

CEDR Transnational Road Research Programme

MoDBeaR
Mobility Management and Driver Behaviour Research

Research Structure Report

January 2019

MODBEAR

CEDR – Transnational Road
Research Programme

Research Structure Report

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This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

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Glossary

Term/abbreviation	Definition/explanation
CEDR	Conference of European Directors of Roads, European platform for cooperation between National Road Authorities
CEDR member/NRA/CEDR NRA	A body or an institution representing interests of a particular country and its NRA in CEDR
CEDR member State	A respective country of a particular CEDR member/NRA/CEDR NRA
CEDR jurisdiction	A remit and domain assigned to a particular CEDR member/NRA/CEDR NRA
EPOMM	European Platform on Mobility Management
GHG	Greenhouse Gas(es)
MM	Mobility Management
MoDBear/MODBEAR	Mobility Management and Driver Behaviour Research
NRA	National Road Authority/National Road Administration
TM	Traffic Management
WP	Work Package

Executive Summary

The following report provides an overview of the structure and implementation of the Mobility Management and Driver Behaviour Research (MODBEAR) Project. This project was commissioned by CEDR (Conference of European Directors of Roads) and carried out by Arup, Trivector and Hasselt University.

The aim of this project was to analyse current Mobility Management policies and practices in place across CEDR National Road Authorities (NRAs) and to derive recommendations for NRAs within CEDR and CEDR itself for future Mobility Management planning and implementation.

In the context of this project, Mobility Management is referred to as a long-term focussed change of travel behaviour from car driving to more sustainable modes of transport by mainly using soft measures, such as information campaigns and others.

This **Research Structure Report** is to be read in conjunction with the Findings Report and Mobility Management Guidance document.

***Research Structure Report** describes the process of the MODBEAR project implementation including methodology, assumptions, challenges and results.

***Research Findings Report** describes the findings of the MODBEAR research project and describes good practice examples.

***Mobility Management Guidance document** presents final recommendations and guidelines developed as a result of the MODBEAR research project.

Structure

This Research Structure Report is structured as follows:

- **Context** chapter describes the overall structure of the project.
- **Part A** provides an overview of **Work Package 1 (Obtaining the Research Data)** including detailed description of its tasks and objectives, methodology, challenges, limitations and results.
- **Part B** provides an overview of **Work Package 2 (Evaluating the Research Data)** including detailed description of its tasks and objectives, methodology, challenges, limitations and results.
- **Part C** provides an overview of **Work Package 3 (Findings Report and Mobility Management Guidance)** including detailed description of its tasks and objectives, methodology, challenges, limitations and results.

Context

The aim of the MODBEAR project is to generate new research data to understand the current CEDR policies in place across the CEDR National Road Authorities (NRAs) with respect to Mobility Management methods utilised to influence travel behaviour, in both the context of the reduction of Greenhouse Gas emissions and improvement of the overall accessibility. As part of this, the MODBEAR project also looks into the existing Traffic Management practices which tend to be interrelated with Mobility Management.

The scope of the project includes looking at CEDR NRAs of 26 countries which are Austria, Cyprus, Denmark, Estonia, Finland, Germany, Greece, Hungary, Iceland, The Netherlands, Norway, Poland, Sweden, Belgium Flanders, Belgium Wallonia, Czech Republic, Iceland, Italy, Latvia, Lithuania, Luxembourg, Malta, Slovenia, Spain, Switzerland and the UK. Portugal became a CEDR member after the start of the MODBEAR project and therefore was not included in this study.

The complete project consists of four work packages which are:

- **Work Package 1 – Obtaining the Research Data:** the objective of this work package is to carry out both the initial and additional research to gather information and input for further analysis.
- **Work Package 2 – Evaluating the Research Data:** the objective of this work package is to carry out the evaluation of the data collected in Work Package 1.
- **Work Package 3 – Findings Report and Mobility Management Guidance:** the objective of this work package is to develop recommendations for the ideal future policy role of Mobility Management in terms of promoting the use of sustainable travel modes and reducing reliance on cars use for the following scenarios: normal everyday conditions, planned events and unplanned events including traffic accidents and extreme weather events.
- **Work Package 4 – Dissemination of Research Findings:** the objective of this work package is to disseminate research findings in a research findings report, Mobility Management Guidance, dedicated website, presentations, papers and the final workshop.

The project team has completed Work Package 1, Work Package 2 and Work Package 3 of the MODBEAR project prior to the issue of this report. The description and results of these three work packages are summarised in this report.

Part A: Obtaining the Research Data

A.1 Work Package 1: Obtaining the Research Data

The Work Package 1 consisted of two stages which are Initial Research and Additional Research. The objectives of these stages are described below.

A.1.1 Initial Research

The objective of the Initial Research stage was to carry out an extensive desktop study with regards to the baseline conditions for CEDR NRAs. The main tasks that this study included were the following:

- To establish baseline conditions such as historical information with respect to changes in the mode share by car drivers over time for the different CEDR member States and Mobility Management and Traffic Management policies adopted by the different NRAs.
- To obtain current mode share/vehicle miles travelled data for each CEDR member State and to compare it against available GHG emissions data for each CEDR member State broken down by sector (to include the transport sector).
- To analyse and correlate the obtained data against current policies for each CEDR member and to develop trends between mode share by car/transport related emissions and those policies.
- To identify the key Mobility and Traffic Management measures adopted by the various NRAs.

A.1.2 Additional Research

The main objective of the Additional Research stage was to engage directly with each of CEDR NRAs via questionnaire forms to gather more information and establish the current role of Mobility Management within each NRA and to understand how effective each NRA has been in the delivery on any established policies and what are the issues which are influencing the delivery of Mobility Management measures. The main tasks that this research stage included were the following:

- To develop a questionnaire that would address the following elements of the study:
 - a) Role of Mobility Management contained in each NRA's policies;
 - b) Issues which influence the implementation of Mobility Management policies;
 - c) Funding allocations for the different travel modes that each NRA is responsible for;
 - d) Interconnectivity between other stakeholders in the delivery of Mobility Management measures within each of the NRA jurisdictions;

- e) How each NRA responds to planned events, such as major construction activities or major events (concerts, sporting events, etc.) in terms of Mobility and Traffic Management and the promotion of sustainable travel modes;
 - f) How each NRA responds to unplanned events, such as accidents or extreme weather conditions, in terms of Mobility and Traffic Management and the promotion of sustainable travel modes.
- To circulate the developed questionnaire to all CEDR NRAs.
 - To establish a contact with each CEDR NRA where necessary and assist them with completing the questionnaire.
 - To extract the findings from the completed and returned questionnaire and put them in structured format document.

A.2 Methodology

Work Package 1 was carried out by Arup and Trivector. The research responsibilities were split between Arup and Trivector based on local knowledge and language skills where possible. The split is shown in **Table 1**.

Arup		Trivector	
Austria	Ireland	Sweden	Estonia
Belgium (Flanders)	Italy	Denmark	Latvia
Belgium (Wallonia)	Luxembourg	Norway	Lithuania
Cyprus	Malta	Iceland	Slovenia
Czech Republic	The Netherlands	Finland	Greece
Germany	Spain		
Hungary	Switzerland		
Poland	United Kingdom		

Table 1: CEDR Member Countries and split between the Project Partners for WP 1

A.2.1 Initial Research

To achieve the established objectives, the Initial Research was structured as follows:

1. The extraction and mapping of the historical mode split, and vehicle miles travelled data for CEDR countries (data from European statistics, Eurostat¹);
2. The extraction and mapping of the historical GHG emission data for CEDR countries (data from European Environment Agency²);
3. The review of the existing and available information on Mobility Management policies and practices in CEDR countries (data from European Platform on Mobility Management³);
4. The mapping of the data collected compared to identify possible correlations between modal split, GHG emissions and Mobility Management practices;
5. Presentation of the collected data in a structured format document.

¹ <http://ec.europa.eu/eurostat>

² <https://www.eea.europa.eu/>

³ <http://www.epomm.eu/>

A.2.2 Additional Research

To achieve the established objectives, the Additional Research was structured as an iterative approach to obtaining the additional information. It was structured as follows:

1. **The development of the questionnaire.** The initial stage comprised the design of a questionnaire covering the questions that shall be addressed during the Additional Research. The first draft questionnaire was issued to the Swedish Trafikverket for review. Subsequently, the design, language and data request were optimised to ensure the fullest response from each of the NRAs across CEDR.
2. **The issue of the trial version to the Client (Transport Infrastructure Ireland and Trafikverket).** The improved questionnaire was issued for an initial trial to two NRAs (The Client). TII and Trafikverket reviewed the questionnaire and responded to the project team.
3. **The collection of the feedback on the trial version from the Client and respective update of the questionnaire.** Following the receipt of the feedback from TII and Trafikverket, the process of explaining, issuing and receiving the information was reviewed for efficiencies and for adequacy. Following this, there were amendments to the form, design and content of the questionnaire.
4. **The issue of the final version of the questionnaire to all CEDR NRAs.** After subsequent amendments were made, the questionnaire was approved by the Client and issued to each of the CEDR NRAs. Each NRA was given three months to respond with relevant information.
5. **The follow-up to establish a contact with CEDR NRAs representatives and assist them with the completion of the questionnaire where necessary.** As part of the questionnaire issue, the project team also aimed to establish a relevant contact with each NRA to obtain clarifications or further information where necessary.
6. **Tabulation of Research Findings.** The data collected from questionnaires and NRA contacts was collated in a structured format document.

A.2.2.1 Questionnaire Structure

The questionnaire was developed in an iterative approach as described above. The final questionnaire as issued to the NRAs can be found in Appendix A.

The questionnaire was structured as follows:

- Section 1 – General Information,
- Section 2 – Mobility Management,
- Section 3 – Traffic Management.

The questions represented a mix of multiple-choice questions and open-ended questions.

The questionnaire aimed to gain a deeper understanding of Mobility Management and Traffic Management policies, practices and measures applied and used by NRAs in CEDR member countries. It also aimed to collect some quantitative data with regards to modal split and funding allocations. Thus, the final structure and content of the questionnaire largely allowed to cover the information gaps identified during the Initial Research stage.

The questionnaires were all issued in the English language.

A.2.2.2 Questionnaire Issue

The issue of the questionnaire took place in several stages which are described below:

1. Initially and upon agreement with the Client, all questionnaires were issued to General Directors of CEDR NRAs by email with a request to forward and assign them to the most relevant departments and experts within their NRA. The contact list was taken from the official CEDR website and agreed with the Client prior to the issue.
2. Subsequently, following a request of the Client, these email requests were forwarded to the Climate Change experts and PEB members in every CEDR NRA. This contact list was established with the help of the Client and Trivector.
3. Regular catch-up calls with the final recipients of the questionnaire were carried out in order to follow-up on the completion of the questionnaires.

The list of all questionnaire recipients can be found in Appendix B.

A.3 Challenges and Limitations

During the implementation of Work Package 1, the project team encountered a number of challenges and limitations which are briefly described in this chapter.

A.3.1 Initial Research

Key challenges and limitations that were encountered during the implementation of the Initial Research stage of Work Package 1 were as follows:

- The historical information with respect to changes in the mode share by private motorised transport over time for different CEDR jurisdictions was available only for the national level and for such modes as passenger cars, rail public transport and road public transport. Since Mobility Management is more often implemented on a regional and local level, the national mode share data was found to be not sufficient enough to bring out the actual changes in modal split associated with Mobility Management.
- The historical information with respect to changes in the mode share by private motorised transport over time for different CEDR jurisdictions was available only for the years from 2007 and up to 2014 and therefore does not reflect the most recent trends.
- There was no consistent information available on vehicle miles travelled across different CEDR jurisdictions. As a result, it was decided to exclude this parameter from the analysis.
- The information on the current Mobility Management policies and measures applied across different CEDR jurisdictions was obtained from the EPOMM (European Platform on Mobility Management) website⁴. For many CEDR Member States, this information was limited as data on some research components (e.g. how is Mobility Management distinguished from Traffic Management, and especially information in relation to the implementation of Mobility Management in NRAs) was missing. The latest available information dated back to the years of 2010-2011 and does not include recent developments.
- The historical information with respect to changes in the GHG emissions over time for different CEDR jurisdictions was obtained from the EEA website⁵. The latest information available dated back to the years of 2007-2015.

Due to the combination of the limitations described above, it was not possible to establish obvious correlations between the trends of car usage, associated GHG emissions and Mobility Management applications. The Additional Research stage was structured to address these limitations and gain more in-depth knowledge from each CEDR member.

⁴ European Platform on Mobility Management, <http://www.epomm.eu/index.php?id=2663>

⁵ European Environment Agency, <https://www.eea.europa.eu/>

A.3.2 Additional Research

Key challenges encountered during the implementation of the Additional Research stage of Work Package 1 were as follows:

- It was not possible to establish a contact with all CEDR NRAs. As a result, it was not possible to receive the completed questionnaires from all CEDR NRAs. Only 13 out of 26 CEDR NRAs (50%) completed and returned the questionnaire.
- For one CEDR member State (Germany), the questionnaire was completed by another institution and not the NRA due to inability to establish a contact with the respective NRA.
- For some CEDR jurisdictions (Austria, Germany), the CEDR member is not the NRA. As a result, the information collected via questionnaires for countries like this may not be well descriptive of NRAs. Despite this, this information is analysed in the same way as for other CEDR jurisdictions.
- Some CEDR member countries (Austria, Norway and Austria) provided two completed questionnaires because the questionnaire was issued to more than one organisation as part of the issue process. In these cases, the questionnaires were regarded as complementary and were both included in the evaluation.
- For one CEDR member State (Poland), the questionnaire was only partially completed as the organisation completing the questionnaire was responsible only for one of the two study elements (Traffic Management only).
- The completed questionnaire reflects the knowledge and information of a respective person or organisation that completed the questionnaire which may be limited and not sufficiently descriptive of the actual situation.
- Some CEDR members provided links to their policy documents, case studies and good practice documents. It was not always practical to carry out a detailed review of these documents due to language limitations.

Due to limitations described above, the information received as part of completed questionnaires has a range of gaps and inconsistencies. The Work Package 2 of the MODBEAR project was structured to address these limitations and optimise the use of the available data.

The overall level of data collected as part of the Additional Research stage and associated limitations faces are summarised in

Figure 1 and **Figure 2** below.

Figure 1: Scope of the study and level of response to questionnaires

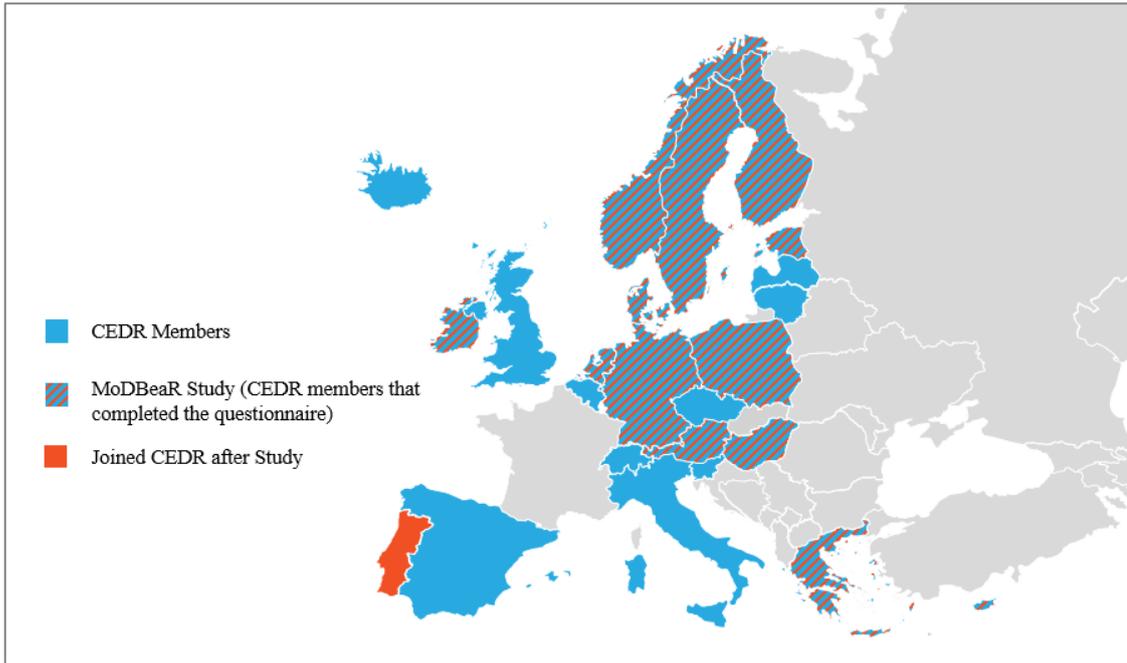
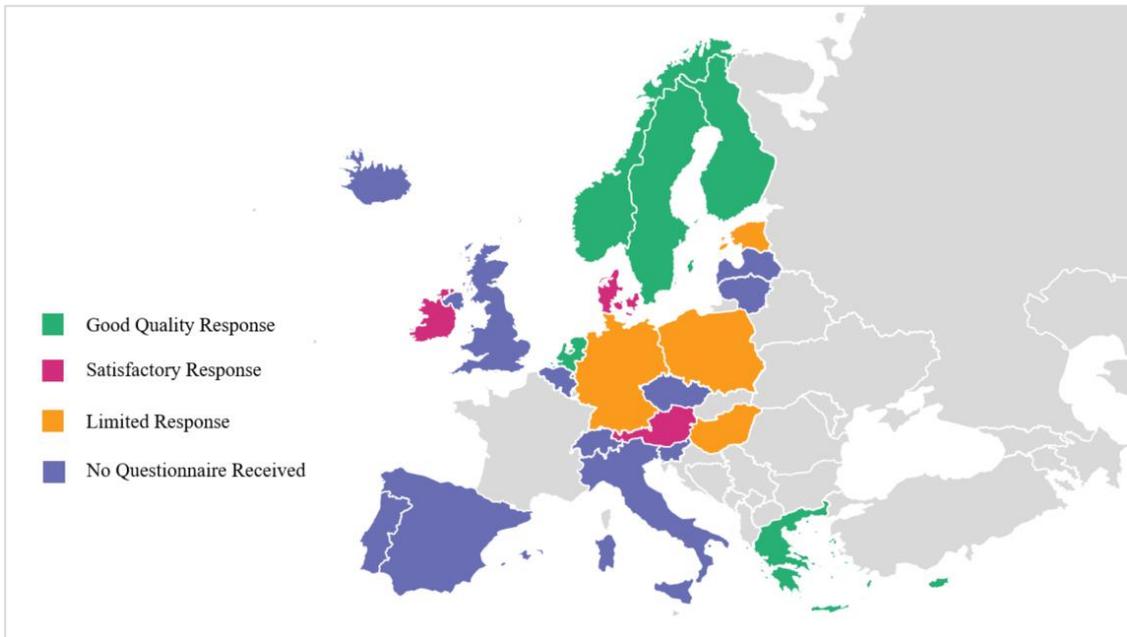


Figure 2: Level of questionnaire completeness



A.4 Results

A.4.1 Initial Desktop Research

The results of the Initial Research were tabulated in a structured format using Excel. The final spreadsheet is attached to this report (WPI_Initial_Research_results.xlsx) in Appendix C.

This spreadsheet is structured as follows:

- **Cover Page** providing the basic information on the MODBEAR project and Work Package 1.
- **Modal split tab** providing information on historical modal split from 2007 to 2014 for all EU countries which was sourced from Eurostat.
- **Explanations** page providing explanation of all parameters used in the document.
- **Key fact information page** for every CEDR jurisdiction including basic baseline historical data on demographics, road infrastructure, modal split and GHG emissions. The evolution of the mode share and GHG emissions was also mapped with the help of the charts.

The results of the Initial Research are provided for all 26 CEDR members that were agreed to be a part of the MODBEAR project.

Upon the completion of the Initial Research, the project team concluded that based on the obtained data there were no strong and evident correlations in the evolutions of GHG emissions and motorised transport usage, in particular car transport mode share. At the same time, some minor correlations identified were difficult to relate to Mobility Management practices due to limited time references and data gaps in the information collected.

A.4.2 Additional Research

The results of the Additional Research were tabulated in a structured format with the help of Excel. The final spreadsheet is attached to this report (WPI_Additional_Research_results.xlsx) in Appendix D.

This spreadsheet is structured as follows:

- **Cover Page** providing the basic information on the MODBEAR project and Work Package 1.
- **Collated Data** tab providing all responses from all CEDR NRAs in structured format.
- **Summary Matrix** tab providing the initial structured assessment of the quality of the information collected.
- **CEDR member tabs** providing all responses from a particular CEDR NRA in a structured format.

The results of the Additional Research were provided for all CEDR members that returned the completed questionnaire (13 countries).

Upon the completion of the Additional Research, the project team obtained additional information for further analysis. This information allowed to fill in some of the earlier identified gaps in the research for some of CEDR jurisdictions.

Part B: Evaluating the Research Data

B.1 Work Package 2: Evaluating the Research Data

The main objective of the Work Package 2 of the MODBEAR project was to carry out detailed assessment of the data collected as part of the Initial and Additional Research of Work Package 1.

Work Package 2 of the MODBEAR project included the following tasks:

- Indicate the quality and quantity of the information that was received as part of Work Package 1.
- Categorise data received in a rational, clear and concise manner.
- Assess and interpret the research results and highlight benefits and dis-benefits of various approaches taken in different CEDR NRAs.
- Compare the differences and similarities between the NRAs.
- Assess any implementation programme against policy requirements and set targets.
- Highlight any case study examples received which identify good practice in terms of delivering Mobility and Traffic Management measures.

Upon the agreement with the Client, the MODBEAR project team carried out all of the above listed tasks for all CEDR NRAs who provided the completed questionnaire (13 out of 26 CEDR NRAs).

B.2 Methodology

After the initial review of the collected data, the project team developed a dedicated methodology for its analysis and evaluation.

This methodology consisted of two steps which were:

- **Data Analysis (categorisation and classification):** Creating a matrix of parameters and categories and assessing every country against them to facilitate consistent and compatible cross-country analysis. The matrix with used parameters and categories can be seen in Appendix E attached to this report.
- **Data Synthesis (cross-CEDR trends):** Making a record of the most popular trends and outstanding practices for Mobility Management and Traffic Management policy making and implementation across all CEDR NRAs and highlighting good practice examples.

Following the outlined methodology, the project team had to ensure that the results of the assessment represent and summarise the answers received from different CEDR member States. This means the project team used minimum interpretation and only where it was absolutely necessary to draw a conclusion on a particular matter. This approach was taken to ensure that the data collected is distilled to its key and most critical content prior to subjective assessment and interpretation. In cases where data gaps were identified in the process of the analysis, the project team contacted the CEDR member representatives via phone for further clarifications.

B.2.1 Data Analysis (Categorisation and Classification)

The objective of the Data Analysis stage was to categorise and analyse the obtained data in a consistent and cross-comparable manner for all CEDR NRAs.

Following the review of the information obtained in Work Package 1, the project team developed a matrix comprising a series of parameters and categories.

The structure of the matrix reflected the structure of the questionnaire that was used for the Additional Research of Work Package 1.

The completed assessment matrix is presented in Appendix E attached to this report. This is an Excel spreadsheet document named WP2_Assessment Matrix.xlsx which is structured as follows:

- **Cover Page** providing the basic information on the MODBEAR project and Work Package 2.
- **Assessment matrix** summarising the results of the analysis.

B.2.2 Data Synthesis (cross-CEDR trends)

The objective of the Data Synthesis stage was to identify trends and common practices used by CEDR NRAs within Mobility Management and Traffic Management context as well as to outline differences and similarities, benefits and disbenefits of various approaches taken and different practices applied.

Following the review of the matrix compiled as part of the Data Analysis stage, the project team recorded key tendencies and practices observed across CEDR NRAs. These observations are summarised in this report.

B.2.3 Assumptions

To ensure the maximum use of the information collected and consistency of the assessment, a number of assumptions were developed and agreed by the project team. These assumptions are summarised below:

- In one case (Germany), the questionnaire was completed by other institution and not CEDR member due to inability to establish a contact with a respective CEDR member. In this case, it was assumed that the information provided by the Federal Highway Research Institute was descriptive and representative of the situation in a Germany. This information was analysed in a manner similar to other CEDR jurisdictions.
- For some CEDR jurisdictions, the CEDR member is not an actual NRA (for example Austria and Germany). In these cases, it was assumed that the information provided by CEDR members was descriptive and representative of the situation in respective CEDR member States including their NRA. This information was analysed in a manner similar to other CEDR jurisdictions.
- For some CEDR jurisdictions, CEDR member outsources their Mobility Management and/or Traffic Management function and activities to another private or public body and is thus not directly involved in implementing Mobility Management and/or Traffic Management. In such cases, it was assumed that a respective CEDR member (NRA) is still involved in Mobility Management and/or Traffic Management, and its responses are descriptive and representative of the situation in a respective CEDR member State including their NRA. This information was analysed in a manner similar to other CEDR jurisdictions.

Based on the assumptions described above, the project team agreed on a certain terminology to be used throughout Work Package 2 for consistency:

- **CEDR member/NRA/CEDR NRA** is a body or an institution representing interests of a particular country and its NRA in CEDR.
- **CEDR member State** is a respective country of a particular CEDR member/NRA.
- **CEDR jurisdiction** is the remit and domain assigned to a particular CEDR member.

B.3 Challenges and Limitations

While carrying out the assessment exercise, the project team encountered a number of challenges which were:

- The information provided by CEDR members was not always complete. Some sections in the questionnaire were not filled in.
- The information provided by CEDR members was not always exhaustive. Some answers were not explicit and comprehensive enough to shape a full understanding of the matter in question. Where possible, the project team used interpretation to draw a logical conclusion about the matter in question.
- When compared against each other, the information provided by different CEDR members was not always consistent and cross comparable. Some CEDR members provided more explicit and complete answers than others did. Where possible, the project team used interpretation and generalisation to draw a logical conclusion about the answers provided.
- The information provided by CEDR members lacked time references. Provided answers did not always specify timelines and timeframes of particular policies, projects and measures. As a result of this, it was not possible to identify the relation between particular policies, measures and travel behaviour changes. Despite this, project team members assumed that information provided was descriptive and representative of situations as they stand today with a reasonable time span before and after.
- The information provided by CEDR members sometimes indicated that they did not understand some questions correctly. At times, the project team members were able to establish based on their knowledge that respondents had limited understanding of the situation and did not provide the most correct answer. In such cases, it was assumed that the answers provided are still descriptive and representative of situations in respective CEDR member States.

Due to challenges and limitations described above, the project team members had some difficulties in drawing firm conclusions on existing correlations between various parameters. It also was not always possible to set the right context on local circumstances in different CEDR member States in terms of Mobility Management and Traffic Management.

Due to the above, the methodology was shaped around the following understanding:

- A level of interpretation was required to ensure that the data collected is first distilled to its key and most critical content prior to any subjective assessment and interpretation.
- Optimal level of generalisation and structure of categorisation were essential to ensure that the value of the collected data was maximised.

The iterative assessment process allowed to satisfy both criteria listed above and arrive at comprehensive results, which are described next.

B.4 Results

The results of the assessment were tabulated on a matrix. The completed assessment matrix is presented in Appendix E attached to this report. This is an Excel spreadsheet document named WP2_Assessment Matrix.xlsx which is structured as follows:

- **Cover Page** providing the basic information on the MODBEAR project and Work Package 2.
- **Assessment matrix** summarising the results of the analysis.

The results of the assessment are provided for the 13 CEDR members that completed the questionnaire.

Upon the completion of the evaluation and based on the analysed data, it was concluded that NRAs are often not in charge of Mobility Management, particularly its policy-making element. However, it was also identified that NRAs sometimes implement Mobility Management measures as part of their role in Traffic Management for the national road network. Some CEDR NRAs are involved in Mobility Management projects along with other stakeholders, such as local and regional authorities, transport operators and others. Detailed findings of the assessment can be found in a separate Findings Report.

Part C: Findings Report and Mobility Management Guidance

C.1 Work Package 3: Findings Report and Mobility Management Guidance

The main objective of Work Package 3 of the MODBEAR project was to collate all findings and to develop the final Findings Report as well as the Mobility Management Guidance.

Tasks planned as part of Work Package 3 were as follows:

- Identification and development of the ideal future policy role of Mobility Management in terms of promoting the use of sustainable travel modes and reducing the reliance on single occupancy cars under different scenarios;
- Preparation of a guidance document (based on any available best practice) which can be used and implemented by NRAs to include individual Mobility Management measures to be utilised and their potential effect on travel behaviour;
- Review of the cost efficiency of the various Mobility Management measures (including the combination of measures);
- Review of the role media communication and other technologies have with respect to influencing travel behaviour particularly for live unplanned events where immediate responses are required to events such as traffic accidents and major weather events.

C.2 Methodology

The methodology used for the implementation of Work Package 3 was as follows:

Phone interviews:

- The Client review of Work Package 2 indicated that the initial findings for the German and Norwegian CEDR member States were not completely accurate and required some additional information to be collected. To address this, it was decided to carry out phone interviews with the CEDR member representatives.
- The record of the carried-out phone interviews can be found in Appendix F.

Findings Report:

- The report was structured to include three sections which are Mobility Management findings, Traffic Management findings and a summary with general findings.
- Sections on Mobility Management and Traffic Management findings reflect the structure of the questionnaire and present the results for each topic studied as part of the project (Definition, Policies, NRA Role, Measures, Challenges, Funding, Stakeholders). Trends across CEDR members are presented and described for every topic.
- Where available, good practice examples were provided for every topic studied as part of the project. These examples were identified as part of the project research exercise, for example as part of the initial desktop research or the additional research (questionnaire).
- Where possible, the project team added case study boxes presenting additional Mobility Management and Traffic Management practice examples. These examples were not provided as part of the project research exercise but were added by the project team experts if they had particular knowledge on a respective topic and believed it could be of a complementary use for the project. This partially addressed some gaps of the research exercise.

Mobility Management Guidance document:

- The report presents high-level recommendations and guidelines for CEDR and CEDR members on how to incorporate Mobility Management implementation into their everyday activities and on how to facilitate their involvement in Mobility Management policy-making and implementation.
- The report includes recommendations for CEDR which are to be used on a CEDR cross-country level as well for CEDR members which are to be used at country-level.

C.3 Challenges and Limitations

During the implementation of Work Package 3 of the MODBEAR project, a number of challenges and limitations were identified. These are listed below:

- Cross-CEDR trends are only made on the basis of the information provided by 13 CEDR members who completed and returned the questionnaire. Since these 13 members represent only half of CEDR, some of the observations may not be descriptive of and applicable to other CEDR members.
- There are different conditions in every CEDR country in terms of the established policy making and implementation processes. As a result, recommendations developed as part of this research project may not be applicable in some countries. Despite this, recommendations present good practice examples.
- As NRAs are often not tasked with of Mobility Management and are not always involved in it, it was difficult to identify examples of practices where NRAs have a leading role.
- The collected data on the cost-efficiency of Mobility Management measures was limited and not sufficient to make reasonable generalisations and conclusions. As a result, the description of this research component is limited.
- The collected data on the effect of media and technology channels on travel behaviour in unplanned events was limited and not sufficient to make reasonable generalisations and conclusions. As a result, the description of this research component is limited.
- The collected data on the effectiveness and cost-efficiency of Mobility Management measures was limited and not sufficient to make well informed conclusions on what measures work best.
- It was not possible to carry out the phone interview with a representative of the Federal Ministry of Transport and Digital Infrastructure, the German CEDR member. As a result, it was not possible to improve the findings on practices in Germany

C.4 Results

Upon the completion of Work Package 2 of the MODBEAR project, the project team developed the final Findings Report and Mobility Management Guidance document. Both of these documents are issued as separate deliverables but should be read in conjunction with this report.

Part D: Dissemination of Research Data

D.1 Work Package 4: Dissemination of Research Data

The findings and results of the MODBEAR project are have been disseminated via two main channels.

- **End of Programme Event.** The preliminary results of the research were presented at the End of Programme Event in November 2018 in Utrecht, the Netherlands. This event was attended by representatives of a number of National Road Authorities, members of the PEB of CEDR, and members of the three project teams of the 2015 Call Climate Change. The members of the MODBEAR team gave a short a short presentation on the main outcomes of the research carried out.
A final workshop with a number of NRA representatives focussed on Mobility Management planning and implementation for NRAs. Following the discussion at the workshop and the event, final recommendations and considerations were included in the Mobility Management Guidance document.
- **CEDR MODBEAR Project Website.** Project information and final project results are available on the dedicated project website www.cedrmodbear.com. All deliverables of the MODBEAR project, including results from the Work Packages 1, 2 and 3, are available for download.

Appendices

Appendix A: Questionnaire to NRAs

The Appendix A – Questionnaire to NRAs is available on the project website www.cedrmodbear.com.

Appendix B: Questionnaire Recipients List

The Appendix B – Questionnaire Recipient List is available on the project website www.cedrmodbear.com.

Appendix C: Initial Research – Results

The Appendix C – Initial Research Results is available on the project website www.cedrmodbear.com.

Appendix D: Additional Research – Results

The Appendix D – Additional Research Results is available on the project website www.cedrmodbear.com.

Appendix E: Assessment Matrix

The Appendix E – Assessment Matrix is available on the project website www.cedrmodbear.com.

Appendix F: Phone Interview Record (Norway)

The Appendix F – Phone Interview Record is available on the project website www.cedrmodbear.com.