriate implementation. The third part is based on a literature review discussing how to overcome or remove the various barriers and challenges. The overall aim of the studies presented in this report is to identify barriers but also to present necessary steps which need to be taken in order to help achieving the goals. The term "Barrier" relates to something which prevents some form of progress or movement, while "Challenge" can be something difficult but also something which is regarded as stimulating; or an opportunity.

For the WORKSHOP in Gdansk, Poland (24-25.6.2013) we managed to attract over seventy transport experts (e.g. chief executive officers of leading transport companies, top-level management representatives of authorities as well as policy-makers etc.) from all over Europe to discuss, verify and sharpen our understanding of the challenges and barriers of the project's four thematic areas. The format was interactive providing the participants with the opportunity to discuss the four selected goals in more depth. Discussions covered a range of issues; lack of political will, constrained public finances, limited willingness to pay, system complexity and many more.

The participants of the urban transport group highlighted that the European level of funding for urban transport is limited and the budgets need to be found at national level. Further, it was mentioned that if citizens are required to pay more to use the transport system there may be additional barriers to implementation. City logistics was emphasized as a field facing significant barriers to progress, since the diversity of actors involved is very wide, and traditionally they are not in dialogue about solutions. The group recognized the significance of different political mind-sets and policy priorities in various parts of Europe. There are no 'one-size-fits-all' types of solutions.

The freight transport group considered the shortage of integrated approaches, capacity and funding, getting prices right (external effects) and finally the quality of the service as priority areas. Local opinion opposing new

infrastructure was also highlighted as a substantial barrier. However, there was consensus about the benefits of having a strong and independent regulator to ensure fair competition. The lack of an integrated approach with regard to various strategies and measures was considered paramount. The inconsistencies between policy documents belonging to separate policy areas were further highlighted.

The high-speed rail (HSR) group concluded that tripling the length of the network is a good idea, but demand for the infrastructure must also be present. The White Paper promotes intramodal competition between rail operators but does not state how this could be promoted and developed. Many entry barriers remain but also trade-off issues between competition and collaboration. Lessons have to be drawn from existing examples. Financial barriers were also regarded as important since they weaken the potential development of HSR due to the high level of public subsidies needed. Technical barriers remain in the adoption of technology. Interoperability is important (ERTMS) but it is not always achieved. Some companies may also have an interest in the existence of technological barriers and market fragmentation.

As the most important barrier in the ITS group the stakeholders identified missing transport politics behind these policy goals. As long as no goals and targets deriving from transport politics are formulated, there will be no strong political will to reform the system(s). A main barrier for the private sector is the difficulty to find profitable business models and investment strategies for traveler information systems and services. Missing technical specifications and European wide coordination as well as missing information sharing platforms and alliances for conflict resolution among different interest and lobbying groups were also mentioned as implementation barriers by the stakeholders.

In addition to the workshop 14 IN-DEPTH INTERVIEWS (12 men, 2 women) with experts from different EU countries (2 from Belgium, 1 England, 4 Czech Republic, 1 Hungary, 1 France, 4 Poland and 1 Sweden) were carried out to explore the issues identified in the workshop. The interviewees mentioned that all four goals were ambitious but still feasible – the question was how to implement them. The need for politicians to cooperate and find consensus was underlined. Politicians need to explain the problem, to motivate and to provide information of a high quality, thus one important goal identified was to conduct rigorous research and to deliver relevant and objective information to stakeholders and the general public. The principle of subsidiarity means that goals should be set at an appropriate level and a coordination of objectives across different levels could be useful. Goals should be technology neutral, and not go against the markets.

The interviewees discussing goal number 1 (Urban transport) stressed that Member States had started to become aware of global environmental problems that are caused by transport. Technology was very important and according to the interviewee's some solutions already exist, but the problem could be legislative (not only at national level, but also at EU level). Moreover, standards and legislation were mentioned as important barriers but above all else, finance was identified as the main barrier.

The interviewees discussing goal number 3 (Freight transport) believed that the freight transport market was liberalized and fully deregulated and influenced by large market players but that the main problem was insufficient investment in the infrastructure. Furthermore freight vehicles parameters must be changed, so that the rules for the railway as regards safety, noise etc. should not be stricter than those for other modes.

The interviewees discussing goal number 4 (High speed rail) argued that building of HSR infrastructure must be managed by the government. Efficiency and utility, political barriers and integration have to be considered, but the main barrier was again of financial nature. The interviewees underlined the importance of internalization of externalities, interoperability and increasing railway competitiveness.

The discussion of goal number 8 (Intelligent Transport Systems) showed that the main barriers to implementation of this goal could be summarized as follows: isolated solutions and approaches, different technologies, high cost of the investments into interoperability and lack of financial resources. The most crucial barrier was the lack of a common understanding among actors and the difficulty in obtaining an approval for a project by the municipalities.

The LITERATURE REVIEW on how to overcome or remove the various barriers and challenges showed that in relation to White Paper goal 1 (urban transport) the political-administrative system needs to decide on joint strategies in relation to the goal, mostly at the national, regional and local level, and to a more limited extent at the EU level. This also includes means for supporting the development of new fuels and vehicles and the necessary infrastructure. In addition to this the goal requires more fundamental transformations of the way cities and regions are being planned. Thus, the key barriers are closely related to policy and planning as such, and the priorities that are being made when it comes to urban and regional design as well as the organization of housing, work places, norms of mobility etc. There is a need for policy-makers to develop a more strategic and visionary approach.

Regarding freight transport (goal 3) getting the prices right and improving capacity for rail and waterborne transport are paramount issues. A reallocation of infrastructure funding, from road to rail and waterborne transport is probably necessary given that public funding will increasingly be restricted by an ageing European population. Making transport by ship or rail more reliable but also better cooperation between stakeholders and harmonization are important factors. On transport services, competition remains a key issue for better services, constraints on price and a better allocation of resources, and of course less subsidies at the optimal level.

In high-speed rail (goal 4) a new paradigm is emerging where speed is important but also the level of prices on tickets and the quality of service before, during and after the train trip matter. . As constraints on public finance limit the capacity to develop the network, the key strategy should be to develop the demand (triple the demand) and then through competition on the tracks, trying to increase the quality of services and limit the level of subsidies and ticket prices. This means customers need to be attracted to the service offered. Improving the connections between the HSR network and classical railway network as well as to other public transport modes is important. Only then, as a second step, could the new development of the network (triple the network) through a clear scientific appraisal method be re-launched and achieved.

In order to overcome political barriers towards ITS implementation (goal 8), it is crucial to coordinate relevant actors and develop joint strategies. For this purpose the many existing coordination platforms and networks can play an important role. Currently, recommendations at EU policy level are too general. To overcome this barrier the European Commission should propose quality requirements for traveler information services. The different interpretations of the current policy framework at the European level represent a major barrier, which can only be overcome by multi-level and multi-actor policy coordination. A significant strategy to overcome operation

and organization barriers is to gain better technical interconnectivity among ITS systems. European policy making could support national and regional approaches by proposing specific quality measures for harmonizing services across Europe.

2 Introduction

The TRANSFORuM project provides a platform to engage stakeholders in all areas of the European Transport sector with the aim of developing a common view and strategies of how four key goals of the 2011 White Paper on Transport can be achieved. TRANSFORuM is run by a consortium of independent and experienced policy advisers and researchers from across Europe. The consortium's eleven partners are all widely acknowledged experts in their field and pursue a carefully orchestrated division of labour, structured into four thematic groups and seven cross-cutting work packages.

TRANSFORuM focuses on the following four key goals of the White Paper:

1. Urban Transport – Clean Urban Transport and CO² free city logistics (goal 1). Halve the use of 'conventionally-fuelled' cars in urban transport by 2030; phase them out in cities by 2050. Achieve essentially CO₂-free city logistics in major urban centres by 2030.
2. Freight Transport – Shift of road freight to rail and waterborne transport (goal 3). Thirty per cent road freight over 300 km should shift to other modes such as rail or waterborne transport by 2030, and more than 50 percent by 2050, facilitated by efficient and "green" freight corridors. To meet this goal will also require appropriate infrastructure to be developed.
3. High Speed Rail (HSR) – Complete and maintain the European HSR network (goal 4). By 2050, complete a European HSR network. Triple the length of the existing HSR network by 2030 and maintain a dense railway network in all Member States. By 2050 the majority of medium-distance passenger transport should go by rail.
4. Intelligent Transport Systems (ITS) – European multimodal information, management and payment system (goal 8). By 2020, establish the framework for a European multimodal transport information, management and payment system.

The underlying assumptions of the TRANSFORuM project are that policy-making should be based on an in-depth understanding of all stakeholders' positions and that co-ordinated action is more effective than solo initiatives.

TRANSFORuM will result in:

- implementation-oriented roadmaps addressing the four selected White Paper goals,
- targeted and specific recommendations for policy making and implementers,
- a detailed strategic outlook into the future European transport system.

The project's overarching concept is based on proven consultation techniques revolving around a synergistic combination of ten moderated workshops, qualitative in-depth interviews and a set of online discussion tools.

The process towards the outlined output is based on a set of interlinked steps, starting with:

- an analysis of the current situation (policies, funding mechanisms, actors, trends),
- followed by the identification of main challenges and barriers, and finally
- an in-depth understanding of contemporary good practice under the heading "Transformation is possible!".

All of these steps and final outputs will have to be based on the views of, and reality-tested by, expert actors in all of the above areas. To achieve this, TRANSFORuM brings together a comprehensive sample of these

stakeholders in a series of face-to-face events, validates their results through targeted interviews and stimulates and moderates lively online discussions.

The project results will build strongly on existing reports and documents from the various project activities as well as gathered input from the stakeholder consultation activities within the project to ensure to make the best possible use of stakeholders' expertise, views and insights.

In line with this, the implementation-oriented roadmaps are developed in an iterative way together with stakeholders in the transport sector, by a series of thematic workshops.

3 Aim of the report

This report focuses on barriers and challenges to achieving the White Paper goals connected to Clean Urban Transport (goal number 1), Freight Transport (goal number 3), High Speed Rail (goal number 4) and Intelligent Transport Systems (goal number 8).

In this report and according to the English Dictionary, the term "barrier" relates to something which prevents some form of progress or movement. "Challenge" on the other hand can be something difficult but also something which is regarded as stimulating; or an opportunity. Thus in our understanding, a challenge is regarded as more positive than a barrier.

This report is divided into three parts; the first part summarizes the results from a workshop conducted within the TRANSFORUM project. The second part presents the results of interviews carried out with different experts discussing the different goals and their perceptions of what might prevent or delay appropriate implementation. The third part is based on a literature review discussing how to overcome or remove the various barriers and challenges. The overall aim of the studies presented in this report is to identify barriers but also to present necessary steps which need to be taken in order to help achieving the goals.

4 Part 1: Findings from the one-day workshops within the First Joint Forum Meeting in Gdansk

Over seventy transport experts from all Europe accepted TRANSFORuM's invitation to participate in the event in Gdansk, Poland on June 24th / 25th 2013. The aim of the workshop was to discuss and verify challenges and barriers with relevant stakeholders and actors representing the project's four thematic areas. Minutes of the event are available at www.transforum-project.eu/events/june-2013-gdansk.html.

4.1 Participants

More than half of the participants invited to this workshop were external experts, including chief executive officers of leading transport companies, top-level management representatives of authorities as well as policy-makers etc. The experts were from various countries and represented different opinions and problems. All participants brought their professional experience in one of the following topics to the Transport White Paper goals discussion:

- Clean Urban Transport and CO₂-free City Logistics (12 experts)
- Shift of Road Freight to Rail and Waterborne Transport (9 experts)
- Complete and Maintain the European High-speed Rail Network (12 experts)
- European Multimodal Information, Management and Payment System (11 experts)

The majority of the participating stakeholders were men (in proportion to women about 4:1). The reason for this is considered to be that the transport sector is still a male-dominated industry.

4.2 Method and procedure

After initial keynote speeches, the first day's activities proceeded by the attendees being split up into four thematic groups. The focus of day one of the Joint Forum Meeting was the identification and verification of key policies, actors, funding mechanisms and trends. Guiding questions across all four thematic groups included:

- Which are the main policies at various levels relevant for White Paper implementation?
- Which relevant funding opportunities/ mechanisms exist? Which are missing?
- Who are the important incumbent players and who are the emerging but important, potentially even game-changing actors?
- What are the trends which will influence future developments taking a 2030/ 2050 perspective?

Consolidated results of these discussions, combined with TRANSFORuM's literature research are available in the project deliverable D3.1 *Summary on main policies, funding mechanisms, actors and trends* available at www.transforum-project.eu/resources/library.html.

Following on from this discussion of the key trends in each of the thematic areas on day one, parallel sessions took place on the second day of the First Joint Forum Meeting. The aim of the second day was to explore the

participants' insights and perspectives regarding challenges and barriers and to formulate a tentative action plan overcoming and managing the challenges and barriers in question. The format was interactive providing the participants with the opportunity to discuss the four selected goals in more depth with focus on barriers, challenges and ways of how to overcome them. The attendees split into four thematic groups during the workshops where the following guiding questions were discussed:

- What is your overall assessment of the possibility to reach this goal within the given timeframes?
(Follow-up questions about reasons for their assessments, what experiences they have that makes them make this assessment)
- What would it take to reach this goal? And what are the main barriers, from your experience?
- What would be the key steps forward for a more effective implementation of this goal? Important actors? Key measures?
- What about roles and responsibilities for this goal – is it clearly identified (and reasonable)?

More specific questions related to the different thematic areas were also discussed.

4.3 Results

The results concerning challenges and barriers for a sustainable transport system are presented individually starting with TG 1 – urban mobility.



4.4 Goal 1: Urban Transport

White Paper goal number 1 aims to:

“Halve the use of ‘conventionally-fuelled’ cars in urban transport by 2030; phase them out in cities by 2050; achieve essentially CO₂-free city logistics in major urban centres by 2030” (European Commission, 2011, page 10).

The participants discussed whether all politicians believe that CO₂ and climate change are important problems. Even when it was recognized as a problem, it was not always addressed in regard to transport policies and strategies. Moreover, it was argued that climate change is a diffuse and a global problem that can be difficult to be sold and used as a justification for action or change – especially if change of transport policy is seen as having a negative economic influence.

Both political funding and personal budgets for sustainable transport were discussed. The European level of funding for urban transport is limited and the budgets need to be found at national level. Further, it was mentioned that if the citizens are required to pay more to use the transport system there may be additional barriers to implementation.

To reach the goals for urban mobility it was mentioned that different actors need to cooperate more. It was observed that in some countries the Department of Transport and the Department of Environment are separate units and do not share a common strategy for reaching better mobility and air quality. The incompatibilities and conflicts between the passenger and freight sectors were also discussed. It was also argued that in the long term more actors need to be involved like city planners, engineers, politician’s etc. to plan urban development with a view to create a sustainable urban area.

The level of ambition of politicians was mentioned as crucial even though this is difficult to regulate. However some cities have had success by regulating mobility through taxation or/and CO₂ free zones. The question if implementation of goals should take place at EU, national or city level was discussed. Since countries and cities are very different perhaps we should leave the final policy making to decision makers on a national or city level.

The group recognized the significance of different political mind-sets and policy priorities in various parts of Europe. There are no ‘one-size-fits-all’ types of solutions.

Finally, uncertainty about the future performance of different types of alternative fuel vehicles (AFVs) was mentioned as a barrier to achieving the goal since there is no “winner” at the moment. On the other hand rapid development of new technologies also offers opportunities to accelerate the transition from conventionally-fuelled cars to alternatively fuelled vehicles.



4.5 Goal 2: Freight Transport

White Paper goal number 3 states that:

“30% of road freight over 300 km should shift to other modes such as rail or waterborne transport by 2030, and more than 50% by 2050, facilitated by efficient and green freight corridors. To meet this goal will also require appropriate infrastructure to be developed”.
(European Commission, 2011, page 10).

The interviewees mentioned ten categories of barriers, of which four were considered to be the priority areas. These included the shortage of integrated approaches, capacity and funding, getting prices right (external effects) and finally the quality of the service. Local opinion opposing new infrastructure was also highlighted as a substantial barrier. Other barriers that were mentioned included; lobbying of groups opposing changes that the goal requires (e.g. oil lobby); low quality of services; low knowledge of costs and low profitability; conservative actors in the railway sector; container-focus; different situations in Member States and regions (i.e. level of infrastructure and service quality).

The lack of an integrated approach in the various strategies and measures available was considered the principal barrier. The inconsistencies between policy documents belonging to separate policy areas were highlighted. A better co-ordination of EU initiatives and national/local policies is needed. It was argued that the “big picture” is missing. Some would argue that the White Paper goals have been available since 2011, but little concrete action has been taken. While the White Paper goal 3 is ambitious, the approach as to how to achieve the target is missing. All stakeholders including the citizens need to be involved in the process. Stakeholders need to agree to organize European transport differently than today and adopt a comprehensive approach.

The conflict of interests between the EU and the Member States was also emphasized. Due to such conflicts the stakeholders agreed that we need an approach, where all the relevant actors are integrated so that Europe can really make a commitment. For such a purpose increased knowledge also among the citizens was considered important.

Capacity, funding and getting the prices right were other important topics in the discussion. In particular the need for both restrictive (e.g. charging) and positive (e.g. investments) measures was supported. It was also pointed out that there is room for more capacity within the existing rail infrastructure or through only small investments, if the system is managed properly. In the rail sector small measures such as constructing more sidings would contribute to considerable capacity improvements, although not enough to reach the modal shift target. For inland waterways there is already much spare capacity that could be utilized immediately. Apart from funding issues, local opinions opposing new infrastructure was mentioned as a substantial barrier to in particular rail corridors.

Furthermore, it was argued that currently the competition between modes is not fair (i.e. rail operators have to pay for using rail, while road infrastructure is largely free of charge) - and that the whole society has to pay for the external costs generated by road transportation. An important measure would be to charge road users for using the road system.

It was argued that, "We need some innovation about feeding income back into the sector and promoting other modes". It was suggested that if Europe could solve "getting the prices right" then the issue of "capacity and funding" could be solved. If the polluter pays to those that are polluting less within the same industry, a push towards better infrastructure could be created. In this context, the internalisation of external costs and the revised Eurovignette Directive were mentioned as important measures.

It was highlighted that the companies must learn their own lessons (e.g. the railway companies themselves need to become more efficient) and it was agreed that the market will not solve this by itself. A first step would be to get rid of the bottlenecks: as with a good infrastructure and good capacity it is easier to provide a good service.

Finally, there were concerns about global competition: "We all want a better environment, but companies are competing in a hard world". In the end companies have to earn money. Higher costs make the overall system more expensive, which could be an issue for European competitiveness (e.g. shippers of steel and paper industries compete with companies without these extra European costs). Thus operators that are not bound by EU laws and legislation would have a competitive advantage.



4.6 Goal 4: High Speed Rail

White Paper goal number 4 aims to:

“By 2050, complete a European high speed rail network. Triple the length of the existing high speed rail network by 2030 and maintain a dense railway network in all Member States. By 2050 the majority of medium distance passenger transport should go by rail”
(European Commission, 2011, page 10).

The paradigm of HSR is changing. The key issue is of course speed but offering a mix of quality services as well as, attractiveness, accessibility and level of prices are becoming more and more important. Tripling the length of the network is a good idea, but support and demand for the infrastructure must also be present. The White Paper promotes inter-modal competition as well as intra-modal competition between rail operators. But it leaves open how competition should be promoted and developed? Many entry barriers remain but also trade-off issues between competition and collaboration persist. Lessons can be drawn from Italy, where there is competition in the operation of HSR (NTV and Trenitalia) but one should also take the local protests against the proposed HSR line connecting Italy with France or the new London-Brussels HSR connection seriously. Many local groups are opposed to the scheme and are lobbying their MPs to vote against the plans, arguing that some areas will lose out to cities with a train station and/or that the landscape will be destroyed.

Financial barriers were also regarded as important since they weakened the potential development of HSR due to the high level of public subsidies needed. Private financing and Public Private Partnership are not able to significantly cut out public contributions according to the group.

Technical barriers remain in the adoption of technology. Interoperability is important (ERTMS) but it is not always achieved. Some companies (historical monopolies) may also have an interest in the existence of technological barriers and market fragmentation.

There are further barriers in the development and the quality of services. The role of stations for HSR networks were highlighted, based on experiences of Japan, where train stations are key connection platforms capacity constraints and bottlenecks exist in some key stations. If the bottlenecks are in the stations, what are the incentives to improve them? Environmental barriers exist too, especially in urban areas and when CO₂ emissions during the construction process are high (tunnels, bridges).

Two further issues include fees and administration rules. EU support where tracks and stations are most congested was seen as very important. Air travel should be compared to HSR in regard to both comfort and time.



4.7 Goal 8: Intelligent Transport Systems

White Paper goal number 8 aims to:

“By 2020, establish the framework for a European multimodal transport information, management and payment system” (European Commission, 2011, page 11).

As the most important barrier the stakeholders identified a lack of commitment behind these policy goals. As long as no goals and targets deriving from transport politics are formulated, there will be no strong political will to reform the system(s). Decisions are often based on political reasons but lack a long-term strategy. Additionally, conflicting policy objectives (e.g. passenger vs. freight) complicate the situation. At the policy and public administration level the lack of communication between policy levels in European multilevel governance may lead, according to the group, to contradictory policy strategies.

Another barrier concerns the general interest of industrial players to gain proprietary solutions. Transport operators often have a data monopoly and are not eager to share. It is a common business strategy to create market entry barriers by excluding new entrants from data and information access. In addition, common data access would expose operators' shortcomings like operation delays and disruptions to public scrutiny.

A main barrier for the private sector is the difficulty to find profitable business models and investment strategies for traveller information systems and services. Although there are corresponding user needs and wants for quality and reliable information, acceptance of extra-charges is limited, especially when sufficient information is already available free of charge. Furthermore, the stakeholders mentioned that real user needs and wants are often not well understood and reflected in decisions being made.

There is often a considerable gap between the demand of city governments and the need of end-users. On the one hand, open access strategies facilitate a multiplicity of market initiatives with benefits for individual end-users. On the other hand, open data access restricts traffic management. Steering traffic in urban areas is difficult if available data is openly provided. Market actors are not providing best solutions for citizens, but for end-users who are willing to pay. Other institutional and organizational barriers are conflicting interests within organizations and within networks and the difficulty of finding a common view on strategy and approach in public-private networks and platforms.

The lack of technical specifications and a European wide coordination and information sharing platform and attempts to resolve sometimes conflicting interests amongst different lobby groups were also mentioned by the stakeholders as important barriers. The communication and cooperation amongst different stakeholders is also poor. Projects funded by the European Union could provide good examples. It is therefore unfortunate that they are not sharing their knowledge and information and inform each other about their activities.

5 Part 2: Interview study

The aim of the interview study was to explore the issues identified in the workshop in more depth but also to discuss the goals with people who did not participate in the workshop. The result is crucial to identify necessary steps forward, and to develop practically relevant recommendations and roadmaps.

5.1 Participants

In total 14 in-depth interviews were carried out, usually lasting about 1 hour, with experts from Belgium (n=2), England (n=1), the Czech Republic (n=4), Hungary (n=1), France (n=1), Poland (n=4) and Sweden (n=1).

Just like in the First Joint Forum Meeting the majority of interviewees were men – a total of 12 men and 2 women were interviewed.

All participants were chosen from a database consisting of stakeholders from the EU countries with expert knowledge and long-term practice in the relevant areas. From this database, a selection of stakeholders was asked to participate in the interviews, based on their knowledge and expertise in respective area. Criteria for selection was that the interviewees would be able to contribute to a deeper understanding both of the barriers and potentials for implementation of the relevant four goals of the White Paper. During the selection process and when setting up the stakeholder database itself the consortium tried to get an even distribution of men and women. However, this was not possible due to the fact that it is still mostly men holding high positions within the transport sector in most of the Member States.

Seven of the interviewees were interviewed about Goal number 1 – Urban Transport, two about Goal number 3 – Freight Transport, another two about Goal number 4 – High Speed Rail and the final 3 about Goal number 8 – Intelligent Transport Systems. Initially the aim was to achieve an even balance between the different groups but due to various problems (like limited availability of selected interviewees) the results were skewed in favour of goal number 1. The method used was face to face interviews which also, for practical reasons, limited the number of people who could be visited.

Seven of the people interviewed belonged to Goal number 1 – Urban Transport:

- Interviewee 1: Researcher focusing on sustainable urban mobility (Czech Republic).
- Interviewee 2: Professor in the field of economics and organization of the urban transport (Poland).
- Interviewee 3: Vice president of a public transport authority. (Poland).
- Interviewee 4: Responsible of the sustainable public transport development in the city and in the region (Hungary).
- Interviewee 5: Expert in the field of public transport organization and economic, pricing, planning and controlling (Poland).
- Interviewee 6: Local politician within transport and sustainable urban development policy with experience from national transport politics, also Chairman of a professional national organization for public transport users and engaged as expert in a program about research associated with the transport and environmental policy objectives (Sweden).

- Interviewee 7: Works for an established European interest organization with a strong interest in some aspects of urban transport (Belgium).

Two of the people interviewed belonged to Goal number 3 – Freight Transport:

- Interviewee 1: Employee at the Railways Development department with railways and combined transport issues (Czech Republic).
- Interviewee 2: Works for an established European interest organization with a strong interest in environmental aspects of the Transport White Paper (Belgium).

Three of the people interviewed belonged to Goal number 4 – High-Speed Rail:

- Interviewee 1: Works within transport construction, engineering and geophysical measure (Czech Republic).
- Interviewee 2: Former Director of the HSI High Speed Rail network and is now independent consultant engaged in infrastructure management (United Kingdom).
- Interviewee 3: Business line manager at an engineering and consulting firm, with a background within a national railway infrastructure manager (France).

Two of the people interviewed belonged to Goal number 8 – Intelligent Transport Systems:

- Interviewee 1: Head of the City development department of Hradec Kralove (Czech Republic)
- Interviewee 2: Expert on the urban transport with many years of experience from working at a public transport company (Poland).

5.2 Method

The first contact with the participants was carried out in three different ways; by mail, by phone or face to face. If they agreed to participate they were then invited to take part in a face to face interview. The purpose of the interview was described as well as why the stakeholder had been selected, and if they agreed to participate an appointment for the interview was made.

The interview started with a short introduction of the TRANSFORuM project and ensured that the transcripts would be confidential. The interviews were in some instances audio-recorded, transcribed and translated into English when needed. In some cases the interviews were only recorded using pen and paper. If a tape-recorder was used it was stressed that the participants could terminate the interview at any time by switching it off. The anonymity of the stakeholders was guaranteed by a verbal agreement and a signed testimony provided by the interviewer.

The interviews themselves were based on a semi-structured interview guide (see Annex) allowing some structure but at the same time allowing for unexpected findings by introducing additional questions. The content of the guide was based on the findings from stakeholder workshops and input from partners in TRANSFORuM.

The interviews began with some general questions about EU policies for sustainable transport and the White Paper in general and the particular White Paper goal which was the focus of the specific interview. These questions were the same for all the interviewees.

5.3 Interview results

The results are divided into four different parts, covering each of the addressed White Paper goals, in the following sequence: Urban Transport (goal number 1), Freight Transport (goal number 3), High Speed Rail (goal number 4), and Intelligent Transport Systems (goal number 8).



5.3.1 Goal 1: Urban Transport

White Paper goal number 1 aims to:

“Halve the use of ‘conventionally-fuelled’ cars in urban transport by 2030; phase them out in cities by 2050; achieve essentially CO₂-free city logistics in major urban centres by 2030” (European Commission, 2011, page 10).

The understanding of the White Paper goal

The seven interviewees had in general a good understanding of the goals of the White Paper. It was expressed that politicians should affirm, support and facilitate these goals.

Reflecting upon the potential for the White Paper to lead to transformation of the transport system in line with its intentions, all interviewees considered the goals of the White Paper as positive, although achieving them would require overcoming considerable obstacles, including changing the mind-set of people. The potential for the White Paper to lead to sustainable transformation of the transport system was overall considered by the respondents to be possible in the fields of passenger vehicles and city logistics.

Regarding the specific goal for Clean Urban Transport in the White Paper, five of the respondents were aware of the goal prior to the interview, while some argued that this was a new problem that had not been discussed before.

Clarification of the goals

The White Paper is a policy document and it was considered to be of vital importance that it should be accompanied by both national and local actions.

Considering the interviewees’ area of expertise respectively, as well as their respective organization’s view on the White Paper goal for Urban Mobility, practically all of the interviewees were convinced the goal is feasible, acceptable and very important. However, it was mentioned that some parts of the White Paper, operate in the opposite direction, for example: “It is not an option to curb mobility”, which one of the interviewees stated is substantially wrong. This formulation shows a lack of insight, that what is needed instead of steadily increasing transport volume is rather to actually plan so that society can arrange for people to be able to achieve their needs, without having to move around more.

Regarding the question if the goal is sufficiently well-defined for implementation, four of the interviewees stated that it is not defined well enough for implementation that would lead to its fulfilment. The goal needs to include more precise methods showing how to proceed towards goal fulfilment:

“...It will not be enough at all, because you have to go beyond the White Paper and set binding directives and funding in order to support the political vision.”

Wider discussion by relevant actors was considered necessary on all levels to accomplish goal fulfilment. It was emphasized that politicians, officials and scientists need to work together:

“I think it is vital to pair research with the policy – to base decisions on what we know and do not know about the world, is indeed a good idea. Scientists can act as catalysts ... Analysing the problem together is important. And once you share the problem scenario, you are well prepared to discuss which action leads towards the intended transition or not.”

Such involvement is also a necessity to underline the importance for politicians to cooperate and find consensus, and to support these efforts:

“So the policy has to be there, and the policy must be brave and take responsibility for future generations ... I also think we generally underestimate the ability of people to understand this.”

One respondent expressed that his city has taken a council decision to halve CO₂ emissions by 2020, and that this council goal is now used as a support for work in the direction of the White Paper goal.

Another interviewee expressed that first of all the goal needs to be re-framed highlighting positive end results such as; decarbonisation, accessibility, safety, efficiency. Secondly, the goal was regarded as imprecise in speaking of “conventionally-fuelled vehicles” – it is not clear what this includes or excludes. The parallel goal to achieve essentially CO₂-free city logistics is differently written and seems somewhat more relevant because it has a positive approach without prescribing a particular type of solution, although the target itself may be a bit unrealistic.

Regarding the implementation status of the White Paper for transport in the respective Member States of the interviewees, one person expressed that the process is too slow. Other interviewees are convinced that the White Paper goal is applicable in general as well as in the fields of passenger vehicles and city logistics. One respondent expressed that generally sustainable transport is not prioritized in the same way as solving the current economic crisis.

More than alternative vehicles and fuels

It was discussed whether the focus of the goal on AFVs is the right one, or is there a need to supplement it with other goals such as; land-use, travel demand management and change to public or non-motorised transport:

“The car is stationary 23 hours a day on average ... this means every car uses an average of 8 parking spaces. This is not a sustainable way of using the city.”

Three interviewees expressed that there is a need to supplement the White Paper goal with goals for land use and for travel demand management change in favour of public or non-motorised transport:

“We need to design the city so that using public transport and cycling would be the natural choice for the majority of journeys, so that most of the operations will be conducted without making a carbon footprint. It is about redistribution of surface”.

It was also expressed that a universal solution does not exist, and that a mix of measures will provide better results rather than a single measure. Hence, there is a need for a broad range of innovations and measures to

improve urban transport. One interviewee expressed a total lack of interest in ‘green cars’, saying that it diverts from what really is important to achieve the goal for urban mobility i.e. to change urban planning and facilitate alternative transport modes.

The relevance for the national and local policy level

The interviewees were divided when it came to how much EU regulations should decide on the priorities to be taken by national and local authorities. One interviewee pointed out that in less developed countries, it could be difficult to achieve goal 1.

One respondent meant that the EU should not dictate goals for cities. The principle of subsidiarity means that goals should be set at the most appropriate level, as close to the people as possible. A coordination of objectives across different levels was considered to be useful. The urban mobility systems vary a lot across Europe. It may seem positive for the EU to push for AFVs, but the technology has to be available and affordable for the users. It was expressed that goals should be technology neutral, and not to go against the market.

Local plans for urban mobility, flood mitigation and adaption

All interviewees agreed that a sustainable Urban Mobility Plan is a necessary framework and key to ensuring that cities can contribute successfully to the White Paper goal. The Commission should call for cities to adopt such plans. However, every city should be allowed to define its own goals and strategies. One respondent broadened the issue to also include the protection against flooding and argued that this is in fact closely associated with what we need to do in order to reduce the carbon impact of transportation in our cities. There are actions that have an effect on both of these, and it was put forward that it is reasonable to combine climate change mitigation and adaptation strategies in one coherent plan which should cover these issues with an integrated approach.

Internalizing external costs for urban transport

Among a selection of specified strategies, pricing which internalizes external costs was considered very important or even the most important strategy for the achievement of the White Paper goals, according to a majority of respondents. Closely behind, practically all participants also agreed that changing the behaviour of end consumers is crucial. Following these two mentioned strategies, the following aspects were pointed out in falling order according to their significance as seen by the interviewees: European-wide technical standards for alternative fuel systems, provision of infrastructure for alternative fuels, improving vehicle and energy storage technology, more effective collaboration among local transport stakeholders, and finally European-wide standards for Access Restriction zones:

“Freight can be banned at different times as well as in different parts of the city, and gradually phased out from downtown. This is done in Copenhagen for road safety reasons as it has been identified as an important measure to increase cycling.”

Infrastructure and technology were emphasized as part of the challenges to improve energy efficiency. It was stressed by the interviewees that it is very important to ensure coordinated and integrated solutions. Mobility solutions must be better integrated, for example connection and combination between individual transport modes such as cars and bicycles, and public transport. It was also stressed that the need for collaboration is strong – including the use of public private partnership (PPP) approach as a mechanism for innovation.

Finance and policy-making

The main barrier to implementation of the goal on a national, local or EU level was according to a majority of the respondents, considered to be finance. It was discussed whether new funding sources at the European level will be necessary for achieving the goal or if the European Union should refrain from providing incentives in the area of urban transport. The interviewees were all of the opinion that new funding sources at the European level will be necessary for achieving the White Paper goal, and that traditional finance sources could be used more efficiently as well. EU funding should concentrate on European Transport Networks.

Politics was also mentioned as an important barrier. Hence, the role of politicians in the process of implementation was considered by all interviewees as being fundamental, and by many even was considered to be more crucial than businesses, industry, citizens groups, etc. when it comes to implementing the goal. Local politicians, as well as politicians on regional and national level, are the ones who have the power to influence urban transport by for example regulating traffic, funding public transport, providing infrastructure, traffic management systems. Politicians:

“...should be able to meet people’s basic needs of urban mobility so that you do not need to own your own car, so that it would be easy to live in the city without having to own a car.”

Politicians also play a crucial role to explain the problems and to motivate and ensure that high quality information is reaching the public:

“In municipal politics, talking to citizens about targets for 2030 and 2050 - it does not work, it is too far away. ... You have to relate things to people’s daily life more.”

It was stressed that all must aim towards creating more sustainable and vibrant cities. The problem was that a common vision on the political level does not exist.

Consultation with researchers, the public and stakeholder groups

All interviewees expressed that the policy-makers are not well informed about the publics’ wishes and needs. Many expressed that the responsible politicians are not aware of a lot of problems and only tend to listen to the strongest voices. Organisations like Polis¹ were considered to be very helpful for dissemination of knowledge and good practice to decision makers and civil servants in city departments.

Three respondents perceived that some important stakeholders are not represented when discussing these matters (i.e. public transport users as a group, cyclists and older people). One of the interviewees guessed that the lobby group for conventionally-fuelled transport is a cause of concern since they have quite a lot of power to influence politicians, while another one believed that the usual consultation procedure needs to be developed at the local level and the EU level in order to become suitable for the purpose. There should be consultation of experts from the industry to help improving the selection of solutions. A problem is that measures are often project based with little attention to the future beyond the project. This was considered to be a problem more or less at the local, national and EU level.

¹ Polis is a network of European cities and regions working together to deploy innovative technologies and policies for a more sustainable mobility. <http://www.polis-online.org/>

Other aspects mentioned include the implementation of technological improvements to the electric transport system, the development of attractive alternative transport modes to car traffic, the development of Sustainable Urban Mobility Plans and the technological development with regard to low-emission results.

Generally the respondents think that the wider public plays an important role in contributing to problem solving as mobility, or perhaps rather accessibility, is vital for the internal market and for the quality of the life of citizens. Public consultation of Sustainable Urban Mobility Plans were mentioned as well as the limitations of car use, the promotion of increased biking and walking, general education about the problems associated with urban mobility etc., It was believed that the general public is aware that transport needs to be sustainable and that this requires strong international cooperation. Everybody can influence the development of sustainable urban transport and contribute to problem solving.

Finally, the importance of increasing the awareness and conviction among the citizens regarding the importance and benefits for the citizens of the EU of achieving the White Paper goals was emphasized. The publication of the White Paper was seen as a formal framework for working towards achieving the goals.



5.3.2 Goal 2: Freight Transport

White Paper goal number 3 states that:

“30% of road freight over 300 km should shift to other modes such as rail or waterborne transport by 2030, and more than 50% by 2050, facilitated by efficient and green freight corridors. To meet this goal will also require appropriate infrastructure to be developed”.
(European Commission, 2011, page 10).

The understanding of the White Paper goal

Both interviewees were already well aware of the different goals in the White Paper and welcomed them. One argued that the EU policies for sustainable transport are important for the national strategies in the field of transport, while the other stated that the goals are too ambitious to lead to transformation of the transport system in line with the intentions.

Addressing the White Paper goal 3, it was expressed that it is very ambitious but feasible. The question is how to implement it with limited options for regulation. The organization of one of the interviewees uses the White Paper goals as an argument for investments improving the railway infrastructure. The second interviewee stated:

“Modal shift is to a certain extent about how you want to shape your society and as such subject to ideological debates. We see that the electrified rail has a big potential to reduce transport emissions. But what matters for us is that we reduce emissions, not how we do it”.

The price of railway investments and dedicated policies

The interviewees were asked to specify some important factors that could be important for the achievement of the White Paper goals. The first interviewee argued that true prices were most important, followed by improving technology, stronger regulation, and higher ethical standards. The next interviewee pointed out that his country already has a higher modal share for rail than other European countries because of a dedicated policy with considerable increased taxation, night bans and subsidies for rail. All of this is according to him, advantageous for a modal shift to the rail.

Regarding the implementation status of the White Paper for transport in the respective country of the interviewees, one of them argued that in his country rail freight has a good modal share and that the market is liberalized. The problem could be lacking investments in the infrastructure. The second interviewee argued that a level playing field between transport modes is paramount, taking into consideration problems with accidents, congestion, noise, atmospheric pollution. Already existing law and rules concerning working hours, weights and speed need to be enforced and politicians on all levels must have the courage to press administrations, police etc. to enforce them.

It was expressed that trucks carry enough load already. It was stated that in general utmost competitive environment must be created, for both the road transport and the railway. The second interviewee questioned if shifting road freight to rail is realistic and whether the railway capacity needed for a substantial modal shift really exists.

According to the interviewees, enacting a smoother and more effective implementation of goal number 3 would need infrastructure investments on the national level, changed parameters for freight vehicles, interoperability and a compatible infrastructure in the different countries.

Investments and equal terms for transport modes

The interviewees' own experiences of the goal and its implementation so far were that the sector is fully de-regulated, the state only sets the framework conditions. The situation is influenced by market players. In essence, the main barrier to implementation of the goal for freight at national, local or, EU level was claimed to be (the lack of) investments (probably at all levels). Passenger transport was regarded as more visible than freight, as freight transport (mainly on rail) very often occurs during the night. Therefore, it was argued that more investments are made to improve passenger transport, and governments should pay more attention to freight.

The interviewees were asked to point out the most crucial "type" of barrier which needs to be focused on first, one of the interviewees answered:

"It is necessary to set terms so that the railway has chance to assert itself. The direction for the railway as regards safety, noise etc. should not be stricter (than for other modes) – all must be set correctly."

It was underlined that railway subsidies are needed more than for road transport. The other interviewee argued that the railway system has to deliver better quality, lower costs, improved reliability and better service in general. Passenger trains generally have priority which can cause serious delays for rail freight. Capacity is already scarce on certain railway lines. Methods for assessing the (socio-economic) value of the freight versus passenger trains must be developed. This was said to be especially important for the European rail freight corridors now under implementation.

Involvement of politicians

It was underlined that politicians should ensure that standards and regulations in the field of rail freight should be comparable with the road transport, to ensure harmonization.

Regarding the question what would be the most important type of initiative or actor to support a more effective implementation of the White Paper goal, one interviewee stated:

"The less interference from the state, the better it is for the sector. The market is not able to solve everything so it is necessary to set up equivalent terms for all players and thus the state needs to set up some regulations for the development of the sector. Very strong authority of the state would however not be suitable."

The second interviewee was convinced that the largest environmental problem is that of noise, especially from freight trains, and meant that this must be remedied. However, not every problem associated with freight can be solved by combined transport.

One of the interviewees did not believe that policy-makers are well informed about the wishes, needs, rationale and constraints of the various implementer groups. Some countries have large turn-over of staff and many are engaged in “more important matters”, e.g. employment issues. The interviewee believed that the state should monitor, observe, conduct revision, etc. but not control.

Stakeholder representation

Regarding the representation of different stakeholders in the usual consultation procedure, one of the interviewee pointed out that stakeholders need to be better represented. This problem was stated to occur at the EU level:

“People often do not see where EU finds or takes opinions, EU cannot know the stakeholders’ opinions, they do not meet, they do not discuss; nevertheless, the European Commission decides about important issues so it all needs to be transparent. Maybe the situation at local level is even worse”.

One interviewee believed that it is necessary to go ahead according to guidelines, exact procedures and/or methodology, stating:

“Yes, of course, it is not possible to advance uncontrolled. It is necessary to implement conceptions, to realize preparations, methodologies, to go ahead according to guidelines etc. All material must be effectively utilized.”

The relevance of the goal in their daily work

Finally, reflecting on the context the interviewees work in, how do they understand their own role in relation to a more effective implementation of the White Paper goals? One of the interviewees saw it as part of his work and that he is involved in implementation which is reflected the White Paper goals, and also has a say regarding big plans, support programs etc.

One of the interviewees finds that the White Paper goals are relevant in daily work:

“Yes, all strategies should be realizing the White Paper goals. All strategies must be conformable with these goals”.

Finally, regarding how the wide public can contribute to problem solving, another interviewee was positive and pointed out that the public is invited to express their views when projects are going to be implemented. However, he did not believe that they could contribute fully because of contradictory opinions which could be contributing to the blockage of projects – a risk according to the interviewee.



5.3.3 Goal 4: High Speed Rail

White Paper goal number 4 aims to:

“By 2050, complete a European high speed rail network. Triple the length of the existing high speed rail network by 2030 and maintain a dense railway network in all Member States. By 2050 the majority of medium distance passenger transport should go by rail” (European Commission, 2011, page 10).

The understanding of the White Paper goal

The interviewees were already aware of the different goals in the White Paper. One of the interviewees believed that considerable improvement has been reached since the first publication of the White Paper, nevertheless the transport system is not sustainable (or more precisely, transport development is not sustainable) and the situation needs to change. He considered the publication of the White Paper in 2011 as a starting point. The interviewee was convinced that non-sustainable transport is a worldwide problem and that the solutions thus need to be implemented globally. Not only Europe but other continents must accept the White Paper goals. This interviewee found the White Paper policy objectives generally laudable and agreed with most of them, even if he regarded some of them as less realistic.

Another interviewee argued that the White Paper goals are too general. They provide objectives without providing the means to achieve them.

Reflecting upon the potential for the White Paper to lead to transformation of the transport system in line with the intentions, one interviewee argued that the White Paper goals are unique and clear and that the White Paper is a political document. However, in his country they had no High Speed Rail. The Ministry of Transport as well as the State Railways Transport are discussing this at the moment. In his country they only modernize old tracks and do not build new High Speed Rail lines. He argued that it is also necessary to initiate steps to improve and develop conventional railway(s). The next interviewee stated that the rail infrastructure was designed in another era, thus catering for growing passenger flows is often difficult. The third interviewee argued that the White Paper doesn't take into account the huge differences between the situations of each Member State, and needs to do so to a larger extent.

Consumer behaviour and a more qualitative approach

Considering their own area of expertise, two of the interviewees believed that goal 4 of the White Paper is ambitious but feasible. It is a question of political decisions from the side of the Ministry of Transport as well as other relevant Ministries in the respective state. International high-speed trains are not only regarded as good, but also at the same time as a necessity. The White Paper and other European policies were expressed to be taken into account in the organizations working within High Speed Rail, not as quantitative objectives but more as strategic guidelines.

One respondent said that having quantitative objectives might not be the most efficient way to achieve the EU goals. More qualitative measures and objectives (for example about performances) would be more relevant and efficient and less likely to be slowed down by regional and national differences. The European railway network is huge and very different regarding national definitions of what high speed really is. Thus, the recent focus on the aging infrastructure and interconnectivity is far more realistic than just tripling the length of the HSR network.

One interviewee believed that the behavioural change of ‘end consumers’ is the most important factor for the achievement of the goal. In addition improving technologies, true prices, stronger regulation and higher ethics standards were also identified as important.

Finance and national rail technologies

Regarding the implementation status of the White Paper for transport in their respective country there is a political will but the problem is many times financial. Building new lines is expensive and estimates based on cost-benefit analyses may be weak. Further the competitiveness between HSR and air traffic must be considered. The next interviewee saw a problem in that his country is not part of the Schengen area which could be a barrier when wanting to develop international rail travel. For the specific goal regarding HSR networks, one interviewee mentioned that with regard to the lack of HSR in his country, a possible construction of such a system will be performed not until the years between 2030 and 2050. It is a question of political decision. To get financing is at the moment experienced to be somewhat easier than for roads.

Another interviewee highlighted the importance of culture (especially culture of infrastructure) in some historically important countries (in terms of transport infrastructure), and that this is an issue that must be dealt with. For example: France has a very “colbertist”² approach of infrastructure. The French railway infrastructure manager Réseau Ferré de France, RFF, was mentioned as a perfect example of an industry in hand of the state. The UK on the other hand doesn’t, according to the interviewee, have the same type of infrastructure culture because of its distaste for state intervention.

In essence, the main barriers to implementation of the HSR goal were seen to be national rail technologies, philosophies, attitudes and national protectionism in general. In some areas political and EU action is regarded as necessary to break down these barriers, and to create a level playing field within the rail sector.

Interoperability was mentioned as a main barrier. Tripling the HSR network was stated to be nonsense if the demand hasn’t been tripled before. Before thinking of interoperability, it was argued that there should first be a need for regional dynamism and economic exchange, and then mobility becomes a real matter – not the other way around. The European Rail Traffic Management System, ERTMS, was seen as an obstacle for operators since it is “forced” and not driven by the market. When there is a need, it was argued that operators get along together very well, even if more costly than anticipated.

Another interviewee stated:

“Politicians at the EU level have the means to enforce the EU legislation but more actions are needed. Monitoring of implementation of the EU legislation must be improved and penalties enforced. More efficiency from the rail sector must be demanded”.

² Meaning a historical culture in France driven by Colbert who at his time created royal manufactures totally controlled by the kingdom.

Economic dynamism a driver of infrastructure

One interviewee underlined that the view that transportation can drive economic dynamism is wrong. This was seen as especially important to challenge when the current economic situation in EU is being considered. What needs to be considered first is, according to the interviewee, an existing or upcoming economic dynamism in a region (region in its large definition), and cross-border particularly. Without such economic signals, transport systems won't be efficient and, contrary to what the general thinking seems to be, will not bring economic dynamism.

There's also a recent trend of lower public acceptance of tax collection for infrastructure development. That was a feeling regarding the situation in France, since the French network is already well-deployed. Fresh new projects in under-developed networks would be more profitable and could attract PPP, private-public partnership, financial solutions to a greater extent than secondary high-speed lines in an already dense high-speed network. The interviewee concluded that there is a need to identify the needs of the Member States in terms of financing solutions but also in terms of mobility, before applying global measures to all Member States.

Management of HSR development

Regarding the role of politicians in the process of implementation, one of the interviewees argued that HSR building must be managed by the government. The governments need to implement legislation and margins. Indeed, the success of the project is dependent on the fact if the initial set-up is done correctly, according to one interviewee. The task of politicians is also to ensure optimal finance utilization, it is therefore primary a political responsibility. Without political allowance it is not possible to enforce public private partnerships (PPP). All comes down to the government since financing is from the HSR Transport Infrastructure budget. Thus it is important to involve politicians and to ensure that they get relevant information. Hence, the governments were seen as key players that can support a more effective implementation of the White Paper goal according to some of the interviewees, and they must therefore be in charge.

Smoother and more effective implementation of goal number 4 would need to take the following into account; internalization, interoperability, increasing the railways competitiveness, liberalization of the railway market, railways access facilitation to all carriers, infrastructure investment funding, improvement of tracks state diagnostics, implementation of modern construction of the substructure as well as superstructure and modern methodologies of railway construction.

The second interviewee added that traffic forecasts need to be realistic:

“For the Eurostar service 30 million passengers/year was forecasted but in 2013 there was only about 10 million per year. One new competitor entered the market; low cost airlines. Nevertheless, the Eurotunnel must cover all infrastructure costs despite less traffic than expected”.

The efficiency of the transport sector must be improved in general. Transport is multimodal and multimodal transport chains need to be optimized. People must be able to get to/ away from stations. In Europe there are too many regulators, safety authorities etc. Some form of consensus building is considered necessary across country boundaries to achieve the White Paper goals.

One interviewee argued that policy-makers are not well informed about the wishes, needs, rationale and constraints of the various implementer groups, while another interviewee stated that policy-makers are probably more informed than it would look like.

Another respondent argued that the right process for decision-making in Europe should be regional or local and only after that, national. Governments are already well involved (each country has a Ministry of Transport), but the power should now be given to regions (in administrative terms) - especially in terms of reducing emission and increasing the attractiveness of traffic. Are cross-border exchanges really important? Or is there a special internal dynamic? By identifying such needs, the regions will be able to adapt their own mobility needs.

When it comes to decision-making one of the interviewee stressed that it must come directly from Europe and then to the different regions and not via the national governments. Infrastructure must be regarded at these two levels instead of a “national possession”. However, governments can influence stakeholders and if they are not in favour of the goal this can be a barrier preventing the harmonization of the infrastructure across Europe. Hence, a greater involvement of regions is a key factor of success although this is not happening right now. The person also added the possibility of a system of taxation (on transport) that is only regional and European.

Representation of stakeholders

There is a danger that certain stakeholders (incumbent or potential) are not adequately represented in usual consultation procedures. It was underlined that more academics from universities and experts from research organizations are necessary (not only businessmen).

It was said that the public can contribute to problem solving through political actions i.e. to vote, to inform etc. It was believed that experienced politicians need to be more honest in their communications with the public. This would get people onside and create a willingness to offer solutions rather than more objections.

Focusing on modal shift

It was expressed that focusing on modal shift is a good way to facilitate the implementation of the goal and not only focusing on HSR which is very costly and whose construction is highly CO₂-intensive.

It was pointed out that what is called HSR in France isn't regarded as HSR in Germany. In France, the definition is to connect large cities far from each other with very low density between them. Is this what is needed in Europe? There's a choice to be made both at a European and a regional level. HSR can be applied between major European cities, and a German model of HSR (medium speed, more stops between medium-size cities) can develop a dense network. The two solutions together could lead to an interconnected and efficient network, and thus contribute to a modal shift from road and air towards rail.

Short term objectives versus longer term aims

One of the interviewees emphasized that in his country the White Paper goals are seen to add to cost and therefore in tight budgetary times ways are sought to avoid any additional expenditure – short term objectives tend to override longer term aims especially in respect of local government political issues.



5.3.4 Goal 8: Intelligent Transport Systems

White Paper goal number 8 aims to:

“By 2020, establish the framework for a European multimodal transport information, management and payment system” (European Commission, 2011, page 11).

The understanding of the White Paper goal

One of the two respondents was aware of the different goals in the White Paper already. Regarding their understanding of the EU policies for sustainable transport, one mentioned that these are common steps leading to improvement of the transport situation, and a set of transport measures that are supported by EU. The next interviewee had comprehensive knowledge of the EU policies for sustainable transport, including the goals of the White Paper on transport policy. In his opinion, EU sustainable transport policy is focusing on long-distance transportation but every journey starts at a particular point, so integrated transport should embrace all types of transport.

An equally important problem to solve is the so-called ‘urban logistics’, because all transport routes usually begin and end in the cities. It is therefore important to concentrate actions also on the issues of the transport of goods within the cities.

Both could see that the goal is relevant to projects they are engaged in, and believed that it is important to take part in joint international projects sharing experiences and ideas.

Implementation of the White Paper

Reflecting upon the potential for the White Paper to lead to transformation of the transport system in line with the intentions, one of the interviewees was convinced that the actions taken by the European Union are legitimate and extremely necessary. Although the implementation of the transport policy objectives is not a quick process, some very good examples can be seen. The implementation of the White Paper is absolutely necessary, leading to – for instance in case of the public transport – a more integrated approach for the benefit of end-users. The importance of cooperation undertaken at international level in order to implement the White Paper, where actors within the European projects cooperate and exchange experience and share good practices, was emphasized.

Asked to prioritize a selection of given factors³ for the achievement of the White Paper goals, one respondent prioritized the factors as follows; improved technology, a change in behaviour of end consumers, stronger regulation, higher ethical standards, honest prices. The other argued that all of the aforementioned factors are important but that the importance of these factors, their priorities, will depend on the situation in individual countries. Certainly the newer EU Member States suffer from other problems associated with the implementation

³ Improving technology; “True” prices; higher ethical standards; better behaviour of end consumers; stronger regulation?

of the objectives of the White Paper than the older Member States. A strong legislative support is needed according to him.

The implementation status at national level

With regard to the implementation status of the White Paper goal 8 one interviewee was not able to describe the implementation status in his own country while the other was not aware of the situation in his country in general but through contact with the management of urban transport in other cities and the Chamber of Urban Transport, he had noted that municipalities have taken numerous actions for the implementation of integrated payment systems and the availability of transport information for residents.

The following barriers to implementation of the Intelligent Transport Systems goal were mentioned:

- Isolated solutions/approaches of various stakeholders without broader relation to the other partners.
- Different technologies.
- High costs of the investments into interoperability and lack of financial resources.

Among the main barrier at national level, the lacking willingness of city authorities was underlined. The implementation is complicated by the fact that in many cases different cities would need to develop a common solution for the benefit of passengers, but are unable to do so because of self-interest. Common understanding of the actors, obtaining the approval for a project by the municipality, and the lack of general legislation were stressed as the most crucial barriers which need to be focused on first.

The role of politicians and legislation enabling new solutions

The role of politicians in the implementation of the goal is, according to the interviewees, to negotiate and approve a project and then release the budget (as a decision of the municipality management). Another important role politicians can have is to create support for new legislation enabling new solutions:

“It is necessary to create a kind of lobby for the development of new legislation, including the law on public transport”.

In the interviewee’s own country it seemed reasonable to include in these activities the relevant Chamber of Urban Transport who represented the opinions of transport companies and city transport authorities. To enact a smoother and more effective implementation of the goal, the following areas were listed:

“Awareness, possibility to finance it from EU funds, minimum support within the period of the project results’ sustainability, support technical, financial and expertise”.

The most important type of initiative to support an effective implementation of the goal was believed to be the decision by municipality management. This is dependent on politicians’ awareness, project readiness, financial readiness, risk analysis, operational costs etc. The important role of municipalities themselves was emphasized – policy at the central level should give support. The interviewees differed on whether policy-makers are well informed about the wishes, needs, rationale and constraints of the various implementer groups.

Consultation of stakeholders is risk management

To not reach consensus among its stakeholders well in advance was considered a danger by one respondent. The second interviewee did not see this problem, quite the contrary. He believed that the specificity of the social

situation and current development of democracy promotes a certain immaturity. It is hard to get people to regard themselves as part of some communities and to look more broadly on the problems – and not just from the perspective of their own interests.

It was argued that the public could be involved in the creation of strategic documents for the city and contribute to problem solving. One of the interviewees claimed that implementation depends on political awareness. EU funding as regards specified measures of the ‘action plan’ was considered to have been successful in the previous EU funding period. It was however doubted that this would happen in the next funding period. The lack of publicity on the subject was stressed as a general problem.

Education of passengers

Both of the interviewees agreed that it is important to have relevant documents to support the implementation of the goal. It was argued that the realization of sustainable policy is important for all cities and citizens. Experience was shared from many projects associated with these problems, where great effort has been made to implement integrated ticketing, to renew tariffs, to modernize the fleet, etc. educating passengers was seen as a necessity.

5.4 Summary

In the TRANSFORuM project four different goals are being addressed – goal number 1, Urban Transport; goal number 3, Freight Transport; goal number 4, High Speed Rail; and goal number 8, Intelligent Transport Systems. In order to identify a number of barriers which can prevent the implementation of these goals fourteen experts were interviewed in total (seven – goal number 1; two – goal number 3, three – goal number 4 and two – goal number 8).

The results presented some overall conclusions that could be applied to all the four White Paper goals addressed in this report and the TRANSFORuM project. Firstly, the interviewees considered the goals of the White Paper to be ambitious but also feasible – the question is how to implement them. The goals were considered to be relevant for each of the discussed sectors, as well as for the EU level but also for the national and local policy level as well, acting as a framework for policy making and design of implementation plans. The White Paper goals were however perceived by many of the interviewees as being too generally formulated to drive a successful implementation of EU policies. To clarify action plans to achieve the goals is of greatest importance.

Secondly, the interviewees underlined the important role for politicians. Politicians need to cooperate and find consensus. They need to implement a better consultation process to involve stakeholders as well as researchers and the public. It was emphasized that politicians need to be good at explaining the problems that the goals are addressing and to provide information of a high quality, in order to motivate the public towards acceptance of new legislation and regulations that enable new solutions. Therefore, to conduct rigorous research and to deliver relevant and objective information to facilitate the implementation of the goals and to achieve them was considered to be of vital importance. Consumers need to change their modal choice in a more sustainable direction, but politicians need to make it possible and easy for the consumers to do so.

Thirdly, the principle of subsidiarity, meaning that goals should be set at an appropriate level, was mentioned. A coordination of objectives across different policy levels could be useful. Goals should be technology neutral. Market oriented solutions were asked for. The member state and EU level need to set up a framework on equivalent terms for all stakeholders, by regulations. Governments play a role by mediating objectives to stakeholders. The detailed approach how to achieve the goals should however be left to the market, according to several of the interviewees. International cooperation was mentioned as important in the implementation of the White Paper goals so that experience and good practice can be shared and spread.

5.4.1 Urban Transport

The interviewees discussing goal number 1 (Urban Transport) pointed out that in general, there seems to be a rising awareness among cities in the EU of the global environmental problems that are caused by transport.

Technology improvements enabling reduced or zero fossil fuel consumption in vehicles was pointed out as very important by several of the interviewees. Implementation of technological improvements to electric transport and technology development with regard to low-emission cars was mentioned, as well as development of attractive alternative transport modes to car traffic.

According to the interviewee's some solutions already exist, but barriers in implementation of these were perceived to be related to legislation (at national level as well as at EU level). Technology standards were perceived as another important barrier to implement technology with less environmental impact in urban transport. Above all, the need for financing the shift to new technologies was identified as a key factor. Other mentioned aspects of importance for technology shift were coordination, integration, energy saving, research, policy focus and drive. Regarding the goal itself, it was raised that it is not clear what the wording "conventionally-fuelled vehicles" includes or excludes. The parallel goal to achieve essentially CO₂-free city logistics were regarded as somewhat more relevant in comparison as it does not point out a particular type of solution.

On the other hand, it was expressed that the heavy focus on AFVs may very well be a side-track within policy making, shifting focus away from a necessary paradigm shift in urban planning towards a car-free life style in cities. Several interviewees expressed that the White Paper goal for clean urban transport needs to be supplemented with goals for land use and for travel demand management change. Such goals could promote an updated city planning paradigm that makes non-motorised and public transport the natural choice for the citizens, and thus stimulates a modal shift from car travel to more sustainable transport modes.

Urban planning should also focus on making the everyday life of citizens possible to manage without generating the extensive transport demand that has been built into cities of today, caused by an interlinked spiral of car dependency and urban sprawl. For example, cities need to ensure that a car is not necessary to get easy access to work as well as to shopping and service, and the trend towards longer and longer distances to giant shopping centres outside city centres needs to be curbed.

It was pointed out that policy makers tend to listen to strong lobbying groups, often associated with fossil-fuelled transport, but are not enough aware of the needs and constraints of stakeholder groups such as public transport users, cyclists and older people which need to be better represented and listened to in the consultation process.

It was pointed out that some cities have started to implement mobility management, infrastructure optimization, demand management and alternative land use policies, etc. Sustainable Urban Mobility Plans were considered as a useful framework and tool to help cities in their work towards the White Paper goal and sustainable transport and land use solutions. It was put forward that the Commission should call for cities to adopt such plans.

5.4.2 Freight Transport

The interviewees discussing goal number 3 (Freight Transport) argued that the freight sector is liberalized, fully deregulated and influenced by market players, and all these factors were considered to be a good ground for working towards the goal. But it was pointed out that the main problem is insufficient investment in the infrastructure. Lacking railway capacity and financial resources to accomplish an increase of this capacity were pointed out as important barriers for increased modal share of rail freight.

Other key factors for achieving the goal were identified to be interoperability and compatible infrastructure between transport modes as well as between countries.

A level playing field between transport modes was described as being paramount, and that this requires true pricing that internalizes internal costs of the different modes, as well as legislation and regulation on equal terms. The interviewees were convinced that it is necessary to set the terms right so that the railway has a chance to assert itself in competition with road transport. One point made was that the rules for the railway as regards safety, noise etc. should not be stricter than for other modes.

5.4.3 High Speed Rail

The interviewees discussing goal number 4 (High Speed Rail) stressed that behavioural change of end consumers and a new paradigm of HSR are the most important factors for achieving the goal. Interoperability was mentioned as a main barrier. In essence, national rail technologies, philosophies, attitudes and national protectionism in general were seen as main obstacles for implementation of the HSR goal. The European Rail Traffic Management System, ERTMS, is intended to increase interoperability but was at the same time seen as an obstacle for operators since it is “forced” and not driven by the market.

It was argued that the demand for increased transport with HSR needs to come first, before investments are made – not the other way around. If regional dynamism and economic exchange is stimulated, this will generate increased demand for increased mobility and pave the way for increased investments in HSR infrastructure.

Political and EU action was regarded as necessary to break down these barriers, and to create a level playing field within the rail sector. The interviewees saw that the building of HSR infrastructure must be managed by the government. The allocation of financing for making these investments were pointed out as very important to achieve the goal.

To sum up, the interviewees stressed it is necessary to consider efficiency and utility, political barriers, integration, cross border connections etc., but that the main barrier is infrastructure investment funding. The importance of internalization of externalities, interoperability, increasing competitiveness of railways, liberalization of the railway market, railway access facilitation to all carriers, and implementation of modern construction of the infrastructure were also highlighted. Finally, harmonization of evaluation methods in Europe was emphasized as important to achieve a common standard of project evaluation.

5.4.4 Intelligent Transport Systems

According to the interviewees discussing goal number 8 (Intelligent Transport Systems) the main barriers to implementation of this goal are isolated solutions and approaches, different technologies, high cost of the investments for increasing interoperability and lack of financial resources.

The most crucial barrier was considered to be the lack of a common understanding of actors involved, and difficulties in obtaining an approval for a project by the municipality. To improve urban logistics, it was considered as important to concentrate actions to the cities because all transport routes usually begin and end in the cities.

Political awareness as well as public involvement was stressed as vital for the implementation of the goal. Politicians play an important role in creating support for new legislation enabling new solutions that make transport more intelligent and efficient. The municipality level was pointed out as important for supporting the implementation of intelligent transport systems. Not neglecting the consultation of stakeholders was emphasized as important, in order to pave the way for acceptance and anchoring of projects. Finally, there is a need for the education of the users of the new intelligent transport systems, to make implementation successful.

6 Part 3: How to overcome the barriers

6.1 Urban Transport

Delivery 4.1 summarized the barriers to goal 1 as follows:

“Many of the barriers are on the political and institutional level including EU but also the national, regional and the local level. On the national level funding/finance to support the necessary infrastructures is many times in short supply. On the regional level decision makers might support the overall goal of sustainable mobility but at the same time not always having clear plans to implement the same or indeed being reluctant to replace the car-based paradigm with a more sustainable one. There is also an uncertainty about how to engage with the public and get them to accept a more fundamental transformation that is necessary to reach this goal. This is an important issue since it is difficult for politicians to develop policies without the support from their voters. Another important barrier is on the technical level and the uncertainties related to new fuels and corresponding new technologies. The literature suggests that there is a shortage of data which clearly show the potential and performance of alternative fuels and technologies. This will also influence customers and their willingness to buy a vehicle using sustainable fuels”.

6.1.1 The introduction of new fuels and new technologies

When it comes to the introduction of new fuels and technologies a number of uncertainties have been listed including; availability of raw material, production costs, outlets to deliver the fuel, maintenance and services and public perception (Browne, O’Mahony, & Caulfield, 2012). Thus, readily accessible information for policy-makers and end consumers are very important (Brown et al., 2012; Committee on Overcoming Barriers to Electric-Vehicle Deployment, 2013). One key initiative would therefore be to compile all the available knowledge about various types of fuels and technologies and their performance, in relation to the White Paper goals, the potential availability, necessary conditions for production, possible external effects, goal conflicts etc.

Political decisions and legislative measures are important means for supporting the development of new fuels and vehicles. Clearly stated political ambitions at both the EU-level and the national level can encourage research, innovation and development when there is yet no clear market for a certain product. Surely, industrial agents (i.e. fuel providers and refineries, infrastructure developers, car manufacturers, fleet managers etc.) will dare to make more investments and speed up their development process if the future market prospects are clearer. Policymakers have also a key role to play in decreasing uncertainty through policy measures, legislation, development of standards etc. Browne et al. (2012) suggest that developing refueling infrastructure, tax incentives and awareness campaigns are important in the shorter term, while forced retirement of certain vehicles types and mandatory import targets are relevant in the longer term. These types of measures would influence user choices and demand in various ways and thus help the market to develop in a way which

promotes sustainable transport (Committee on Overcoming Barriers to Electric-Vehicle Deployment, 2013; Steenberghen & Lopez, 2008).

6.1.2 Political (EU, national, regional and local)

There is a range of political challenges connected to the implementation of White Paper goal 1. Banister and Hickman (2012) discuss the challenges related to the implementation of sustainable transport/mobility solutions in general and suggest new types of policy formation processes, where the process of “imagining transport futures” and scenarios is a key step of a more back-casting inspired policy-making process (Banister & Hickman 2012). One necessary and probably unavoidable step in such a process is that a more focused analysis of alternative and possible scenarios may help to guide policy-makers when making priorities and dealing with goal conflicts within or between policy fields. This is probably deemed to be controversial; urban transport is the expression of often deeply rooted norms, behaviours, and preferences, among both individuals and organizations. Any outspoken ambition to enact a transition will lead to opposition, often from strong stakeholders or groups of citizens, as shown by historical examples from urban transport (Sørensen et al., 2013).

Once there is a political agreement and commitment for a certain goal, there is a range of policy measures available for policy-makers. For instance, decision makers at the national level could give tax incentives to companies and/or individual consumers to support the development of a market for a certain product. Regulatory standards at the EU-level may also help. It is also possible to use public procurement to help kick-start new efficient technologies (Steenberghen & Lopez, 2008).

Current research on sustainable mobility stresses the need for an enhanced strategic capacity among decision makers and institutions in this context. There is a need for a higher capability to enact transitions. In this case, it is clear that the implementation of White Paper goal 1 would benefit from a clearer implementation structure from the EU-level to the local level. Supranational bodies should support national, regional and local bodies by encouraging a consistent approach to urban and transport planning, to pricing and regulation, and to the management of markets for international transport (Brand, 2008; May & Crass, 2007). Perhaps national governments should support local or regional authorities through technical, financial or other means like urban travel strategies and/or innovative funding instruments or other ways to promote local initiatives (Brand, 2008; May & Crass, 2007).

Thus there is a need for more sharply-formulated goals and targets both for the EU as a whole and for national, regional and local bodies. There is also a need to inform others about “successful” examples of initiatives that may support the fulfillment of White Paper Goal 1. For example, benchmarking can be a valuable tool for enabling similar administrations to learn from one another (Brand, 2008; Lerner, et al., nd; May & Crass, 2007; May, 2013).

There is also a call for more integrated and coherent strategies, which encompass all the relevant social and technical issues (Brand, 2008). It is also necessary to focus more on “systemic transition” which according to Kemp & Rotmans (2005) can be described as “a set of connected changes in technology, the economy, institutions, behaviour, culture, ecology and belief systems that reinforce each other” (p. 4).

Experiments can be an important element in transitions to a more sustainable transport system (Bruijne, 2010). Considerable attention is put on the issue of “political leadership”, “political savvy” “strategic alliances” and “political visions” as key features in complex and challenging policy situations (Attard & Ison, 2010; Banister, 2004; Brand, 2008; Semiatycki, 2004; Sørensen et al., 2013).

6.1.3 Public and stakeholders attitudes

Individual attitudes are often mentioned as important factors which influence consumer choice (Gillingham & Sweeney, 2012). For instance, negative attitudes to AFVs might be linked to a general lack of knowledge concerning the performance and the potential long-term benefits of new fuels/vehicles or of innovative services (Gillingham & Sweeney, 2012). It could therefore be argued that clear and consistent information, that will capture the attention of the target audience, should be produced and published widely. In order to achieve this it is important that the message fits with the characteristics of the target audience (see Delhomme et al., 2009).

Public perception will not only influence customer choice but also policy makers. According to Geels (2012) policy measures within this field are not heavily oriented towards low-carbon transitions and one important reason is that policy makers do not want to implement any changes which the public would dislike in fear of the risk electoral defeat or public protest. It could therefore be argued that public perception is very important and in addition to increasing public awareness the public also needs to be involved in the formulation of policies. Banister (2008) showed that continuous and serious consultation and participation throughout the whole policy process has been identified as a vital contributor to successful policy formulation. Participation should involve all stakeholders and the public and care should be taken to involve those groups that are harder to reach, to avoid the bias of narrow and sectional interests. It is important for governments to work with the media in stimulating support for the strategy. It is also important that governments take a lead and in a convincing manner present a vision of the future.

6.1.4 Institutional conditions

When it comes to institutional and organizational barriers, one of the key strategies is to develop suitable governance structures. National governments need to establish appropriate institutional structures for lower tiers of government, but also try to avoid the disruption caused by frequent institutional change (Brand, 2008). Decisions that are best made at regional and/or local levels should be taken there, but communication between levels should be transparent and iterative. Regional and/or national authorities should support them in balancing potential goal conflicts. (Brand, 2008; May & Crass 2007).

There is thus some fundamental institutional development work to do, which may frequently be a task for both researchers and public officials. The development work needs to be adjusted to the specific conditions in various national, regional and local contexts. The development work should consider both formal and informal aspects, and include both legal and financial structures and conditions. In several cases it might be a good idea to support project leaders to develop more effective processes and ways of working (Brand, 2008; May & Crass, 2007).

Another suggestion in relation to the institutional barriers is the potentially very important role of a “common vision for transport”, to be agreed upon between Ministries of Transport, ‘Ministries of Finance, planning, environment and industry (May & Crass, 2007).

6.1.5 Urban and transport planning

The urban environment is one of the key factors that condition, enforce, restrict, suggest, facilitate and solidify the way daily lives are acted out (Brand 2008). One of the biggest challenges in relation to White Paper Goal 1 is to start processes that may help to rethink the way cities and transport systems are being planned. This can be done in different ways and one interesting approach has been suggested by Hickman and Banister (2012). They used a back-casting study to test the impact of different alternative scenarios for the future (Hickman & Banister, 2012). The aim was to allow users to consider different policy packages designed to reduce CO₂ emissions. May and Crass (2007) also stressed that suggestions for further development of the urban and mobility structures should be based on a clearly agreed-on set of policy objectives and on the priorities among them. This will then ensure that the solutions adopted are compatible with other policy objectives (Brand, 2008; May & Crass, 2007).

One of the key tasks is to develop a new type of urban and transport planning, more clearly motivated by goals of sustainable development, with a better integration between transport and urban planning, and between different modes of transport. As stated by Banister (2007): “The intention is to design cities of such quality and at a suitable scale that people would not need to have a car /.../ The key to such a shift in thinking is the creation of spaces and localities in the city that are attractive and affordable, as neighbourhood quality is central to sustainable mobility” (p. 1542).

However, transport systems and urban structures take time to change. Hence, they should be planned consistently, to promote “a clearly agreed set of policy objectives and the priorities between them” (May & Crass, 2007, p. 7). National governments could develop general frameworks and/or instructions in order to support regional and local decision making, acting in line with the general goals and targets (Lerner, et al., n.d). The EU could take a clear lead to support national governments in such a task.

Authorities at all levels should adopt regular monitoring of the performance of the transport systems as an integrated part of the planning process. Such monitoring could be applied to assess and adjust the effectiveness of policies implemented (May, 2013).

6.1.6 Market demand

When buying a car environmental concerns are seen as less important (Flamm, 2009; Geels, 2012). According to different surveys the most important factors predicting the customer choice include; vehicle price, car size, reliability, comfort, safety, running costs, fuel consumption and appearance (Geels, 2012).

Browne et al. (2012) argued that alternative fuels only seem to be viable on the market if the oil price remains high for a sustained period of time, which will allow time for innovative technologies to attain a critical level of visibility. As a substitute for stable, high oil prices, there is a need for financial support for AFVs from national

(and supranational) governments and a need for a more fair taxing approach if a sustainable urban transport system is to be realised. A similar view was expressed by Geels (2012) who argued that the promotion of AFVs depends very much on taxes and/or subsidies. However, if this shall work and become self-sustaining it is necessary to allow subsidies to run over a fairly long period (Browne et al., 2012).

6.1.7 Conclusion

In relation to White Paper goal 1 the political-administrative system needs to decide on some joint strategies, mostly at the national, regional and local level, and to a more limited extent at the EU level. Such strategies should include both matters related to what types of fuels, technologies and infrastructure to invest in, but also the more general idea of a sustainable urban transport system for the future.

The goal requires more fundamental transformations of the way cities and regions are being planned. Thus, the key barriers here are closely related to policy and planning as such, and the priorities that are being made when it comes to urban and regional design, and the organization of housing, work places, norms of mobility etc.

There is a need for policy-makers to develop a more strategic and visionary capacity. This will probably include new models for planning and decision-making and also new ways to interact with the public and other stakeholders. It is critical that policy-makers manage to interact with citizens and other stakeholders and develop suggestions that are acceptable, attractive and effective. This is a key issue to achieve the goals. Without political leadership across the levels achieving the goals is difficult.

References

- Attard, M. and Ison, S.G. (2010). The implementation of road user charging and the lessons learned: the case of Valetta, Malta. *Journal of Transport Geography*, 18, 14-22.
- Banister, D. (2004). Implementing the Possible? *Interface. Planning Theory and Practice*, 5(4), 499-501.
- Banister, D. (2007). *Quantification Of The Nontransport Benefits Resulting From Rail Investment*. Transport Studies Unit, Oxford University Centre for the Environment, Oxford. Working paper N° 1029.
- Banister, D. & Marshall, S. (2008). *Land use and transport: European research towards integrated policies*. Emerald, Bingley, UK.
- Banister, D., & Hickman, R. (2012). Transport Futures: Thinking the unthinkable. *Transport Policy* (2012), <http://dx.doi.org/10.1016/j.transpol.2012.07.005>. Retrieved 22nd of October 2013.
- Brand, R. (2008). Co-evolution of technical and social change in action: Hasselt's approach to urban mobility. *Built Environment*, 34, 182-199.

Browne, D.; O'Mahony, M.; Caulfield, B. (2012). How should barriers to alternative fuels and vehicles be classified and potential policies to promote innovative technologies be evaluated. *Journal of Cleaner Production*, 35, 140-151.

Committee on Overcoming Barriers to Electric-Vehicle Deployment (2013). *Overcoming Barriers to Electric-Vehicle Deployment*. Interim Report. Board on Energy and Environmental Systems, National Research Council. National Academies Press, Washington

Delhomme, P., De Dobbeleer, W., Forward, S., & Simões, S. (Eds.). (2009). *Manual for Designing, Implementing, and Evaluating Road Safety Communication Campaigns*. In Campaigns and Awareness Raising Strategies in Traffic Safety (CAST project), Cast Project, 6e PCRD. Belgian Road Safety Institute (IBSR-BIVV), Brussels.

European Commission. (2011). *White Paper on transport. Roadmap to a single European transport area - towards a competitive and resource-efficient transport system*. Illustrated brochure. European Commission, Directorate General Mobility and Transport.

http://ec.europa.eu/transport/themes/strategies/2011_white_paper_en.htm. Retrieved 13th of June 2013.

Flamm, B. (2009). The impacts of environmental knowledge and attitudes on vehicle ownership and use. *Transportation Research Part D*, 14, 272-279.

Geels, F. W. (2012). A socio-technical analysis of low-carbon transitions: introducing the multi-level perspective into transport studies. *Journal of Transport Geography*, 24, 471-482.

Givoni, M. (2014). Addressing transport policy challenges through Policy-Packaging. *Transport Research Part A*, 60, 1 - 8.

Hickman, R., & Banister, D. (2007). Looking over the horizon: transport and reduced CO2 emissions in the UK by 2030. *Transport Policy*, 14, 377-387.

Kemp, R., & J. Rotmans, J. (2005). The Management of the Co-evolution of Technical, Environmental and Social Systems. In M. Weber & J. Hemmelskamp (Eds.). *Towards Environmental Innovation Systems*, Berlin, Springer.

Lerner, W., et al. (n.d.). *The future of Urban Mobility, towards networked multimodal cities of 2050* - Thematic Area 1. Arthur D. Little. http://www.eltis.org/docs/tools/The_Future_of_Urban_Mobility.pdf

May, A. D. (2013). Urban Transport and Sustainability: The Key Challenges. *International Journal of Sustainable Transportation*, 7, 170-185.

May, T., & Crass, M. (2007). Sustainability in Transport Implications for Policy Makers. *Transportation Research Record*, 2017, pp. 1-9.

Noordegraaf, D. V. Annema, J. A., & van Wee, B. (2014). Policy implementation lessons from six road pricing cases. *Transportation Research Part A*, 59, 172-191.

Semiatycki, M. (2004) The International Diffusion of Radical Transportation Policy: The Case of Congestion Charging *Interface. Planning Theory and Practice*, 5, 510-514.

Steenberghen, E., & López, E. (2008). Overcoming barriers to the implementation of alternative fuels for road transport in Europe. *Journal of Cleaner Production*, 16, 577-590.

Sørensen, C.H., Isaksson, K., Macmillen, J., Åkerman, J., & Kressler, F. (2013). Strategies to manage barriers in policy formation and implementation of road pricing packages, *Transportation Research part A*. DOI: <http://dx.doi.org.10.1016/j.tra.2013.10.013>.

6.2 Freight Transport

Delivery 4.1 summarized the barriers to goal 3 as follows:

An important barrier is the lack of an integrated approach. For instance on a European level transport policy faces a range of barriers including the diversity of transport infrastructure, equipment and regulation across Member States which prevent full interoperability of the rail network. Similar problems can also be seen on a national level since some rail lines have not enough capacity left over to cater for more freight. The sometimes poor quality of the intermodal services is another barrier which is not compensated by a lower cost. There are other barriers related to delays and lack of flexibility, which for the industry could be very costly. An important barrier is therefore the willingness and ability to pay for the investments needed. Furthermore, the railways and intermodal operators need to become more efficient and apply more customer friendly policies.

6.2.1 Political (EU, national, regional and local)

On a European level transport infrastructure, equipment and regulation across Member States are fragmented preventing seamless transport across Europe. Hence, there is a great need to integrate the railway system and develop a common transport policy. With regard to waterborne transport barriers also exists preventing free maritime movements around Europe (European Commission, 2011). Hence, recent research has been directed towards assisting the European policy goals of liberalisation, harmonisation and interoperability on the European rail network (TRKC, 2010). To address waterborne transport the multi-annual Integrated European Action Programme for Inland Waterway Transport (NAIADES) recommended a number of different improvements including; improvements in the infrastructure and maintenance of the network and development of better transshipment facilities around inland waterway ports and nodes (Schinas & Dionelis, 2011).

Several authors also suggest benchmarking as a way forward presenting good solutions which can become an inspiration for others (Anderson, et al., 2004; Lindholm, 2010; OECD, 2008b). Reliability and other functional areas can be improved if railway companies have high ambitions and rigorous forms of reporting (Anderson et al., 2004).

6.2.2 Institutional condition – Getting prices right and fair

Getting the prices right and improving capacity for rail and waterborne are paramount issues. The Swiss heavy vehicle fee package is a good example of how fees on truck transport may be used to improve the railway network, by building tunnels through the Alps. This case is also interesting since it shows the advantages of taking a broader perspective and combining mutually reinforcing policy measures into policy packages (OPTIC, 2011).

A reallocation of infrastructure funding, from road to rail and waterborne is probably necessary given that public funding will increasingly be restricted by an ageing European population. Indicative figures show that much could be accomplished if funding for investments was reallocated so that total rail investments become almost as high as road investments, without increasing total infrastructure spending (Nelldal & Andersson, 2012).

Douet et al. (2011) argued that there is still room for lowering transport costs. This may for instance be achieved by allowing longer and heavier trains. Douet et al. (2011) also argued that different forms of incentives could be offered, in his example shippers got an 'ecobonus' but the same could possibly be applied to railway companies. This may in some cases be the only politically viable measure, but in general it is more efficient to tax the negative effects of transport.

No matter the exact type of investment, or measure, there is also an overall need to develop a more comprehensive approach to freight logistics, where different transport modes can be linked together in energy-efficient chains with better transshipment facilities. This, however, requires new and more integrated practices of planning (Schinas and Dionelis, 2011).

6.2.3 Quality of transport services

Making transport by sea or rail more reliable is an important factor (OECD, 2008). Other important factors which should have an impact on services are better cooperation between stakeholders (Lindholm, 2010) and harmonisation (Tsamboulas, 2008). The latter applies to the rail network across Europe but also to rail freight infrastructure pricing and documentation across countries (Tsamboulas, 2008). Silborn (2007) stressed the need for a more integrated approach. Intermodal transport network and infrastructure should be included in a national transport plan which covers the whole transport chain. On transport services, competition remains a key issue for better services, constraints on price and a better allocation of resources, and of course less subsidies at the optimal level.

Rail services also have to become more flexible and it has been suggested that passenger and freight traffic should be separated. One way to do this is to let freight go by night rather than during the day (OECD, 2008a). However, this might not always be a sensible solution since noise from railways in the night-time may affect peoples' quality of life negatively (Dickinson & Smidfelt-Rosqvist, 2012).

According to Wozenius (1997) the problem with terminals could be solved if more small-scale terminals are being built. However, decentralised decisions on terminal investments may be problematic. Wilmsmeier et al. (2011) pointed out that in Swedish municipalities; uncoordinated decisions to build terminals have created an overcapacity. An intermodal network with hubs is dependent on economies of scale. Therefore some kind of high-level coordination is needed in order to end up with an efficient system. How this may be reconciled with the liberalisation strategies remains an unresolved issue.

Finally several EU projects such as TIGER, RETRACK and CREAM have launched different demonstration projects in order to improve European rail freight and their recommendations can be summarized as follows:

- Dedicated or priority rail freight lines.
- Economies of scale in sea ports connected to inland dry ports.
- Multi-system locos that can operate across borders.

- Improve Network Statements – in more languages.
- Improve transparency concerning services facilities.
- Decouple transshipment facilities from Infrastructure Managers (IMs) and incumbent Railway Undertakings (RUs), create facilities owned by several RUs, ports, local authorities etc.
- Improve staff language skills – for instance drivers, loco maintenance and IM staff must be able to speak more than their own language.
- Eliminate single track bottlenecks on major routes. NB; double track has more than twice as much capacity as single track – rather four times as much.
- Close electrification gaps. Diesel locos generally have less power than electrics and changing locos is time consuming and affects punctuality.
- Longer passing loops.
- Increase maximum train weights.
- Improve loading gauge, especially for combined transport.
- Demand from EU Member States that they present plans and reforms for such improvements.

Long term actions

- Freight bypasses around major conurbations where passenger services today have and should have first priority.
- Higher axle loads. 22.5 tonnes is not very impressive – 25 should be a minimum.
- Automatic couplers.
- Even larger loading gauge; on certain routes it should be possible to carry double stack containers or semi-trailers on standard wagons. (Key elements in US rail freight improvements).

6.2.4 Conclusion

From the literature it would appear that real investment, especially in its infrastructure, is needed as well as further incentives to both rail companies and the shipping industry. In addition to this both rail and waterborne transport needs to be more integrated making journeys across Europe easier and more energy efficient. This in turn emphasizes the need to develop a common transport policy. The quality of intermodal services, including punctuality, flexibility and transport time, are some of the areas which need to be improved. Increased capacity and maintenance will help, but the railways and intermodal operators also need to become more efficient and adapt more customer friendly policies to raise the overall quality of the service. The question which remains is who is going to bear the cost? Perhaps a re-allocation of funding within transport, from road to rail and waterborne, will be one source of income. Another source could be concepts like Private Public Partnerships.

References

Anderson, R., Hirsch, R., Trompet, M., & Adeney, W. (2004). *Developing benchmarking methodologies for railway infrastructure management companies*. Railway Technology Strategy Centre, Centre for Transport Studies, Imperial College London United Kingdom.

CREAM project (Customer-driven Rail-freight services on a European mega-corridor based on Advanced business and operating Models). <http://www.cream-project.eu/home/index.php>. Retrieved 14th September 2013.

Dickinson, J. & Smidfelt Rosqvist, L. (2012). *Godstransporter och de transportpolitiska målen* (Freight transport and policy objectives). Trivector Rapport 2012:37. Stockholm: Trivector Traffic.

Douet et al. (2011). A review of short sea shipping policy in the European Union. *Journal of Transport Geography*, 19, 968–976.

Lindholm, M. (2010). A sustainable perspective on urban freight transport: Factors affecting local authorities in the planning procedures. *Procedia Social and Behavioral Sciences*, 2, 6205–6216.

Nelldal, B.-L., & Andersson, E. (2011). Mode shift as a measure to reduce greenhouse gas emissions. *Procedia - Social and Behavioral Sciences*, 48, 3187 – 3197.

OECD. (2008a). *Survey on price and demand elasticity in terms of reliability in freight railway services*- Joint Transport Research Centre of the OECD/International Transport Forum Hamburg, 1st April 2008.

OECD. (2008b). *Transport Infrastructure Investment: Option for Efficiency*. OECD Publishing.

OPTIC. (2011). *How to manage barriers to formation and implementation of policy packages in transport*. 7th Framework programme OPTIC (Optimal Policies for Transport In Combination).

RETRACK project (Reorganisation of transport networks by advanced rail freight concepts). <http://www.retrack.eu>. Retrieved 10th July 2013. See also: http://www.bestfact.net/wp-content/uploads/2013/10/BESTFACT_Vienna_20Sept_Day2.2b_Greening_Logistics_Burgess_Panteia.pdf. Retrieved 15th February 2014.

Schinas, O. & Dionelis, C. (2011). Chapter 20. Specialized Planning Issues. In Böse, J. W. (2011) (ed.). *Handbook of Terminal Planning*. Springer, New York, p 399–430.

Tsamboulas, D. (2008). Development strategies for intermodal transport in Europe. In R. Konings, H., Priemus, & P., Nijkamp, (Eds.). *The future of intermodal freight transport: Operations, design and policy*. MPG Books Ltd, Cornwall, UK.

TIGER project (*Transit via innovative gateway concepts solving European - intermodal rail needs*). <http://www.tigerproject.eu>. Retrieved 13th September 2013.

TRKC. (2010). *Towards an Integrated Transport System - Freight Focus*. http://www.transport-research.info/Upload/Documents/201006/20100602_172959_30571_TRKC_Freight_Logistics.pdf. Retrieved 10th July 2013.

Wilmsmeier et. al. (2011). The directional development of intermodal freight corridors in relation to inland terminals. *Journal of Transport Geography*, 19, 1379–1386.

Woxenius, J. (1997). *Terminals - a barrier for intermodality?* Article presented at Nordic Transport Research's conference on Intermodal Freight Transport, Ebeltoft, Denmark, 22–23 September, 1997. http://www.gu.se/digitalAssets/1344/1344850_1997_aarhus_terminals.pdf. Retrieved 20th August 2013).

6.3 High Speed Rail network

Delivery 4.1 summarized the barriers to goal 4 as follows:

In some respect the barriers related to this goal are similar to goal number 3. Large investments are needed to develop the infrastructure but also to finance its operation and maintenance. The lack of private participation in High Speed Rail projects makes the development of High Speed Rail dependent on subsidies. Public acceptance therefore becomes very important but in some parts of Europe the opposite can be seen, with protest movements opposing High Speed Rail. The argument is not only about cost but also about the impact new lines will have on the country side and on the regional economic development. Politicians are therefore under strong pressure and have actually stopped, or at least put a halt, further development. The lack of international standardization discussed in relation to Goal 3, also apply to this goal, especially if we consider High Speed Rail to be international rather than national. The advantage with High Speed Rail is that it is fast but that raises another issue related to location and more generally with its integration with the rest of the transport network. If this is handled badly the total journey time could be similar to conventional trains offering no extra incentive.

6.3.1 Political (national, regional, local)

The political factors affecting the development and construction of HSR in Europe include:

- Economic policy, in particular the EU policy.
- National policies to support the development of transport, including HSR.

There are a variety of tools designed to help decision makers understand the economic effects of HSR and one of them is economic appraisal. However, the problem is that the guidelines are fairly broad and sometimes skewed towards certain policy objectives (Steer Davies Gleave, 2004). It was therefore suggested that Governments need to develop a guide describing which values should be included. It was also proposed that project-specific values of time and any proportions of working time should be used in the appraisals of High Speed Rail. In addition some other costs, including those related to safety and environmental regulations should be reviewed and be subject to further cost benefit analysis (Steer Davies Gleave, 2004).

The main message here is to place rail investment in a wider national, regional and local context. This means that a cost benefit analysis should not only be seen in transport terms (Banister, 2007). Indeed, the introduction of HSR has to take the wider potential effects into account to justify its investment in both direct (financial) and indirect terms. But, economics' effects on local territories are controversial (Rus, de, 2012). At the same time, the paradigm of HSR is changing – this means that the key issue is not speed any more but is linked with quality of services, prices of tickets, role and attractiveness of trains stations, European interoperability, etc. (Banister, Givoni, 2011).

6.3.2 Operational and organizational

New technologies and better use of the existing ones can help in developing the HSR according to the Greengauge group (2006). The group argued that the location of HSR stations needs to be planned at an early stage and included in a masterplan that considers the whole region. This includes a suitable road network and a common terminal point making sure that people and goods can move easily to and from stations.

Since the introduction of discount flights the competition with air travel has become more difficult since they tend to be both cheaper and faster than HSR (see Feigenbaum, 2013). However, Cokasova (2004) argues that if we consider the limited capacity of the airspace and the number of airports the air industry has much to gain from focusing on long distance flights rather than the shorter ones. She would therefore regard them as complementary rather than having to compete with each other.

6.3.3 Institutional conditions.

The cooperation between the Member States will allow the smooth introduction of regulations for the development of a European HSR network, especially to boost the implementation of the Trans-European Transport Networks (TEN-T). This will be fostered by direct cooperation between EU Member States. Indeed, EU legislation dating back to 1991, has encouraged competition within national and international markets (European Commission, 2008). Improvement of the connections between HSR network and classical railway network, but also with the all public transport networks, is also needed in order to increase the environmental sustainability and the efficiency of the whole transport system.

6.3.4 Market demand

The total journey time is an important factor influencing modal choice (Blainey, Hickford & Preston, 2012). Willigers (2003) pointed out that HSR has great potential for commuters and business travel since travel time is very important for this target group. However, if the location of the station is inconvenient then the time passengers gain on the journey itself will be lost on the way to/from the train station. Thus, when considering HSR the location of the station and how easy it is to get to the same is very important (Blainey, et. al., 2012; Givoni & Banister, 2011; Harman, 2006; the Greengauge group, 2006).

Undoubtedly, other factors such as convenience and safety will also encourage people to make use of this means of transport. It is therefore important to undertake a package of complementary actions that will enable the development of a high-speed transport system with a high level of customer (passenger) service.

Market demand can also be increased through the use of different incentives and here employers can contribute significantly. Nash and Weidmann (2007) described a trend in regional competition for economic growth which meant that for short trips employers encouraged their staff to use High Speed Rail trips rather than flying. This was also something which had become part of their Corporate Social Responsibility Program (CSR) which aims to comply with different ethical standards (i.e. a so called corporate social responsibility programme).

6.3.5 Conclusion

HSR is today at a crossroad. A new paradigm of HSR is emerging where speed is important but also the level of prices on tickets, the location and quality of service in trains as well as before the train trip matter. As constraints on public finance limit the development of the network, the key strategy is to develop the demand – triple the demand – and, through competition on the tracks, try to increase the quality of services and limit the level of subsidies and the levels of fares. This means customers need to be attracted to the offered service. Improving the connections between the HSR network and the classical railway network, but also with other public transport modes is important.

Only then, as a second step, could the new development of the network – to triple the network – through a clear scientific appraisal method be re-launched and achieved.

References

Banister, D. (2007). *Quantification Of The Nontransport Benefits Resulting From Rail Investment*. Transport Studies Unit, Oxford University Centre for the Environment, Oxford. Working paper N° 1029.

Banister, D., & Givoni, M. (2011), *High-Speed Rail Development in the EU27: Securing the potential*

Blainey, S., Hickford, A., & Preston, P. (2012). Barriers to Passenger Rail Use: A Review of the Evidence. *Transport Reviews*, 32, 675–696.

Cokasova, A. (2004) *Passengers' choice between high-speed train and air transport*.

https://docs.google.com/gview?url=http://www.eurocontrol.fr/Newsletter/2005/March/Recent_Documents/ICRAT/ID+128.pdf&chrome=true. Retrieved 28th October 2013.

European Commission. (2008). *Towards and integrated European railway area*.

http://ec.europa.eu/transport/media/publications/doc/modern_rail_en.pdf. Retrieved 15th March 2014.

Feigenbaum, B. (2013). *High-Speed Rail in Europe and Asia: Lessons for the United States*. Reason Foundation.

http://reason.org/files/high_speed_rail_lessons.pdf. Retrieved 28th October 2013.

Givoni, M., & Banister, D. (2011). *Speed the less important element in High-Speed Train*.

<http://www.tsu.ox.ac.uk/pubs/1054-banister-givoni.pdf>. Retrieved 13th September 2013.

The Greengauge 21 group. (2006). *High Speed Trains And The Development And Regeneration Of Cities*.

<http://www.greengauge21.net/wp-content/uploads/hsr-regeneration-of-cities.pdf>. Retrieved 13th November 2013.

Nash, A., & Weidmann, U. (2007). *Europe's high speed rail network: Maturation and opportunities*.

<http://www.andynash.com/nash-publications/Nash2008-HSRinnovation-TRB-paper.pdf>. Retrieved 13th September 2013.

Rus, G., de. (2012). Economic evaluation of high speed rail. The Expert Group on Environmental Studies (Ministry of Finance, Sweden). <http://www.ems.expertgrupp.se/Uploads/Documents/HSR.pdf>. Retrieved 1st November 2013.

Steer Davies Gleave. (2004). *High Speed Rail: International Comparisons. Final Report, February 2004*. Steer Davies Gleave, Upperground, London.

Willigers, J. (2003). *High-speed railway developments and corporate location decisions. The role of accessibility*. Paper presented at the 43rd ERSA Congress, Jyväskylä, August 27-30, 2003. <http://www-sre.wu-wien.ac.at/ersa/ersaconfs/ersa03/cdrom/papers/61.pdf>. Retrieved 13th September 2013.

6.4 Intelligent Transport Systems

Delivery 4.1 summarized the barriers to goal 8 as follows:

This goal is about information and payment systems which should make the use of sustainable transport more attractive. In order to achieve this goal access to and exchange of reliable data is vital. The lack of a common EU standard which would support the integration of different information and management systems is regarded as an important barrier. Data privacy and security represent other barriers which have to be addressed. This is further highlighted by the large number of actors involved in the transport system, where access to information also represents a competitive advantage.

6.4.1 Political (EU, national, regional and local)

On a political level there is a need to coordinate relevant stakeholders and to develop joint strategies. For this purpose the many existing coordination platforms and networks can play an important role. These can help to build alliances, ensure commitment and develop concrete solutions. However, in most European regions and Member States there is a lack of policy coordination among relevant public authorities responsible for ITS strategies. In bigger Member States, systems are deployed at regional level, and there is often no link between different regional strategies (and thus no integration). Whether it is possible to change strategies depends on party politics and related preferences and priorities in different Member States and also commitment to communication. A joint strategy is crucial to interlink different proprietary information system solutions. Missing technical specifications and standardization should be solved after the development of a joint policy strategy.

Currently, recommendations on EU policy level are too general. To overcome this barrier the European Commission should propose quality requirements of traveler information services. A shift in the multimodal ticketing paradigm should be addressed. User “needs and wants” should be the main background for specifying a multimodal electronic ticketing strategy. The different interpretations of the current policy framework on a European level represent a major barrier, which can only be overcome by multi-level and multi-actor policy coordination. Without a clear goal and purpose (e.g. to achieve a considerable increase in public transport) there is no incentive to invest in multimodal information systems and there will not be sufficient political driving power to overcome these implementation barriers.

6.4.2 Operation and organization

Many regional transport operators and operator networks have already their own proprietary travel information systems. However, many cross-regional cooperation platforms do exist. The insight that generous data sharing is in the interest of all actors has to be further emphasized. One common strategy is to provide information free of charge, but to generate extra revenue through customized services. In the future, premium information services may generate additional profit and attract users through novel concepts. The development of a “real good

business model” for a multimodal information, management and payment system could overcome the barriers of how to finance and invest in such systems.

Another significant strategy to overcome these barriers is to gain better technical interconnectivity among ITS systems. European policy could support national and regional approaches by proposing specific quality measures for harmonizing services across Europe. Barriers regarding the lack of knowledge sharing can be overcome by initiatives organizing information sharing platforms, e.g. among relevant EU funded projects.

Goal number 8 does not only address public transport but also the transport of freight. According to a study made by Kalaboukas (2011), despite significant progress in the area, the ICT systems used by the freight industry suffer from similar problems as public transport i.e. lack of communication between different service holders. The exception is the Technical Specifications for Interoperability for Telematics Applications for Freight (TAF/TSI)⁴ and the e-Maritime standards for sea to port communications. The communication today between logistics operators tends to be pen and paper and e-mails. Kalaboukas (2011) listed three main challenges that will have to be met through ICT-related actions:

1. Shared semantics for freight transport booking, monitoring and payment;
2. Federated open platforms which helps freight logistics actors to identify, compose and use services within the context they operate;
3. Intelligent objects network which provide information about various external factors such as: weather, actual position of the vehicle, possible accidents on the route and other unexpected situations”.

6.4.3 Institutional conditions

There is still a need for standardization regarding data format and communication protocols. European-wide regulatory as well as industry standards may be supported by European Research and Innovation (R&I) funded projects and the involvement of transport consultant networks. The lack of knowledge and coordination regarding the outcomes of running and past projects could be overcome or supported by the monitoring on Member State level due to EU ITS legislation.

The technical (hardware, software) level is not a problem. Major barriers are institutional, in particular due to policy priorities and conflicting interests even within an organization (e.g. conflicting interests among departments of large transport operator) which have to be solved.

How to overcome the barriers related to the implementation of a multimodal transport information management and payment system have been dealt with in several EU projects such as SPUTNIC and LINK. The LINK project addressed several issues related to multimodal transport information system and suggested the following:

- Door-to-door information and ticketing;
- Intermodal networks and interchanges;
- Integration of long-distance transport and the “last urban miles”;

⁴ See <http://www.era.europa.eu/Core-Activities/Interoperability/Pages/TechnicalSpecifications.aspx>.

- Planning and implementation;
- Context conditions;
- Establish a European directive which requires transport operators to make travel planning data available to journey planning providers;
- Establish obligation to make standardized tariff and timetable information available on request to authorities responsible for passenger transport information provision.

The SPUTNIC project recommended that the public transport sector (in a broad sense) should:

- Establish long term urban mobility planning;
- Establish seamless multi-modal Public Transport (PT);
- Create a comprehensive marketing approach towards the promotion of PT;
- Improve the image of PT in the eye of decision makers and the public.

Different systems and software have also been developed to overcome the problem of not being able to get hold of relevant data. One of them is the CISReal⁵. This system is designed to share public transport information, booking and payment. The standard defines minimum requirements on the compatibility of real time information systems in public transport in the Czech Republic and has been created especially to address the following six areas:

- It contains the recommendations for equipment and functionality of real time information systems;
- It unifies the requirements of different carriers and at the same time provides guidance for procedure when designing a system and its technical requirements which is important mainly for appliances for financial subventions to build-up such systems and technical requirements definition for public tenders;
- It improves the possibilities to gain non-fragmented and national scale data in real time of PT vehicles providing transport services among various regions;
- It enables basic cooperation on European solution defined by CEN TS 15531 (SIRI)⁶ specifying interfaces and communication among the servers;
- It is the basis for designing a distribution system for mutual communication of servers of local and integrated transport providers;
- It is to profit from the existing National system of timetables which contains the necessary set of static data (planned data).

Another interesting example of software use is the so called 'SUPERHUB'⁷. This is a software tool enabling personalized multimodal journey planning in real time. It is a tool for a city to execute its strategy plans in an optimized way but also for city control centers to control traffic within a city in an operating manner. It uses large amounts of input data from different fields – individual traffic, public transport, meteorological data, social network data and mobile phone network data to compute a relevant journey/city action. Obviously, its functionality is dependent on availability of input data of high quality and in real time.

⁵ See http://gis.vsb.cz/GIS_Ostrava/GIS_Ova_2014/proceedings/papers/gis20145263cec882183.pdf.

⁶ See http://www.kti.hu/uploads/KMK/2011/SIRI%20Tud%C3%A1st%C3%A1r/Szabv%C3%A1ny%20UK/SIRI_15531-3.pdf.

⁷ See <http://www.ispreview.co.uk/index.php/2013/05/virgin-media-uk-rolls-out-r38-superhub-update-to-fix-bugs.html>.

Preston (2008) claimed that public transport fares and ticketing might also be reviewed. Commercial systems may result in fares that are too high and ticketing that is too complex. Conversely, public intervention may result in overly simple ticketing, such as the free concessionary travel in the UK (Preston, 2008).

6.4.4 Market demand

Privacy and data security issues will remain a major barrier. They will have to be addressed carefully, in particular extra-sensitive location-based data. Public regulation is crucial and should follow the European and national legislation for data and privacy protection. There is a basic problem (barrier) to guarantee that privacy and data protection is ensured. So it should strictly follow the national and European legislation for data protection.

6.4.5 Conclusion

A number of different barriers need to be overcome before the management and payment system can be multimodal. It would appear that the technical problems are relatively easy to solve, the main task seems to be to encourage different stakeholders to co-operate and co-ordinate their actions. If the system should be truly multimodal they need to share their data and they need to agree upon some form of standardization. Perhaps the EU policy is too general and needs to include some clearly indicated requirements. Initially politicians need to take an active role in ensuring that the goal is being implemented.

References

Kalaboukas, K. (2011). European multimodal transport information, management and payment systems. <http://www.intelligentcargo.eu/content/european-multimodal-transport-information-management-and-payment-systems-k-kalaboukas>. Retrieved 19th December 2013.

LINK (The European forum on intermodal passenger travel). <http://www.fgm.at/linkforum/index.phtml?ID1=984>. Retrieved 10th September 2013.

Preston, J. (2008). Competition in transit markets. *Research in Transportation Economics*, 23(1), 75-84.

SPUTNICK (Strategies for public transport in cities). <http://www.sputnicproject.eu/>. Retrieved 19th September 2013.

7 ANNEX 1 Questionnaires for interviews

7.1 Questionnaire for goal number 1: Urban Transport

Check-list for interviewer

Introduce yourself and TRANSFORuM broadly + the White Paper goals for transport.

Ideally, all interviews are audio-recorded since that ensure that you do not miss anything and make you more focused on the conversation itself. However, many people feel inhibited when they are being recorded, or will simply not talk about the most “juicy” issues. Therefore, please handle the situation tactfully and with a good dose of common sense judgment.

If you do want to record the interview you will have to seek the interviewee’s explicit permission. You will also have to give the person being interviewed a written promise of anonymity which will be signed. Tell them that the recording can be stopped at any time and that the report will not include any references to a specific person.

To describe the purpose of the interview and why they have been selected you can say something like this: “As stated before, TRANSFORuM focuses on White Paper goals 1, 3, 4 and 8 and at this stage in our project, we are trying to get a deeper understanding both of the barriers and potentials for implementation of these four goals. You have been selected because you have a very good insight in XXX and we would like to know your opinions and experience as a stakeholder/expert at XX...”

Please note that you do not have to conduct the interview strictly in the following order. It is of course good practice to start with harmless “ice breaker” questions. Then, as the conversation unfolds feel free to adjust the order of questions as long as – in the end – all issues are covered. Text in italic is for the interviewer only.

Questions about the interviewee

Start with his/her background + current position. In what way he/she is involved in transport policy and/or practice and for how long.

General questions

1. In general, what is your understanding of the EU policies for sustainable urban transport?
2. Before we contacted you were you aware of the goal for Clean Urban Transport in the White Paper?
3. What is your reflection about the potential for the White Paper to lead to transformation of the transport system in line with the intentions? *(Remember follow up-questions, ask for motivations etc. Please consider targets for passenger vehicles and city logistics separately).*
4. If you consider your area of expertise what do you personally think of the White Paper goal? Does your organization have an opinion of the goal? Do you see the goal as sufficiently well-defined for implementation?

5. Is the focus of the goal on AFVs the right one, or is there a need to supplement it with goals for wider areas sustainable urban mobility, such as; land-use, travel demand management and change to public or non-motorised transport?
6. Is the European goal a relevant one for national and local authorities to pursue as well, so these levels can support the achievement of the European level goal?
7. Which important trends do you see that could jeopardize the accomplishment of the goal? (*Consider for example, economic growth/decline of cities; technological lock-in; demographic patterns such as ageing; policy fragmentation, lack of environmental awareness*).
8. What – in your view – is the respective role and priority of the following more specific strategies for the achievement of the WP goals:
 - Improving vehicle and energy storage technology;
 - Provision of infrastructure for alternative fuels;
 - Prices that internalize external costs;
 - Changed behaviour of end consumers;
 - European-wide technical standards for alternative fuel systems;
 - European-wide standards for Access Restriction zones;
 - More effective collaboration among local transport stakeholders
9. Would a sustainable Urban Mobility Plan be a helpful or even necessary framework to ensure that a city contributes successfully to the goal?

Implementation of the goal

10. How would you describe the implementation status of the White Paper for transport in your own country (*if he/she works on the national level*)
 - In general terms
 - Relevant to Urban Mobility – please consider targets for passenger vehicles and city logistics separately.
11. Could you please tell me about your experiences related to this goal and its implementation, so far? (*Important to let him/her elaborate here*).
12. Will new funding sources at the European level be necessary for achieving the goal or should the European Union refrain from providing incentives in the area of urban transport?
13. In essence then, what would be the main barriers to implementation of the Clean Urban Transport goal, as you see it? (Nationally, locally, EU-level etc?)
14. Among these – what do you think is the most crucial type of barrier which needs to be focused on first?
15. What is the role of politicians in the process of implementation and what is the best way – or how – to involve them? Are political actors the most important ones compared with other stakeholders such as businesses, industry, citizens groups, etc?

16. According to you, what would it take to enact a smoother and more effective implementation of a goal to introduce CO₂-free city logistics f? */+(try to make the interviewee reflect as broadly as possible – link it to what he/she raised as key barriers.../)*
17. Do you think policy-makers are well informed about the wishes, needs, rationale and constraints of the various implementer groups?
18. Do you see a danger that certain stakeholders (incumbent or potential) are not represented enough in the usual consultation procedure? If so, which ones?
19. Is the problem most at the national, local or EU level? (Or all of them?)
20. Reflecting on the context you work in – how do you understand your own role in relation to a more effective implementation of the White Paper goals? Is this anything you think about in your daily work?
21. Do you see any relevance with projects you are engaged in? *(that is if they are involved in any related project)*
22. How can the wide public contribute to problem solving?
23. Any other reflections? Something that should be added?

Thank the interviewee and mention briefly how the interview material will be used.

7.2 Questionnaire for Goal number 3: Freight Transport, Goal number 4: High Speed Rail, and for Goal number 8: Intelligent Transport Systems.

Check-list for interviews

Introduce yourself and TRANSFORuM broadly + the White Paper goals for transport.

Ideally, all interviews are audio-recorded since that ensure that you do not miss anything and make you more focused on the conversation itself. However, many people feel inhibited when they are being recorded, or will simply not talk about the most “juicy” issues. Therefore, please handle the situation tactfully and with a good dose of common sense judgment.

If you do want to record the interview you will have to seek the interviewee’s explicit permission. You will also have to give the person being interviewed a written promise of anonymity which will be signed. Tell them that the recording can be stopped at any time and that the report will not include any references to a specific person.

To describe the purpose of the interview and why they have been selected you can say something like this: “As stated before, TRANSFORuM focuses on White Paper goals 1, 3, 4 and 8 and at this stage in our project, we are trying to get a deeper understanding both of the barriers and potentials for implementation of these four goals. You have been selected because you have a very good insight in XXX and we would like to know your opinions and experience as a stakeholder / expert at XX...”

Questions to the interviewee:

Please note that you do not have to conduct the interview strictly in the following order. It is of course good practice to start with harmless “ice breaker” questions. Then, as the conversation unfolds feel free to adjust the order of questions as long as – in the end – all issues are covered.

1. His/her background + current position. In what way he/she is involved in transport policy and/or practice and how long.

General questions

2. In general, what is your understanding of the EU policies for sustainable transport?
3. Before we contacted you were you aware of the different goals in the White Paper?
4. What is your reflection about the potential for the White Paper to lead to transformation of the transport system in line with the intentions? *(Remember follow up-questions, ask for motivations etc).*
5. If you consider your area of expertise what do you personally think of the White Paper goals? Does your organization have an opinion of the goal?
6. What – in your view – is the respective role and priority of the following factors for the achievement of the White Paper goals: Improving technology; “True” prices; Higher ethics standards; Better behaviour of end consumers; Stronger regulation?

Implementation of the goals

7. How would you describe the implementation status of the White Paper for transport in your own country *(if he/she works on the national level)*
 - In general terms?
 - Relevant to TG⁸ X *(add the one which is going to be discussed)?*
8. Could you please tell me about your experiences related to this goal and its implementation, so far? *(important to let him/her elaborate here)*
9. In essence then, what would you are the main barriers to implementation of TG X, as you see it? *(Nationally, locally, EU-level etc)?*
10. Among these - what do you think is the most crucial “type” of barrier which needs to be focused on first?
11. What is the role of politicians in the process of implementation and what is the best way - or how - to involve them?
12. According to you, what would it take to enact a smoother and more effective implementation of TG X? */+(try to make the interviewee reflect as broadly as possible – link it to what he/she raised as key barriers.../)*
13. What do you think is the most important type of initiative or most important type of actor(s) who can support a more effective implementation of the White Paper goal(s) and how ?
14. Do you think policy-makers are well informed about the wishes, needs, rationale and constraints of the various implementer groups?
15. Do you see a danger that certain stakeholders (incumbent or potential) are not represented enough in the usual consultation procedure? If so, which ones?
16. Is the problem most at the national, local or EU level? (Or all?)
17. Is it necessary to go ahead according to guidelines / exact procedures /methodology?
18. Reflecting on the context you work in – how do you understand your own role in relation to a more effective implementation of the White Paper goals? Is this anything you think about in your daily work?
19. Do you see any relevance with projects you are engaged in? *(that is if they are involved in any related project)*
20. How can the wide public contribute to problem solving?
21. Any other reflections? Something that should be added?

Thank the interviewee + mention and briefly how the interview material will be used.

⁸ TG = Transport goal