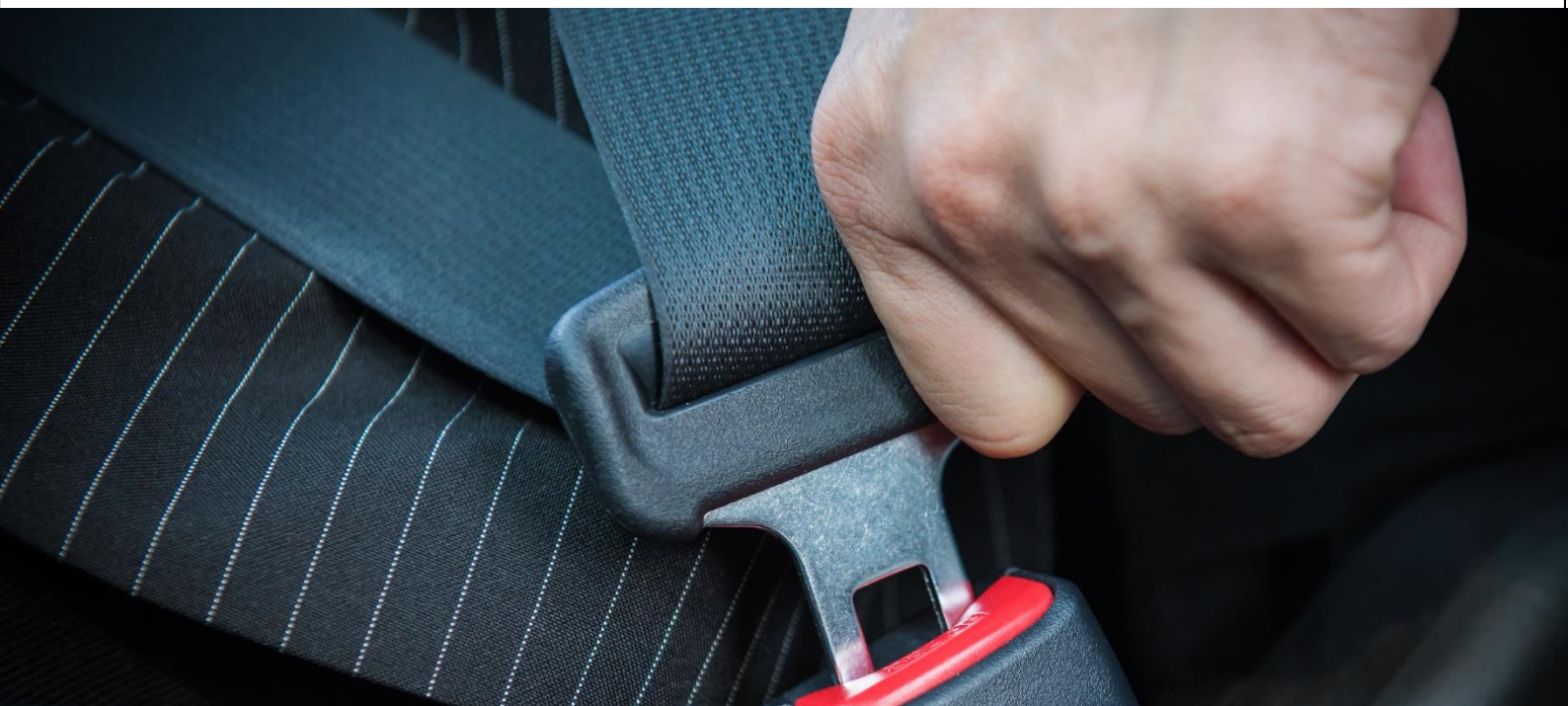


Final report

Technical Assistance for collecting Road Safety KPIs on Seatbelt and Child Restraint Systems in the Western Balkans region (WESTBELT)

March 2024



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Version history

Version	Date	Changes
1.0	16 January 2024	First draft for internal review
1.1	1 March 2024	Version incorporation feedback that was given on the Regional Thematic Report, and a comparison between EU and Western Balkans results.

Reproduction of this document is allowed with due acknowledgement. Please refer to the document as follows: Transport Community (2024). Final Report – Technical Assistance for collecting Road Safety KPIs on Seatbelt and Child Restraint Systems in the Western Balkan region.

List of Abbreviations

CDV	Centrum dopravního výzkumu (Transport Research Centre)
CRS	Child Restraint System
EU	European Union
KPI	Key Performance Indicator (for road safety)
TCT Secretariat	Transport Community Treaty (Secretariat)

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1 Introduction

The Permanent Secretariat of the Transport Community (hereafter referred to as “TCT Secretariat”) has issued a tender (No. PS/SRV/KPI/006/2023) for technical assistance for collecting road safety KPIs on seat belt and child restraint systems (hereafter “CRS”) in the Western Balkans region. The Western Balkans regional partners involved are Albania, Bosnia and Herzegovina, Kosovo* , Montenegro, North Macedonia, and Serbia.

The consortium of “Centrum dopravního výzkumu, v.v.i.” (hereafter “CDV”) and “Tilkon BV” (hereafter “Tilkon”) was commissioned by the TCT Secretariat to provide these technical assistance services. The project commenced on 18 August 2023 and was completed by 17 March 2024. For practical and internal purposes, the short project name “Westbelt” is used.

The general objective of the technical assistance is to contribute to the implementation of the Road Safety Action Plan committed to by the regional partners in the Western Balkans. This plan aims at reducing the number of serious injuries and road traffic deaths. The project should contribute to the improvement and harmonisation of road safety data collection and dissemination in the region – and hence support, update and enhance the Western Balkans Road Safety Observatory (WBRSO).

The specific project objective is, in each of the Western Balkans’ regional partners, to collect data for calculating KPIs about the wearing of seat belts and the use of child restraint systems. The core activities are collecting data and drafting of reports.

The results should help pave the way for regional partners to collect data for KPIs and report about these in a harmonised way. The results should be communicated in several reports (progress report, regional thematic report, thematic report for each regional partner, final report and a brochure) and should become a solid basis for monitoring progress in joint road safety work in the Western Balkans. In other words, the project should contribute to capacity building. The project and its deliverables should also enable and encourage regional partners to exchange experience on the use of KPIs for policymaking and will be used to develop methodologies for possible target setting.

As part of the contractual obligations, a final report needs to be provided. This document constitutes this final report. It includes the following elements:

- Introduction
- Project phases
- Project management
- KPI values for the Western Balkans region
- Recommendations
- Final report approval
- Appendices.

* This designation is without prejudice to positions on status, and is in line with UNSCR 1244/1999 and the ICJ Opinion on the Kosovo declaration of independence.

2 Project phases

Four phases have been identified for the implementation of the project: (1) preparation of the data collection; (2) data collection; (3) data analysis; and (4) data reporting. These activities are presented in the following sections.

2.1 Phase 1: Inception phase and preparation of the data collection (18 August to 15 October 2023)

Phase 1 included the following components:

- Refinement and documentation of the methodology
- Selection of the locations for the road-side observations
- Hiring of field researchers
- Informing and training the field researchers and stakeholders
- Communication and interaction with the TCT Secretariat.

Each of these elements is briefly commented on below.

2.1.1 Refinement and documentation of the methodology

In the technical proposal of CDV-Tilkon a methodology proposal had been outlined. After starting the project, the following activities have been undertaken to refine and document the methodology:

- Clarification of the Terms of Reference requirements following feedback from TCT.
- Assessment of the need for customisation in the Western Balkans of the existing Baseline and Trendline methodologies for data collection and analysis concerning KPIs.
- Documentation of the methodological approach. This methodology is described in Appendix 1 attached to this final report. It has been written as a reference document which can be used for capacity building. It covers the following topics:
 - strata to be considered
 - minimum sample size
 - selection of observation locations
 - selection and training of the field researchers
 - practical approach for observing the use of seatbelts and CRS
 - use of the SPIn software
 - the data that will be recorded
 - data cleaning.
- Adapt the SPIn software to accommodate for the project scope (the SPIn software is an application developed by CDV that facilitates the recording of road-side observations).

2.1.2 Selection of the locations for the road-side observations

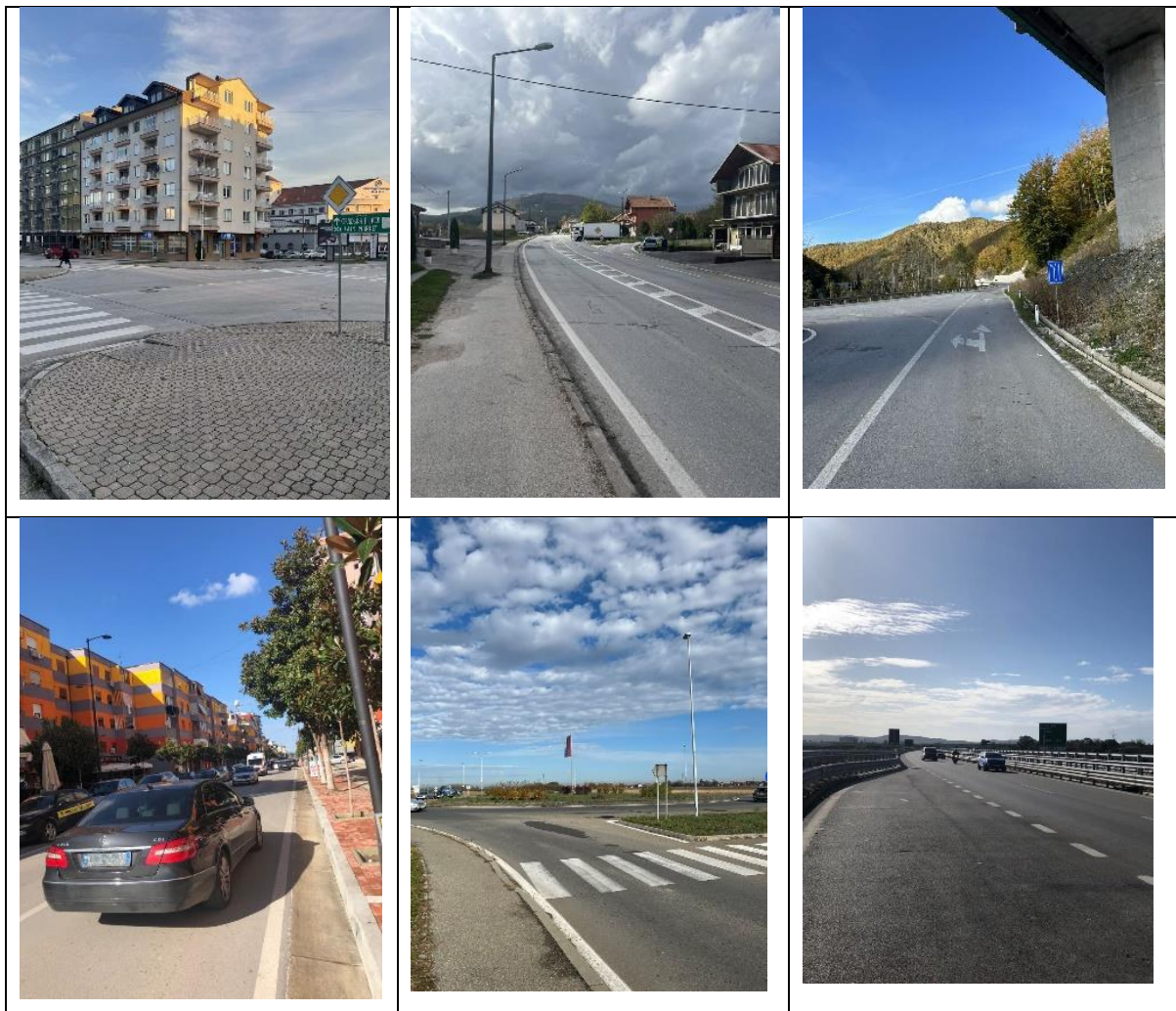
Several criteria were taken into account when identifying and selecting observation locations that are relevant, useful and safe. These criteria were:

- (1) Good spread across the administrative units of the regional partner (regions, police administration unit, etc.).
- (2) Variation in terms of geographical features (plains, coasts, hills or mountains).
- (3) Sufficient population density in the neighbourhood of the location and different levels of traffic volume (low, medium and high intensity), but avoiding locations with a very low volume of traffic.
- (4) Several types of road use (connection between city centres, daily commute, heavy commercial traffic, recreational traffic, etc.).

- (5) Safety of the observation locations.
- (6) Adequate visibility and space for making observations.

All observation locations in the Western Balkan region were chosen in accordance with the aforementioned criteria and at locations where the speed of vehicles is not too high, according to the road category (urban, rural, and motorways). For motorways, for reasons of visibility and safety, locations were selected where driving speed is reduced, such as the last intersection before on-ramps, and near toll stations. Observations of seatbelt use on urban and rural roads were planned on intersections with traffic light, cross-walking, public parking, in front of shopping malls, etc. Pictures of observation locations used during the project are shown in Figure 1.

Figure 1. Pictures of observation locations



The selected observation locations were communicated to the appointed contact persons in the regional partners. They were asked to provide feedback about the suitability of the locations. Based on that feedback, a few locations were replaced by similar locations. One location in Montenegro was reclassified from “urban” to “rural”; an additional location for “urban traffic was added. There were some road works on one location in Bosnia and Herzegovina; the field researchers moved to the next intersection (50 m away). A mass event (marathon of Tirana) and some rainy days required to modify in a few cases the dates on which the road-side observations took place. The list of locations is included in Appendix 2 attached to this final report.

2.1.3 Hiring of local field researchers

Some regional partners have several years of experience in measuring KPIs: Serbia from 2013, Bosnia and Herzegovina from 2017 and Montenegro from 2022. In these regional partners field researchers with experience in measuring and collecting KPIs data have been contacted and subsequently selected.

For the other regional partners, the minimum requirements to be met by a field researcher were: (1) participation in at least one transport project with field survey; and/or (2) experience in the road safety or transport sector through projects, research work or other activities. The selection of these field researchers was undertaken in cooperation with the scientific community within each regional partner.

2.1.4 Informing and training the field researchers and stakeholders

In the preparation phase, the following information and training activities have been undertaken:

- Inform the stakeholders of the **regional partners** (in cooperation with or through the TCT Secretariat) about the project through an online information session on 19 September 2023.
- Present the project during the 15th **Technical Committee** for Road Safety in Warsaw on 29 September 2023.
- Provide initial **information** and **training** to the field researchers, including an online training on the dates shown in Table 1

Table 1. Date and time of the initial training sessions

Regional partner	Date	Day of the week	Time
Albania	October 4	Wednesday	9:00 - 11:00
Bosnia and Herzegovina	October 6	Friday	10:30 - 12:30
Kosovo	October 3	Tuesday	13:30 - 15:30
Montenegro	October 4	Wednesday	11:00 - 13:00
North Macedonia	October 4	Wednesday	13:30 - 15:30
Serbia	October 3	Tuesday	9:00 - 11:00

The field researchers were informed about the methodology, the selected locations and the use of the SPIn applications. The targeted audience were each time the field researchers and representatives of the regional partner. All training and information sessions were given in English.

- Following the feedback received during the training sessions, the Methodology report was updated, and a “Q&A” document was made for the field researchers.

2.1.5 Communication and interaction with the TCT Secretariat

Given the tight schedule, the sensitive context and the risks involved, it was important to maintain regular communication with TCT. During the inception period this has included regular communication by email and participation in meetings and events. In addition to the meetings listed in the previous paragraph, a kick-off meeting was organized on 25 August 2023 and a meeting between the project manager (Wouter Van den Berghe) and Liljana Cela (TCT Secretariat) took place on 15 September 2023.

2.1.6 Deliverables of Phase 1

The following deliverables were produced by the end of Phase 1 and included with or appended to the inception report:

- List of observation locations in all regional partners
- Methodology
- Training plan
- Presentations used for information and training sessions
- Inception report.

2.2 Phase 2: Data collection (16 October to 5 November 2023)

The activities undertaken in Phase 2 followed directly from the methodology (see Appendix 1). The road-side observations were carried out at the locations and dates listed in Appendix 2.

2.2.1 Road-side observations

Direct observation along the road is the data collection method that was used in the Westbelt project. The temporal requirements which have been respected during the data collection process were: (1) early autumn; (2) week days (excluding holidays) and weekend days observed separately; (3) daylight – observations should cover the whole daytime; and (4) reasonably good weather. With a few exceptions the weather was very good in the period considered. Observations took place during the morning, at noon and in the afternoon (the exact hours differed by location).

The data collection process has been conducted by trained field researchers (see Section 2.1.3). Each observation location was used for one observation session. Before starting an observation session, the field researchers measured the traffic volume; this so-called “calibration” lasted 10 minutes. After that, the actual measurement of the restraining of people in the vehicle was carried out and recorded with the SPIn-software (see Section 2.2.2). The duration of a session was typically one hour; in a few cases the session lasted longer because there was insufficient traffic. After one hour or after reaching a sufficient sample, calibration was carried out again during 10 minutes.

Vehicles observed were randomly selected from all the possible vehicles at the location where the observation is done. After coding one observation, the next passing target vehicle was observed. Separate values for drivers, front occupants and rear occupants were coded, both for passenger cars and goods vehicles. Goods vehicles included light goods vehicles and heavy goods vehicles. Buses, taxis and emergency vehicles were neither counted nor observed. Table 2 includes the periods/dates when road side observations took place.

Table 2. Periods during which data collection took place

Regional partner	Start data collection	End data collection
Albania	19 October 2023	3 November 2023
Bosnia and Herzegovina	16 October 2023	31 October 2023
Kosovo	28 October 2023	5 November 2023
Montenegro	21 October 2023	4 November 2023
North Macedonia	25 October 2023	3 November 2023

Serbia	16 October 2023	22 October 2023
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2.2.2 Use of the SPIn software

The field researchers used the SPIn tool for coding their observations. SPIn is a mobile phone application designed to streamline the process of collecting several types of Safety Performance Indicators (SPIs) or KPIs. It was already used by CDV in the EU project Baseline and will be used by several EU Member States in the EU Trendline project.

Figure 2. Picture of a field researcher using SPIn



The main features of SPIn are:

- All field researchers were presented with only the locations assigned to them, promoting a focused and clutter-free environment for data collection.
- Each field researcher had a unique code to log into the SPIn application for easy identification and control of the correct location and corresponding field worker.
- The application was fully functional in offline mode, allowing to work seamlessly regardless of the location. Connection to the internet was needed just when logging in and uploading data once the measurement was complete.
- There is no need to manually transcribe records from paper to computer, which saves time and eliminates the risk of errors.

2.2.3 Data collected during the fieldwork

The following variables have been collected during the data collection process:

Data with regard to the **observation locations**:

- unique location ID
- region (if applicable)
- road type
- road number, address
- coordinates of exact observation spot
- number of lanes
- target lane and direction(s) to be observed.

Data with regard to the **observation sessions**:

- unique session ID
- date
- time of the first recorded vehicle
- time of the last observed vehicle
- total duration of observation session (end time – begin time – count duration)
- traffic count duration
- traffic count results per relevant vehicle type
- weather (sunny, cloudy).

Data with regard to **the observations** themselves (one data point = one observed vehicle):

- vehicle type (passenger car, goods vehicle)
- driver seat belt use (use / no use)
- front passenger (1 or 2) seat belt use (use / no use)
- front passenger 2 seat belt use (use / no use)
- rear passenger (1 to 4) seat belt use (use / no use)
- young child (1 to 5) (front/rear) seat belt use (use / no use)
- very young child (1 to 3) (front/rear) CRS use (use / no use).

Traffic volumes at the observation locations have been estimated by traffic counts during the observation session by counting all passing relevant vehicles during 10 minutes before and 10 minutes after the observation sessions (this process is called “calibration” in the methodology). The counting was done for both passenger cars and good vehicles at the same location and direction(s) of the traffic as for the observations.

2.2.4 Data quality assurance

The starting point for quality assurance was the methodology established for the Westbelt project, which had been inspired by the guidelines developed within the Baseline and Trendline projects; this methodology is documented as Appendix 1 to this progress report. As stated before, the key requirements for the selection of locations were respected, and the field researchers were thoroughly briefed and trained about how to proceed to avoid bias, how to code the behaviour of vehicle occupants and how to use the SPIn software. The conduct of the road-side surveys was monitored on a daily basis. The measurement activities have been monitored in different ways:

- WhatsApp groups were created, with members including the field researchers and two experts of the project team. The chat groups were used to check issues around the location, answer questions from field researchers, share pictures, etc. The field researchers took a picture of every location before they started the measuring process.
- It was checked every day whether the data collected with the SPIn tool was adequately uploaded the central database.
- Every field researchers’ team had an unannounced inspection (including initially be observed from a distance) by an expert of the project partnership (see Figure 3 below).

Figure 3. Inspection of the field researchers at observation locations



2.2.5 Deliverables of Phase 2

The internal deliverables available at the end of Phase 2 are (for each regional partner):

- Data set of observations
- Metadata for the observations (locations, timing, traffic volume, etc.)

The data are not a formal deliverable required by the contract. However, they can be provided on request to the TCT Secretariat and the regional partner(s) concerned, respecting the ownership and intellectual property of the consortium.

2.3 Phase 3: Data analysis (from 6 November 2023 to 5 January 2024)

This phase consisted of the following activities:

1. Analysis of the standard outputs of the SPIN software
2. Cleaning of the data collected and preparation for analysis
3. Use of weighting factors and determination of the weighted sample
4. Calculation of the KPI values
5. Drafting of the Progress Report

2.3.1 Initial analysis of raw data

Before and during an internal project meeting on 14 November in Brno (Czech Republic) the project team examined closely the first finding, based on the raw, uncleaned data that had been collected during the observations. This initial analysis was based on the “standard outputs” that are semi-automatically produced by the SPIN application. These standard outputs produce standard breakdowns of data such as the number of observed vehicles per observation session and the total numbers of restrained and unrestrained occupants, by occupant type. A summary of information in these tables as well as some graphs were shown to the TCT Secretariat during the project progress meeting of 15 November 2023.

The initial analysis of these uncleaned and unweighted data allowed for checking that the minimum sample sizes (number of vehicles, number of goods vehicles, number of vehicles with children) had been obtained for each regional partner. So, there was no need to undertake additional observation sessions. This initial analysis also allowed for identification of observation sessions which needed to be examined closer during the data cleaning process.

2.3.2 Cleaning the data and preparation of analysis

The first step in the data cleaning process was to remove some test data that had been uploaded during or after the training sessions. In a few cases where a very high or low number of observations were uploaded, the field researchers were contacted to provide explanations. An example was a situation where two field researchers were measuring at the same time different lanes on a motorway. Another situation that occurred a few cases was an interruption of observations within a session (e.g., in one case police officers asked what the field researchers were doing; in other cases two field researchers each coded the vehicle occupants during 30 minutes). In all such cases, the situation was analysed and corrective measures taken (such as combining two sets of measurements into one).

During the analysis, a few outliers were detected, with an unrealistically high number of vehicle occupants (e.g. 6 people at the rear of a passenger car). Such situations might occur if the field

researcher forgets to code for the driver, which results in passengers being added to the previous observation. All such outliers were removed from the database.

2.3.3 Cleaned, unweighted data set

The minimum number of vehicles to be observed was 2000 (3000 in Serbia), and 100 vehicles with children (150 in Serbia). Table 3 shows that all these minima have been attained. In total, more than 50 000 vehicles were observed and coded. There were also requirements in terms of the number of vehicles observed by road type: 750 vehicles on rural roads and 750 vehicles on urban roads. In Serbia, a minimum of 750 vehicles observed on motorways was also required. Table 4 shows that these minima have been exceeded for all regional partners.

Table 3. Cleaned, unweighted database of road-side observations

	Number of passenger cars			Number of goods vehicles	Number of vehicles
	Without children	With children	Total passenger cars		
Albania	3001	222	3223	978	4201
Bosnia and Herzegovina	8587	886	9473	1411	10884
Kosovo	4883	623	5506	838	6344
Montenegro	6402	485	6887	771	7658
North Macedonia	2851	331	3182	1061	4243
Serbia	16668	1204	17872	2105	19977
Total	42392	3751	46143	7164	53307

Table 4. Number of passenger cars and good vehicles by road type

	Number of passenger cars			Number of goods vehicles		
	Urban roads	Rural roads	Motorways	Urban roads	Rural roads	Motorways
Albania	1286	976	961	200	360	418
Bosnia and Herzegovina	4898	4102	473	368	910	133
Kosovo	2622	2214	670	256	353	229
Montenegro	3545	3054	288	281	455	35
North Macedonia	1416	1222	544	490	354	217
Serbia	9583	6152	2137	672	1030	403
Total	23350	17720	5073	2267	3462	1435

It should be noted that these numbers are similar to the number of cars observed in some (relatively small) EU countries: Belgium 16489, Czech Republic 13198, Hungary 3477, Latvia 8789, Lithuania 7506, Netherlands 8978 and Portugal 4920. It can be noted that the number of

observations in Albania was lower than smaller regional partners (Kosovo and Montenegro). This is because, on average, the traffic density at the observation locations in Albania turned out to be lower than with the other regional partners.

Table 5 and Table 6 provide information on the number of occupants in passenger cars and goods vehicles. In total over 80 000 occupants were observed and coded.

Table 5. Number of drivers, adult passengers and children in passenger cars

	Drivers	Adult passengers	Children	Total
Albania	3223	1766	257	5246
Bosnia and Herzegovina	9473	3805	1097	14375
Kosovo	5506	3450	821	9777
Montenegro	6887	2853	554	10294
North Macedonia	3182	2331	416	5929
Serbia	17872	7526	1443	26841
Total	46143	21731	4588	72462

Table 6. Number of drivers and passengers (including children) in good vehicles

	Drivers	Passengers (including children)	Total
Albania	978	281	1259
Bosnia and Herzegovina	1411	323	1734
Kosovo	838	276	1114
Montenegro	771	194	965
North Macedonia	1061	399	1460
Serbia	2105	361	2466
Total	7164	1834	8998

2.3.4 Use of weighting factors and determination of the weighted sample

In each of the regional partners, the sample design included a stratification by road type (urban road, rural road, motorway) and by vehicle type (passenger car, goods vehicle). So, there were six strata in total for each regional partner.

Within each stratum (e.g., passenger cars on rural roads) there were in most cases 10 sessions, and in each session a number of codified observations. These coded observations allow, for example, to state that in session A 50% of the drivers wore a seatbelt, in session B 54%, in session C 48%, etc. For obtaining the KPI for that stratum, it is not allowed to make an average of these percentages, because the volume of traffic, the number of observed vehicles and the duration of the sessions varies somewhat. Therefore weighting factors need to be calculated.

Weighting factors have been calculated for all observation sessions, both for passenger cars and goods vehicles. This calculation was done by using the approach and the formulas that are being

used in the EU Trendline programme (Bijleveld et al., 2023). These values have been integrated in the data on observation sessions in Appendix 2.

2.3.5 Using weighting factors to determine KPI values that combine all road types

In order to calculate an overall KPI at the level of a regional partner (combining the six strata), a second weighting process has to be applied, based on an estimate of the relative volume of traffic (number of vehicle km travelled) in each of the six strata of the regional partners.

Such detailed traffic data is not available within the Western Balkan region. In order to be able to make an overall estimate at the level of a regional partner, the consortium has made a *rough estimate* of the traffic distribution of passenger cars and goods vehicles for each of the regional partners. These estimates are shown in Table 7.

Table 7. Estimates of the traffic distribution by road type in the Western Balkans region

	Passenger cars			Goods vehicles		
	Urban roads	Rural roads	Motorways	Urban roads	Rural roads	Motorways
Albania	42.5 %	43.5%	11.0 %	1.5%	1.5%	1.0%
Bosnia and Herzegovina	14.0%	65.0%	11.5%	0.5%	7.5%	1.5%
Kosovo	16.0%	62.5%	11.5%	1.5%	6.5%	2.0%
Montenegro	40.5%	44.5%	6.5%	1.5%	6.5%	0.5%
North Macedonia	22.5%	58.0%	11.0%	2.0%	5.0%	1.5%
Serbia	26.0%	52.0%	11.0%	1.5%	7.5%	2.0%

These (rough) estimates are based on a consideration of different variables, such as the length of the road network, the number of registered vehicles, population density distribution and some data from surveys.

To be able to establish a KPI for the Western Balkans region as a whole, one would need accurate estimates of the traffic volume for all regional partners. Since that information is not available for all regional partners, it is not possible to have KPIs for the Western Balkans region as a whole. As an alternative, for tables and figures covering all six regional partners, the median value will be given.

2.3.6 Calculation of the KPI values

KPI values have been calculated using the cleaned and weighted data set. These were included in the periodic report; some of these results are also presented in Section 4 of this report.

It is recalled that all KPIs are defined as the percentage of particular vehicle occupants using restraints. Most KPIs refer to a combination of a vehicle type (passenger car or goods vehicle), one or more occupant types and a road type (urban road, rural road, motorway).

2.3.7 Progress report and deliverables of Phase 3

The following deliverables were made available at the end of Phase 3

- Updated versions of the methodology document
- Cleaned data set of the observations
- Weighed data set of the observations
- Metadata on the observations and observation locations
- KPI values for each regional partner (in general per road category and vehicle type)
- Progress report

The progress report included information about:

- (1) the activities undertaken since the start of the project
- (2) any changes in the approach that had been included in the inception report, including the reasons which made such changes necessary
- (3) first overall results of the data analysis
- (4) the schedule and content for the final phase of the project.

2.4 Phase 4: Reporting and deliverables (6 January to 17 March 2024)

The 4th phase of the project consisted of the following activities:

- Contextualisation and further analysis of the data
- Formulation of recommendations
- Production of a range of reports
- Meetings and presentation of the results
- Support for dissemination.

2.4.1 Contextualisation and production of a range of reports/

To contextualise the results obtained scientific evidence on the implications or vehicle occupants not being constraint has been synthesized. Some comparisons have also been made with results of European countries that participated in the Baseline project and the ESRA-initiative.

The tables with KPI values that had been published in the progress report have undergone further analysis, and for most of them graphs have been produced. These graphs have been used within presentations and as part of the reports that were to be produced. Table 8 shows the different reports that have been produced and the actual submission date of the final version.

Table 8. Overview of reports produced by the end of the project

Type of report	Submission date (final version)
Regional thematic report Western Balkans	24 January 2024
Thematic report for each of the regional partners	1 March 2024
Brochure (final)	18 March 2024
Final report (final)	18 March 2024

Following discussions with the TCT Secretariat, the following was agreed in relation to the content and format of the different reports:

- The methodological Report that had been submitted at the inception stage should be enriched with information on the approach actually adopted in the project and should include figures on the distribution of the sample of observations.
- The Final Report should mainly cover the activities undertaken (similar to what was done in the Progress Report, some key results, and recommendations. For details on the methodology it should refer to the Methodology report and for the full set of results to the Regional Thematic Report.
- The Regional Thematic Report and the six Thematic Reports should focus on context and results; for the methodology they should refer to the Methodology Report.
- The Brochure should consist of 2-3 tables or graphs for all Regional Partners together + one or two tables/graphs per regional partner.

These principles were adopted when drafting the reports. There was one lead author for every report, with contributions provided by other team members. Each report was peer reviewed by a team member who has not been involved in the drafting of the report.

A draft version of the Regional Thematic Report was sent to the contact persons of regional partners in January 2024. The feedback received has been integrated into the final version of the thematic reports.

2.4.2 Formulation of recommendations

Based on the analysis of the results and of good practice within and outside the Western Balkans region, a series of recommendations has been made. Four groups of recommendations have been made:

1. What governance structure and process should be set to ensure that road safety KPIs are adequately used?
2. What measures ought to be taken in the light of the findings of this report, in particular when the performance is not good?
3. When and how should the data collection on seatbelts be repeated?
4. For which other KPIs should data be collected in the future?
5. What monitoring and dissemination mechanisms should be in place to ensure that the investment in KPIs results in progress on road safety?

These recommendations have been included in this Final Report (Section 0) and have been presented during the presentation of the results to each regional partner (see Section 2.4.3).

2.4.3 Meetings and presentation of the results

The following meetings were organised during the last phase of the project:

- Online meeting with Technical Committee 14 December 2023 (morning)
- In-person meetings with stakeholders in the capitals of the regional partners for presenting and discussing the key results and recommendations. The dates of the presentations were:
 - 15 February 2024: Pristina
 - 16 February 2024: Podgorica
 - 19 February 2024: Sarajevo
 - 12 March 2024: Skopje
 - 13 March 2024: Tirana
 - 15 March 2024: Belgrade.

- Minutes of these meetings have been made and provided to the regional partners, alongside the slides used for the presentation.
- An online progress meeting with TCT Secretariat on 5 March 2024, in particular to discuss the draft versions of the different reports.
- The consultant will present the final results of the project during the meeting of the Technical Committee on Road Safety in Vienna on 25 April 2024.

For the in-person meetings in the capital of the regional partners, the agenda was structured as follows:

- Introduction by the host
- Context and purpose of the project
- Project organisation and approach
- Some results from EU countries
- Regional results for all regional partners
- Zoom-in on the results of the regional partner
- Recommendations
- Discussion / questions

2.4.4 Support for dissemination

The Transport Community is in charge of the dissemination of results through its institutional structures, its website and social media. Through its recommendations the consortium has advised and suggested to the Transport Community and the regional partners on the best ways to use the results and take future measures/actions.

The TCT Secretariat will invite the consultant to present the final results of the project in the first event that will be held after the finalisation of the project (i.e. Technical Committee on Road Safety or Conference).

2.4.5 Deliverables of Phase 4

The following deliverables were made available at the end of the project:

- A Regional Thematic Report for the Western Balkans
- A Thematic Report for each regional partner
- Brochure (in cooperation with TCT Secretariat)
- The Final report
- The Presentations used during meetings with regional partners

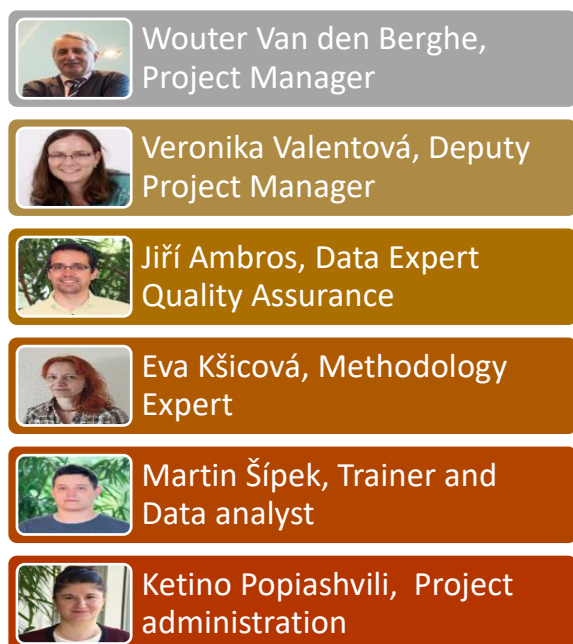
3 Project management

Project management activities were organized as indicated in the inception report.

3.1 Project governance

The key project team members and their position in the project is given in Figure 4.

Figure 4. Key project team members and their position in the project



Some other staff have assisted in one or more of the activities that were undertaken. Support for data processing was also provided by Tomáš Kovařík. The list of field researchers is given in Table 9.

Table 9. List of field researchers per regional partner

Regional partner	Field researchers
Albania	Brikena Tare, Bujar Kotri
Bosnia and Herzegovina	Marko Subotić, Milenko Mičić
Kosovo	Mevlan Bixhaku, Ramadan Duraku, Gezim Hoxha
Montenegro	Boško Matović, Milenko Damjanović
North Macedonia	Verica Dančevska, Dejan Dančevski
Serbia	Lazar Savković, Vesna Meštrović, Kristina Radulović, Jovana Trbojević

3.2 Interaction with the Transport Community Secretariat (TCT) and the regional partners

Like in the previous phases, also in the final phase of the project there was regular communication between the project team and the Transport Community Secretariat through meetings and email communication. The project officer at the TCT Secretariat was informed of the progress of the project.

During the final phase of the project two formal meetings with the TCT secretariat have taken place:

- a meeting on 9 January 2024 to discuss the Progress Report and the format and content of the Thematic Reports
- a meeting on 5 March 2024 to discuss the Thematic Reports and the draft Final Report.

The final results will also be presented during the meeting of the Technical Committee on Road Safety in Vienna on 25 April 2024.

3.3 Respect of project milestones and timeline

The GANTT chart below gives a visual presentation of the schedule of activities. The periods marked in blue include important interactions / meetings / events with the stakeholders in the Regional Partners and/or the TCT Secretariat. This GANTT chart was included in the inception report.

Figure 5. GANTT chart of key activities and deliverables

Deliverable/activity		Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
Phase 1	Kick-off meeting								
	Recruitment field researchers								
	Selection observation locations								
	Methodology								
	Training plan								
	Information sessions								
	Training sessions								
	Inception report								
Phase 2	Data collection								
Phase 3	Data analysis								
	Progress report								
Phase 4	Thematic Reports (6 + 1)								
	Brochure								
	Final report & meeting								
	Capacity building								

Despite the tight deadlines, in particular for Phase 1, this time schedule has been fully respected. Phase 3 was completed even earlier than initially planned, implying that somewhat more time was available for Phase 4. The project milestones are listed in Table 10, including the deadlines that were contractually imposed, the planned completion data as specified in the inception report, as well as the real completion date.

Table 10. Completion of milestones

Milestone description	Contractual requirement	Planned completion date	Real completion date
Kick-off meeting	18 September 2023	25 August 2023	25 August 2023
Selection of field researchers	NA	15 September 2023	10 September 2023
Selection of observation locations	NA	15 September 2023	10 September 2023
Information and training sessions	NA	6 October 2023	6 October 2023
Inception report	18 October 2023	9 October 2023	13 October 2023
Data collection	NA	5 November 2023	5 November 2023
Progress report	18 January 2024	18 January 2024	5 January 2024
Thematic reports	18 February 2024	16 February 2024	1 March 2024 ²
Brochure	1 March 2024	1 March 2024	8 March 2024 ³
Meetings with regional partners	NA	15 March 2024	15 March 2024
Final report (final version)	18 March 2024	18 March 2024	18 March 2024
Presentation of final results	25 April 2024	25 April 2024	25 April 2024

² A draft version was available already early February 2024, but the TCT Secretariat asked for some additions at the end of February 2024.

³ There was some misunderstanding on the role of the TCT Secretariat. All data for the brochure had been prepared and delivered on time.

4 KPI values for the Western Balkans region

4.1 Introduction

This section includes some KPI values on using a seatbelt or a CRS. It is recalled that all **KPI values** are defined as **the percentage of vehicle occupants being restrained**. For adults, “restrained” means “wears a seatbelt”. For children, “restrained” could mean “wears a seatbelt” or “is restrained in a child restraint system”.

All KPI values have been calculated using the cleaned and weighted data set. The results have been presented under the form of bar charts. All values shown in the graphs are percentages, but to avoid cluttering, the percentage sign (%) has been dropped from the tables and figures.

Only a selection of results is presented here; more detailed tables and graphs are included in the thematic reports.

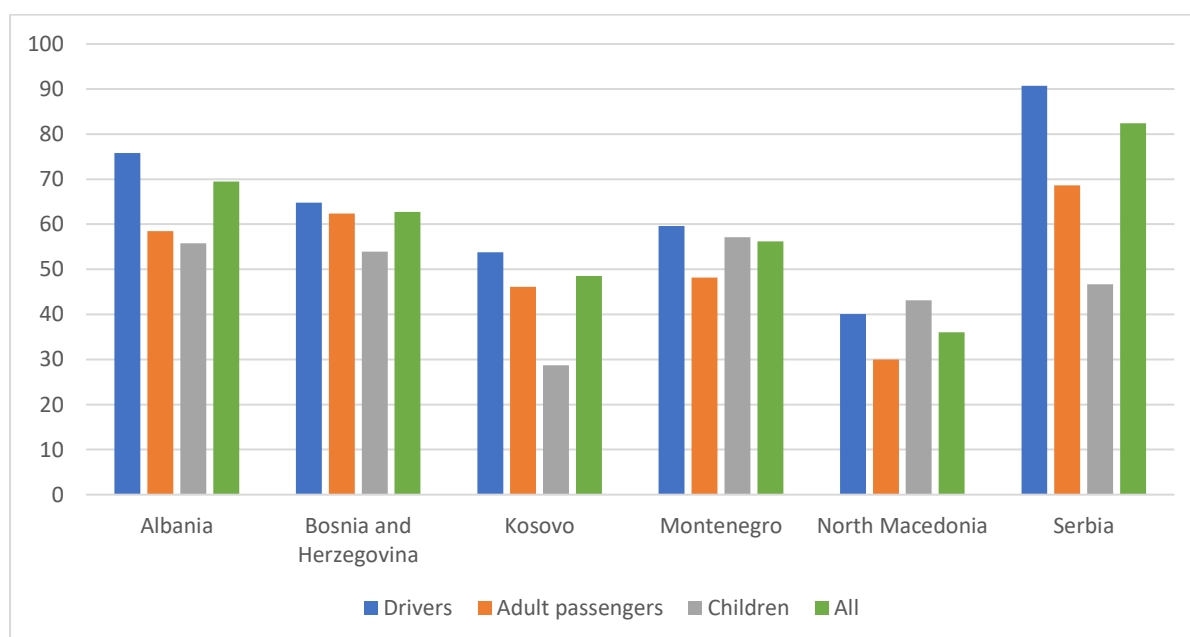
4.2 Overall KPI values for all road categories combined

This section presents some overall results for the Western Balkans region. The KPI values in Figure 6 and Figure 7 all combine the two vehicles types (passenger cars and goods vehicles) and road categories (urban roads, rural roads and motorways).

Figure 6 shows the overall KPI values for passenger cars, for three groups of car occupants: drivers, passengers (without children) and children.

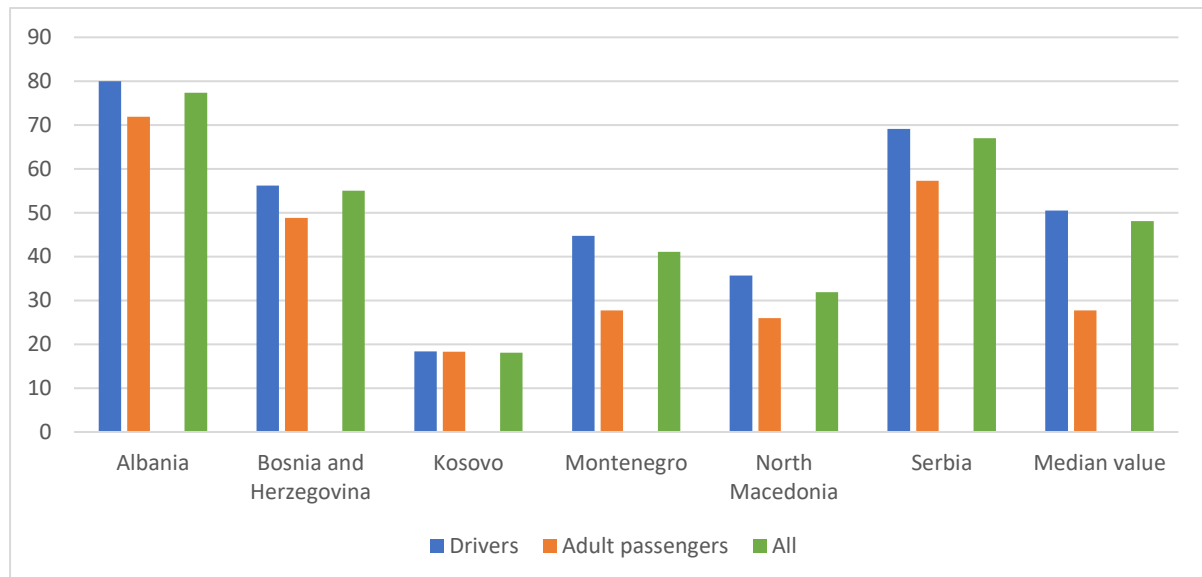
In Albania and in Bosnia and Herzegovina only about two thirds of car occupants are restrained; the KPI values are below the EU averages – see (Van den Broek et al., 2022). Even lower performance can be observed in Montenegro and Kosovo (about half of the car occupants is restrained). The lowest KPI values are found in North Macedonia (about one third of the car occupants is restrained).

Figure 6. Percentage of restrained occupants of passenger cars, all road types combined.



Considering goods vehicles (Figure 7) one can see that in most regional partners the overall values are lower than for passenger cars, except in Albania where it is the opposite. The overall value for Kosovo is very low: less than 1 in 5 occupants of goods vehicles is restrained. It can also be noted that in general, the KPI for drivers is higher than for passengers; the difference is often even more pronounced than within passenger cars.

Figure 7. Percentage of restrained occupants of goods vehicles, all road types combined.



4.3 Comparison between results from the EU (Baseline project) and the Western Balkans.

Given the fact that the methodology adopted within the Westbelt project is very similar to the methods used by EU countries in Baseline with those in the Western Balkans region. Please note that most data for the EU refer to 2022, and that not all Baseline countries (18) provided data on seatbelts.

Figure 8 shows the KPI values for drivers, rear occupants and children (requiring a CRS) of passenger cars in some EU countries and the Western Balkans (figures for front passengers were not included because they are very similar to those of drivers, and it would make the graph more difficult to read). It can be concluded that the restraint rate is much lower in the Western Balkans than in the EU, except for drivers in Serbia. The value for children in a CRS differs less from the EU, but it should be kept in mind that this concerns only a small fraction of the vehicle occupants.

KPI values of drivers and front passengers of goods vehicles are shown in Figure 9. It can easily be seen that the values in the Western Balkans are in most cases lower than those in the EU (except Greece and Cyprus). It can also be observed that drivers and passengers of goods vehicles have almost the same restraint rate at country level in the EU, in the Western Balkans region, passengers of goods vehicles are even less restrained than the drivers.

Figure 8. Percentage of restrained drivers, rear occupants, and very young children of passenger cars in EU countries and the Western Balkans region.

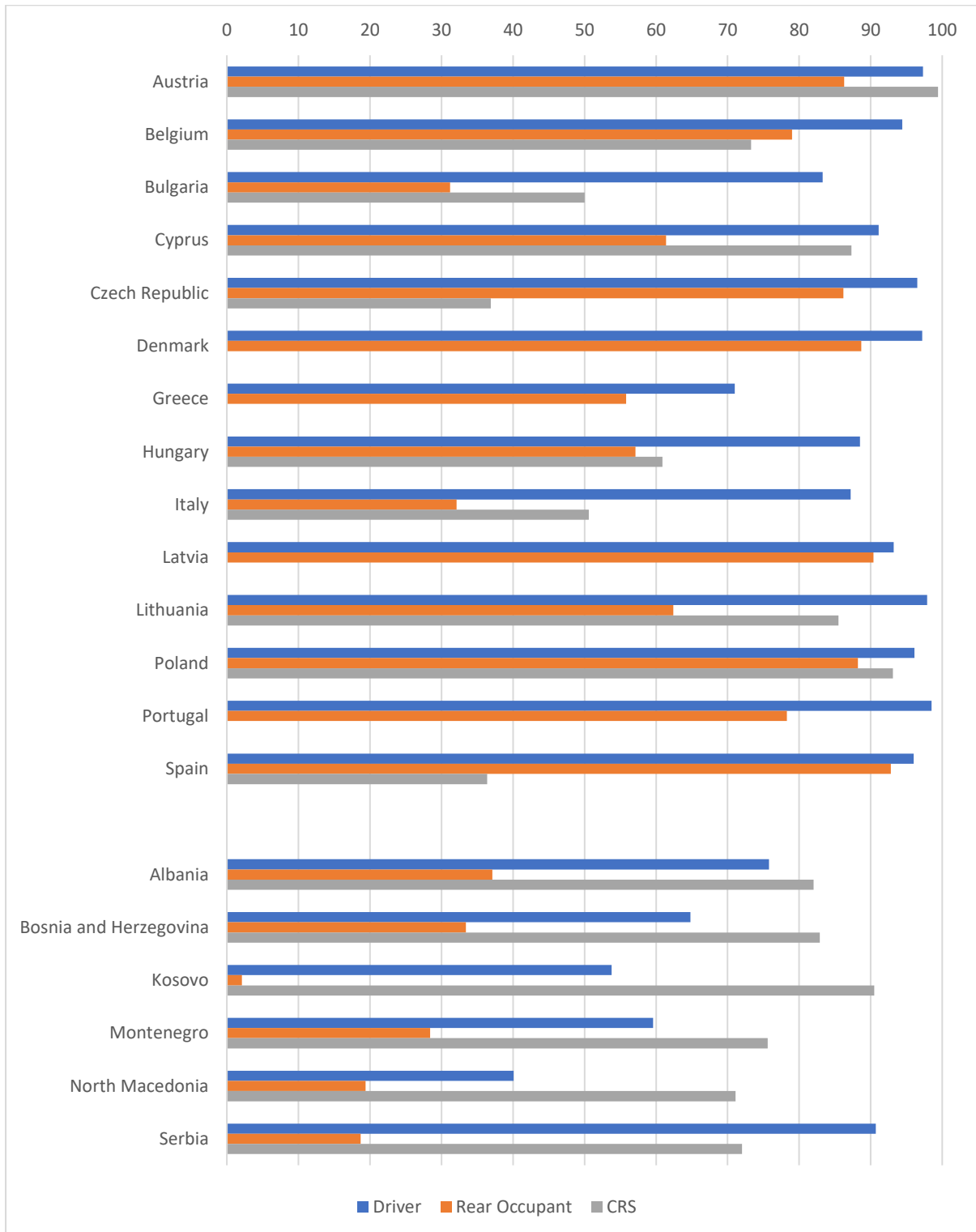
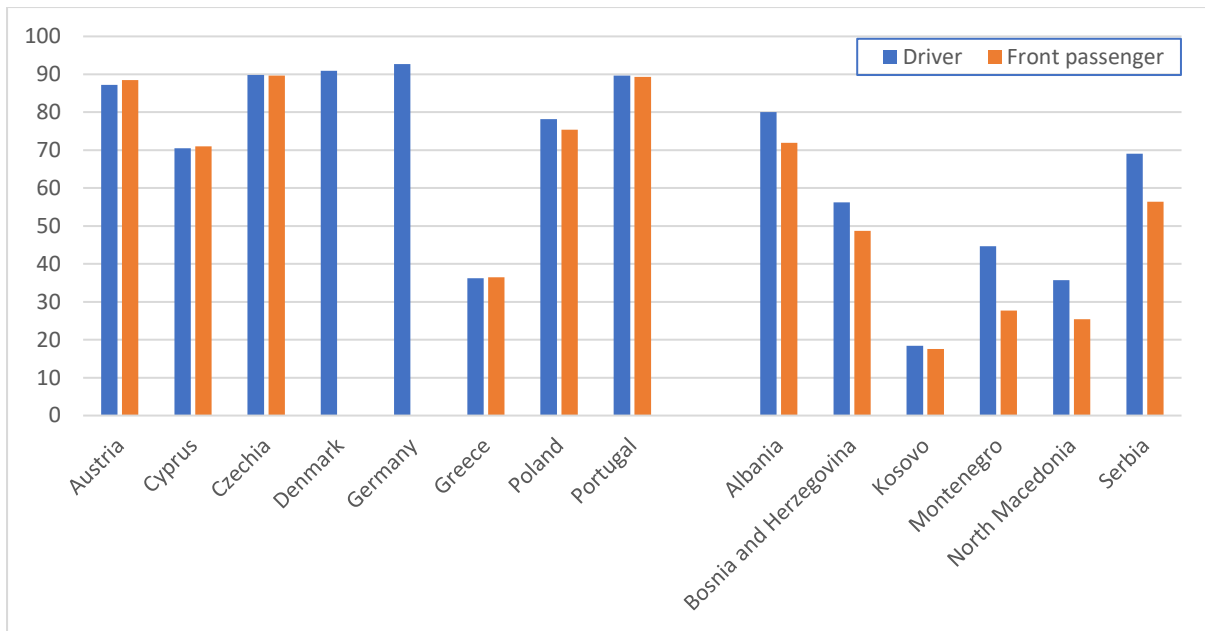


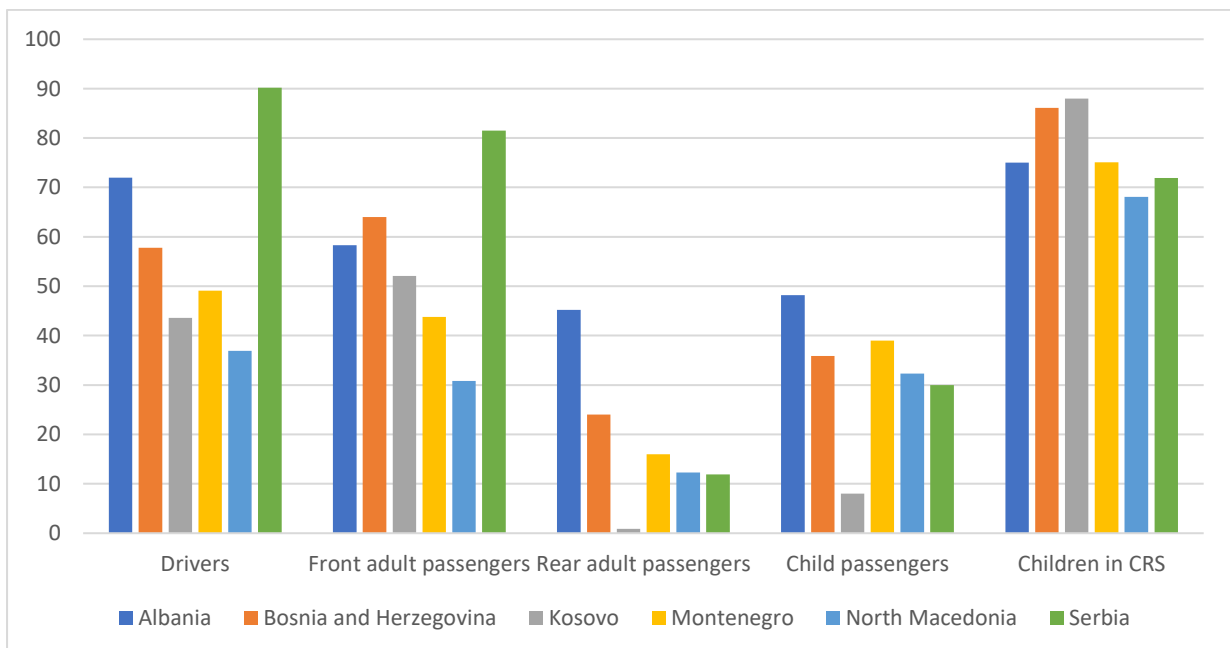
Figure 9. Percentage of restrained occupants of goods vehicles in EU countries and the Western Balkans region.



4.4 KPI values for occupants of passenger cars on different types of roads

Figure 10 shows the KPI values for vehicle occupants on urban roads. Figure 10 illustrates that, with the exception of Serbia, the highest KPI values in passenger cars are for children restraint in CRS. In four regional partners, the KPI values for drivers are higher than for front adult passengers (Albania, Montenegro, North Macedonia, Serbia); in Kosovo and Bosnia and Herzegovina, the opposite is true. Yet, the differences between KPI values between drivers and front adult passengers are not very high.

Figure 10. Percentage of restrained occupants of passenger cars on urban roads, by type of vehicle occupant.

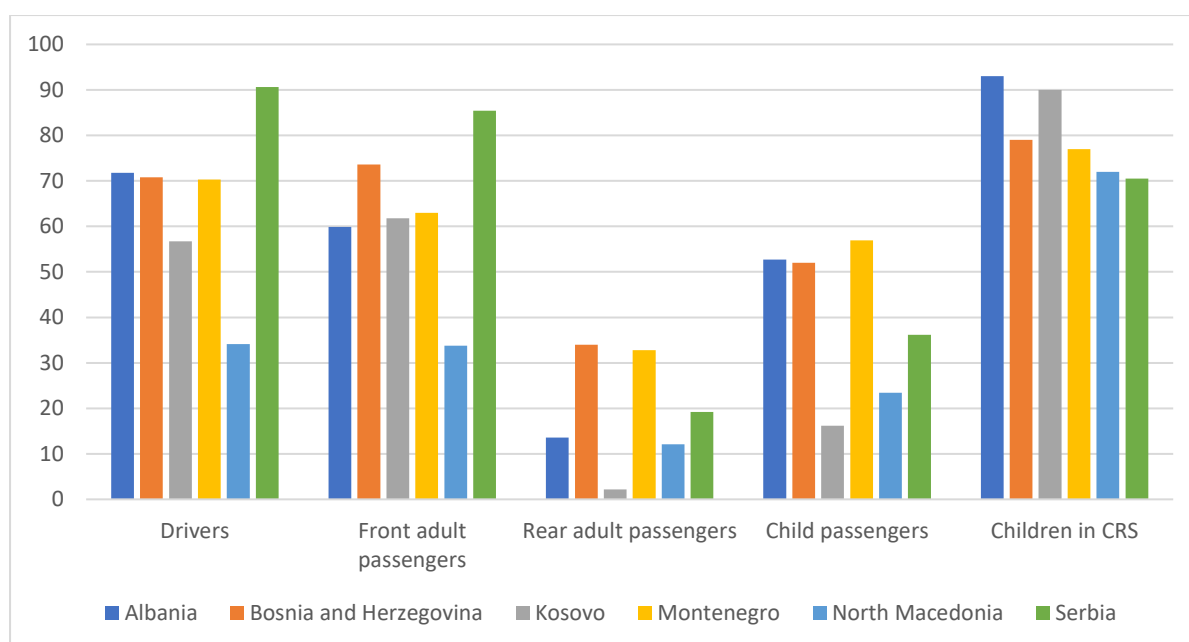


In all regional partners, the lowest KPI values are seen on the rear seats, both adult passengers and children (not requiring a CRS). With the exception of Albania, in the Western Balkans less than one fourth of the rear adult passengers are restraint in passenger cars, and only about a third of the children sitting at the rear (even less than 10% in Kosovo).

Figure 11 shows the KPI values for vehicle occupants on rural roads. Figure 11 illustrates that, again with the exception of Serbia, the highest KPI values in passenger cars are for children restraint in CRS. In four regional partners, the KPI values for drivers are higher than for front adult passengers (Albania, Montenegro, North Macedonia, Serbia); in Kosovo and Bosnia and Herzegovina, the opposite is true. Yet, the differences between KPI values between drivers and front adult passengers are not very high, with the exception of Albania, where there is a 12% difference.

In all regional partners, the lowest KPI values are seen on the rear seats, both adult passengers and children (not requiring a CRS). In Montenegro and Bosnia and Herzegovina only about one third of the passengers in the rear of the car are wearing a seatbelt, and in the other regional partners the values are even lower. The KPI values for child passengers are higher than those of the rear passengers – but still lower than the KPI values for drivers and front passengers.

Figure 11. Percentage of restrained occupants of passenger cars on rural roads, by type of vehicle occupant.



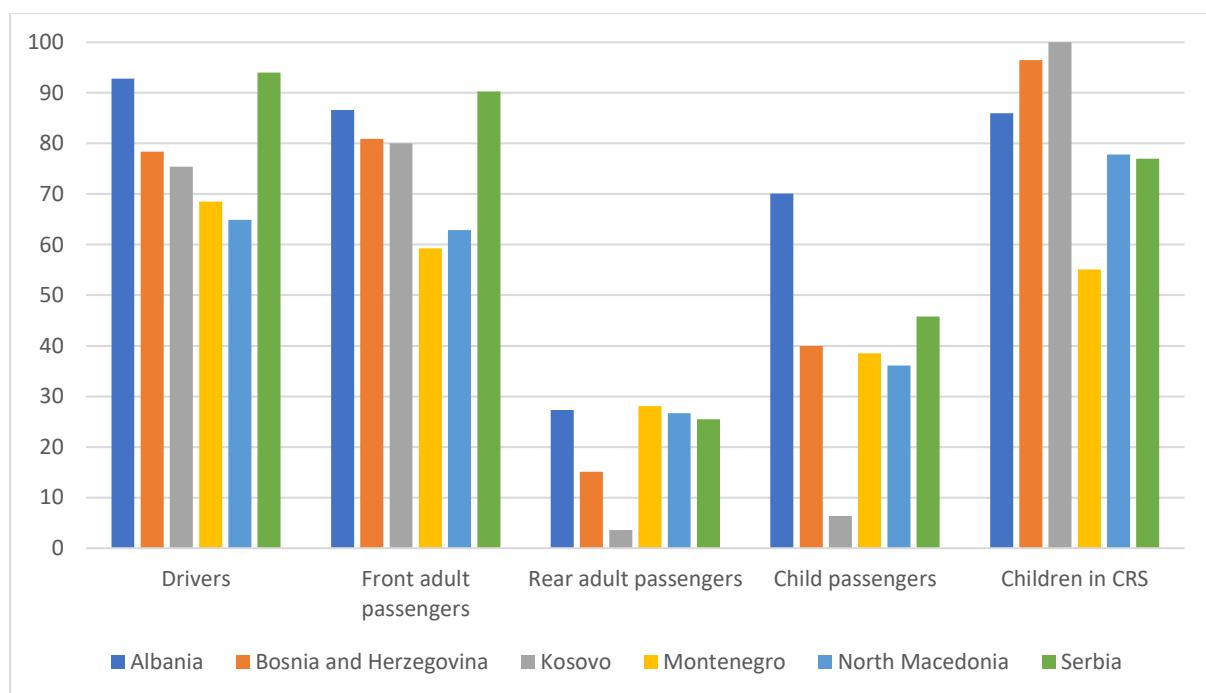
When comparing the KPI values for urban roads with those of rural roads, no systematic pattern across the Western Balkans can be observed. It can be observed that for drivers and front passengers in in BiH, Kosovo, Montenegro the KPI values are somewhat higher on rural roads than on urban roads, while for Albania, North Macedonia and Serbia the values for rural roads and urban roads are similar. At the rear side the KPI values on rural roads are lower than on urban roads in Albania and Montenegro, are about the same in Kosovo and North Macedonia, and higher in Serbia and Bosnia and Herzegovina.

Figure 12 shows the KPI values for vehicle occupants on motorways. Figure 12 illustrates that, again with the exception of Serbia, the highest KPI values in passenger cars are for children restrained in a CRS.

In Albania, Montenegro, North Macedonia and Serbia, the KPI values for drivers are higher than for front adult passengers; in Kosovo and Bosnia and Herzegovina, the opposite is true. Yet, the differences between KPI values between drivers and front adult passengers are not very high, with the exception of Montenegro, where there is a 9% difference.

In all regional partners, the lowest KPI values are seen on the rear seats, both adult passengers and children (not requiring a CRS). In most Western Balkans' regional partners, only about one quarter of the rear adult passengers are restraint – and in Kosovo and Bosnia and Herzegovina it is even less. The KPI values for child passengers are higher than those of the rear passengers – but still lower than the KPI values for drivers and front passengers. Only in Albania over half of the children at the rear of the car (without counting the very young ones needing to be in a CRS) is restraint with a seatbelt.

Figure 12. Percentage of restrained occupants of passenger cars on motorways, by type of vehicle occupant.



When comparing the KPI values for motorways with those of rural roads, no systematic pattern across the Western Balkans can be observed. In general, the KPI values are somewhat higher on motorways than on rural roads, but this does not apply for some types of occupants in some regional partners.

It can be observed that for drivers and front passengers in Bosnia and Herzegovina, Kosovo, Montenegro the KPI values are somewhat higher on rural roads than on urban roads, while for Albania, North Macedonia and Serbia the values for rural roads and urban roads are similar. At the rear side the KPI values on rural roads are lower than on urban roads in Albania and Montenegro, are about the same in Kosovo and North Macedonia, and higher in Serbia and Bosnia and Herzegovina.

5 Recommendations

5.1 Introduction

Based on the analysis of the results and of good practice within and outside the region, a number of recommendations can be made. The recommendations in this final report apply to most or all regional partners, albeit not always to the same extent. Some of the recommendations have actually already been implemented in at least one of the regional partners (for example, the UN R129 standard⁴ for CRS has already been adopted by Serbia since 2020). The recommendations for the Western Balkans region concern:

- What governance structure and process should be set to ensure that road safety KPIs are adequately used?
- What measures ought to be taken in the light of the findings of this report, in particular when the performance is not good?
- When and how should the data collection on seatbelts be repeated?
- For which other KPIs should data be collected in the future?
- What monitoring and dissemination mechanisms should be in place to ensure that the investment in KPIs results in progress on road safety?

5.2 Ensure good governance for road safety KPIs

It is important to have a governance system for road safety KPIs and that the data collection and analysis for KPIs is embedded within a road safety strategy at the level of each of the regional partners. This implies that there is clarity about:

- for which KPIs should data collection be undertaken
- who is responsible for the data collection and analysis
- the resources that are needed and made available for the data collection and analysis
- how dissemination of the results will take place
- how the findings of the data collection will lead to appropriate countermeasures and interventions.

In this context, the following is recommended:

- **Include KPIs in the road safety strategy and monitoring of the regional partners**
 - Integrate KPI results into road safety strategies
 - Establish a procedure for presenting KPI results to all relevant stakeholders
- **Set targets**
 - Consider targets with a time horizon of 5 and 10 years.
 - It is suggested to set a target of 40% risk reduction over 5 years and a 70% risk reduction over 10 years⁵.
 - Such targets should be set per road category and type of vehicle occupant (including rear passengers).
- **Designate an Institution or agency responsible for data collection**
 - Recognize a designated institution (e.g., a Road Safety Agency, Ministry of Transport, or Ministry of Interior) as the primary entity for KPI collection.
- **Allocate sufficient resources**
 - Allocate human and technical resources for regular KPI collection, emphasizing the importance of sustained efforts.
 - Secure a consistent budget for KPI data collection for regular reliable monitoring.

⁴ https://unece.org/fileadmin/DAM/trans/publications/WP29/CHILD_RESTRAINT_SYSTEMS_brochure.pdf

⁵ For example, if the current KPI value is 60%, the risky behaviour is 40%; a reduction with 40% would imply an increase of the KPI value to 74%; a reduction with 70% would imply an increase of the KPI value to 88%.

- **Support continuous updates and enhancements to regulations**
 - Review of the appropriateness of existing regulation
 - Consider introducing the UN R129 standard, to improve the effectiveness of child restraint systems and associated technologies.

5.3 Take appropriate measures in the light of the findings

The KPIs for seatbelt use in the Western Balkan region show that seatbelt wearing is still a major issue in the region, with a very negative impact on injuries, even for the regional partners with the best performance in the region. Implementing the following recommendations should improve adherence to safety norms:

- **Focus on particular groups**
 - Strengthen legislation requiring the use of child restraint systems
 - Boost public education on child passenger safety.
 - Implement targeted initiatives focused on increasing rear passenger seatbelt usage, considering this category often has the lowest compliance.
 - Address specifically the drivers of goods vehicles and all companies active in the transport sector.
- **Targeted awareness campaigns**
 - In all regional partners, even those with the higher values for the KPIs, targeted awareness campaigns should be implemented, focusing on the importance and benefits of seatbelt use.
 - Utilize various media channels to disseminate information on road safety statistics and the importance of safety measures, fostering a culture of road safety.
- **Better enforcement**
 - Enforcement measures should be increased, such as checks of seatbelt use, use of CRS, and abuse of the seatbelt use warning systems.
 - Regional partners should consider increasing the penalties for non-compliance.
- **Learning from good practice**
 - Regional partners could benefit by learning from countries that have considerably improved their seatbelt usage rate (e.g. Slovenia).
 - The use of ISOFIX systems in vehicles should be promoted, emphasizing their ease of use and the associated reduction in the risk of incorrect installation.

5.4 Implement a comprehensive data collection approach

KPIs have highest added value if data is collected on a regular basis. However, cost considerations and level of accuracy are also to be considered; therefore, the following is recommended:

- **Conduct seatbelt usage surveys every 2 or 3 years⁶**
 - to effectively monitor trends
 - to assess the impact of interventions and measures taken.
- **Use a comprehensive approach**
 - Use a combination of roadside observations and questionnaire surveys (e.g. ESRA) to gather comprehensive data.
 - Include a diverse range of locations (urban, rural, highways) and times (day, night, weekends) for a representative sample

⁶ This frequency is also recommended in Trendline. If sufficient resources are available and it is expected that figures will vary considerably from one year to another, the measure should be repeated annually.

- Consider a more in-depth study (using in-vehicle inspection) to analyse in more detail the use, misuse and non-use of CRS – and develop specific awareness campaigns (e.g. to sellers of CRS, to parents, ...)
- Align the timing of the awareness campaigns with increased enforcement by the police.
- **Use appropriate methodologies**
 - Adopt methodologies and guidelines for KPI collection aligned with the European Union standards to ensure consistency and comparability.
 - Use appropriate weighting methods
 - Develop the research and analysis capacity to correctly analyse and interpret the data collected for the KPIs.

5.5 Consider a range of KPIs

Over the next years, it is recommended to give priority to the following data collection process for KPIs in the Western Balkans. It is suggested that every regional partner should choose at least three but preferably five of these KPIs. The number of KPIs could be built-up over the years; it is also not necessary to repeat every measure every year.

- **Use of seatbelts and CRS (p.m. already mentioned above)**
 - Repeat the roadside observations for seatbelt and CRS use within 2 to 3 years.
 - Organise more in-depth analysis of CRS use (in-vehicle inspection).
- **Speeding**
 - Use one or more definitions from the Trendline project for speeding.
 - Use the one of the Trendline methodologies, such as the use of radars.
 - Location choice should allow for free flow of traffic.
 - Priority should be given to rural roads and motorways.
- **Distraction by mobile phone**
 - Use an approach that is similar as for seatbelt use.
 - Some locations used during the roadside observations for measuring seatbelts could also be used for measuring distraction.
- **Driving under the influence of alcohol**
 - This requires the strong cooperation with the (traffic) police.
 - This needs to be coordinated and steered by a research institute (or an organisation with sufficient scientific expertise).
 - Later a KPI for driving under the influence of drugs could be considered.
- **Safety of pedestrians**
 - A number of new indicators are currently being examined and tested within Trendline (e.g., red light negation).
 - It is also possible to create indicators based on questionnaire surveys (e.g., “subjective safety of pedestrians” can be calculated from ESRA data).
 - Western Balkan regional partners could consider one or more of these.
 - For comparability, it is suggested to that the regional partners should adhere to the same indicator definition and methodology.
- **Vehicle safety**
 - The KPI used in Trendline (which is linked to Euro NCAP scores) could be considered but does not seem the most obvious one in the Western Balkans.
 - A number of alternatives can be considered, e.g., rate of vehicles equipped with certain ADAS systems (other examples are suggested in the Baseline guidelines).
 - For comparability, it is suggested to that the regional partners should adhere to the same indicator definition and methodology.

- **Infrastructure**
 - The KPI used in Trendline does not seem the most obvious one in the Western Balkans.
 - A number of alternatives can be considered, including the definition used in Baseline or data collected through only surveys.
 - For comparability, it is suggested to that the regional partners should adhere to the same indicator definition and methodology.
- **Helmet wearing by motorcyclists and cyclists**
 - The methodology developed with Baseline and Trendline are applicable to the Western Balkans.
 - Data collection for such KPIs is only relevant in areas with sufficient numbers of cyclists or motorcyclists, and/or where there are many injured or killed cyclists and motorcyclists.
- **Post-crash response**
 - A definition and methodology exists in the Trendline guidelines.
 - Is relatively easy in case a central database exists with information about response times of emergency services.
- **Education**
 - Such indicators exist in some European countries but need to be adapted to the specific context of the Western Balkans.
 - An example is the % of primary school children who have had education on road safety and how to behave in traffic.
- **Public awareness and public support for measures**
 - This can be relatively easily measured through questionnaire surveys.
 - The importance is to choose the appropriate variables and make sure that the survey is conducted every time in the same way.

5.6 Monitor and disseminate the results

Data collection and analysis for KPIs should be part of a road safety policy monitoring system, both at the level of regional partners as for the Western Balkans as a whole (in the context of the Western Balkans Road Safety Observatory). The following is recommended:

- **Establish or adapt a road safety database**
 - At the level of the regional partners: create or adapt a centralized, accessible database for storing and analysing road safety data, allowing for efficient tracking of progress and identification of areas needing attention.
 - At the level of the Western Balkans: integrate the data on KPIs into a common database.
- **Report regularly and in a transparent way about the KPIs**
 - Regularly publish detailed reports on road safety KPIs, ensuring transparency and accountability.
 - Include in the dissemination also announcements of measures and actions that are being taken and planned for improving the situation.
 - Organize meetings and roundtables to enhance local self-government capacity, emphasizing the significance of KPIs in shaping targeted actions.
- **Establish feedback mechanisms**
 - Engage with various stakeholders, including government agencies, NGOs, and community groups, for collaborative efforts in road safety promotion.
 - Establish a feedback system to gauge public response to safety initiatives and adapt strategies accordingly.

6 Final report approval

We have reviewed the contents of this final report and agree it adequately describes the project's implementation and its key results.

TCT Contact Person

Date

References

Bijleveld, F., Boets, S., & Van den Berghe, W. (2023). *Suggested approach for weighting sample data and calculation of statistics within Trendline*. Document produced in the framework of the Trendline project.

Van den Broek, B., Aarts, L., & Silverans, P. (2022). *Baseline report on the KPI Safety belt and Child restraint systems*. Baseline project. <https://www.baseline.vias.be/storage/minisites/baseline-kpi-safety-belt-and-crs.pdf>

Appendices

Appendix 1. Update of the methodology report

(provided as a separate document in Word and pdf)

Appendix 2. Observation locations and metadata

(provided as a separate Excel document)