WESTBELT

TECHNICAL ASSISTANCE FOR COLLECTING ROAD SAFETY KPIS ON SEAT BELT AND CHILD RESTRAINT SYSTEMS IN THE WESTERN BALKANS REGION (PS/SRV/KPI/006/2023)

KPIs on Seatbelt use and CRS Results from road surveys

14 December 2023

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Introduction

- Road designer and road safety expert (PhD)
- Director of the Grant Office and Technology Transfer + R&D Director
- National Traffic Census
- Czech Road Safety Strategy and international activities, including Baseline and Trendline projects

CDV – Transport Research Centre

- established by the Ministry of Transport
- 60+ years tradition
- winner of Excellence in Road Safety Award

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Do seatbelts matter?

https://www.cdv.cz/vizenula

Czechia,

~80 fatalities per year due to not using seatbelts ~60 of them are drivers

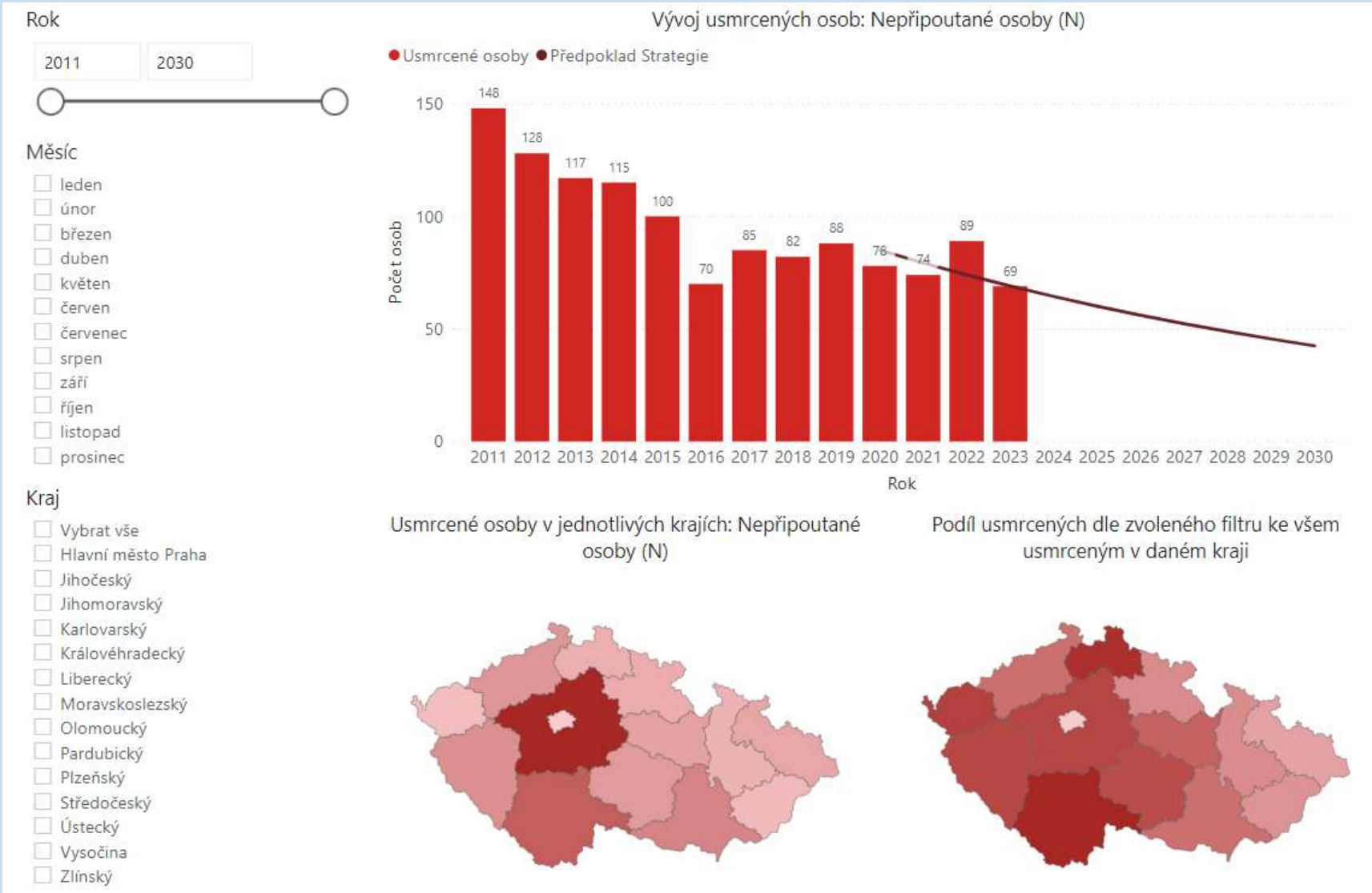
~200 fatalities of drivers

~30 % of driver fatalities without a seatbelt

KPI Seatbelt

~8% of drivers not wearing seatbelt

Seatbelts significantly lower the risk of fatal injury



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Overview

1. Introduction
2. Data collection
3. Data analysis
4. Preliminary results
5. Summary

Objectives

- To **collect and analyse data** for calculating **KPIs**
  - of the use of **seatbelts** and **child restraint systems** (CRS)
  - for each of the **six regional partners**
- To draft a series of **detailed reports** and contribute to the **dissemination** of the results
- To contribute to **capacity building** and **exchange of experience** in the region

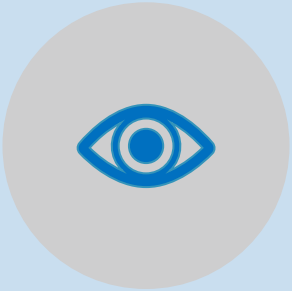
Why use road safety KPIs?

Set	Set **targets** to be achieved in the medium and long term (e.g., increase of the percentage of drivers wearing a seatbelt to 95%)
Monitor	Monitor **progress** towards targets (e.g., how far are we away from reaching the targets?)
Identify	Identify **policy measures** that need to be taken (e.g., increase enforcement by the police)
Assess	Assess whether the policy measures implemented have been **effective** (e.g., increasing the number of vehicle occupants wearing a seatbelt)
Discover	Discover changes in **contributing factors** (e.g., are females improving better than males?)

Key components of the approach

Selection of observation locations

Training of field researchers (& regional partners)



Roadside observations by field researchers

Data analysis and reporting

Criteria for selection of observation locations

Good **spread across the administrative units** of the regional partner
(regions, cantons, local self- government, police administration unit, etc.)

Variation in terms of **geographical features** (plains, coasts, hills or mountains)

Sufficient **population density** in the neighbourhood of the location and different levels of **traffic volume** (low, medium and high intensity), but avoiding locations with very low traffic

Several types of **road use** (connection between city centres, daily commute, heavy commercial traffic, recreational traffic, etc.)

Safety of the observation locations

Adequate visibility and space for making observations

Selection of observation locations

Observations of seatbelt use on URBAN and RURAL roads:

Observations of seatbelt use on MOTORWAYS:

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Minimum sample sizes

- Albania, Bosnia and Herzegovina, Kosovo, Montenegro, North Macedonia:
  - a minimum of **2000** observed vehicles overall for seat belt use, with a minimum of 750 observations for rural roads and 750 for urban roads
  - a minimum of **100** observed vehicles with children among the occupants for roadside observation of CRS use, with a minimum of 40 observations for rural and urban roads
- Serbia:
  - a minimum of **3000** observed vehicles overall for seat belt use, with a minimum of 750 observations per road type
  - a minimum of **150** observed vehicles with children among the occupants for roadside observation of CRS use, with a minimum of 20 observations per road type

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Gantt chart

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														

SPIn application

- Mobile phone application for collecting Safety Performance Indicators (SPI)
- Access to desktop version for data post-processing
- Using the application speeds up the data collection process and provides higher data quality
- Data are automatically transferred to the server

What was collected?

1. Seatbelts and CRS
2. Traffic counting → calibration

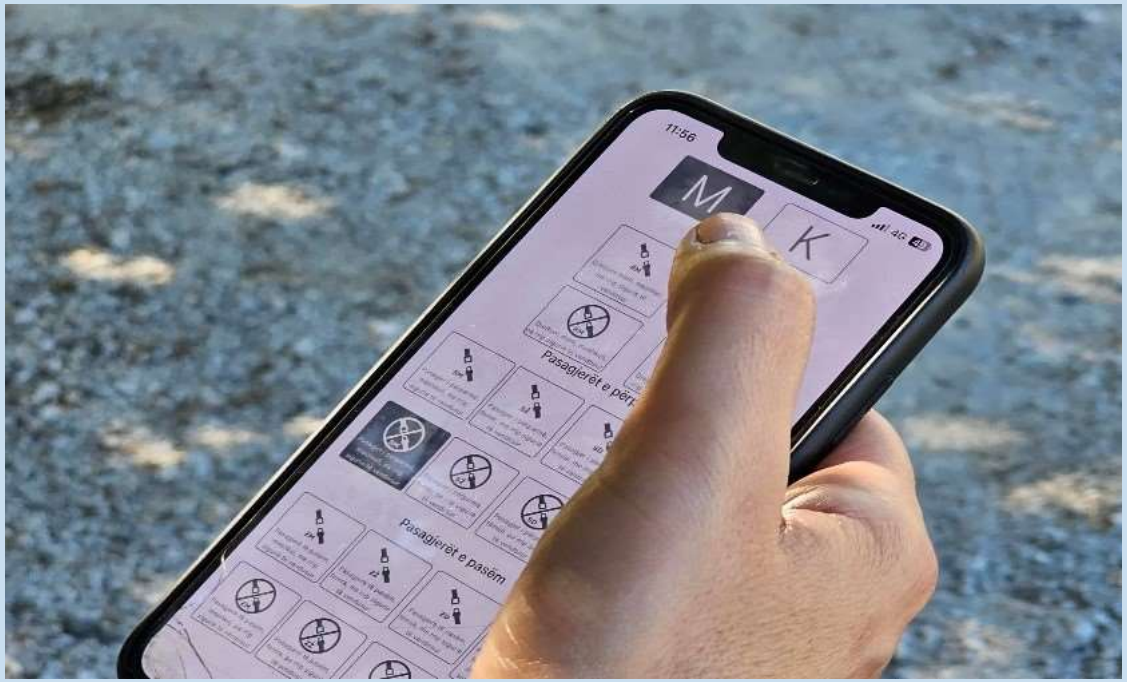
What parameters for seatbelt usage were collected

Place in the vehicle

- drivers
- front seat passengers
- rear seat passengers

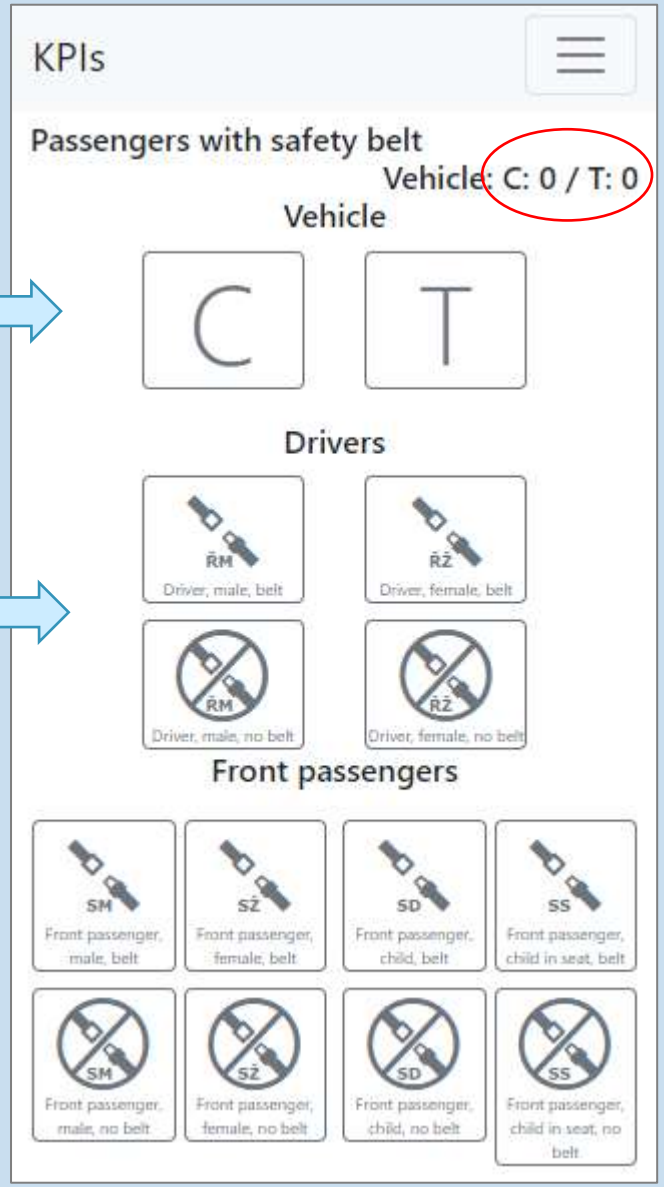
User details

- male
- female
- child
- child in seat

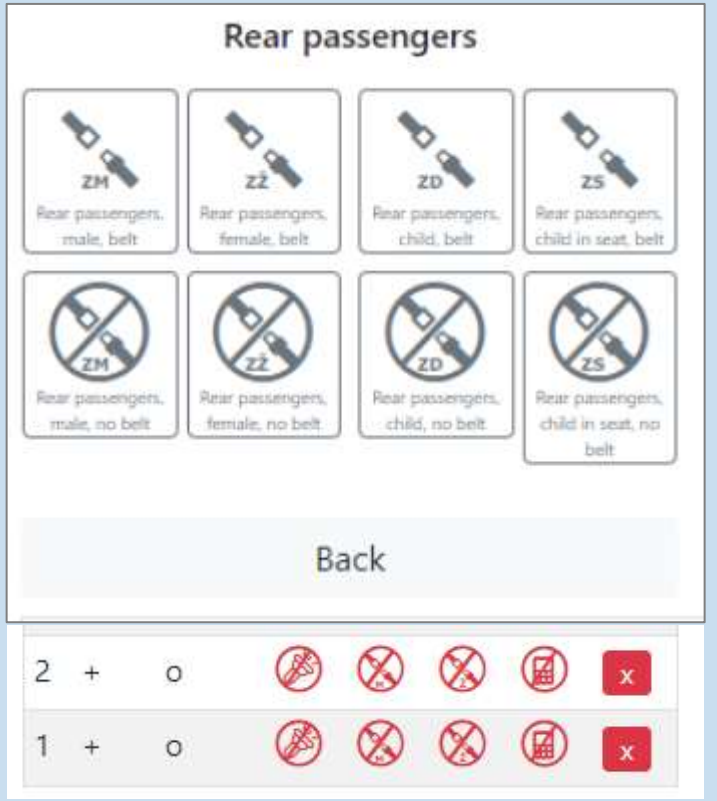


C – cars
T – commercial vehicles

safety belt use and non use



total summary



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summary of data

		Drivers		Front passengers				Rear passenger			
#	Vehicle	M	F	M	F	C	S	M	F	C	

No values collected!

Total for this collection	
Vehicles	
Car	**Truck**
0	0
Sum	0

Drivers with safety belt		Drivers without safety belt	
M	**F**	**M**	**F**
0	0	0	0
Sum		0	

Front passengers with safety belt				Front passengers without safety belt			
M	**F**	**C**	**S**	**M**	**F**	**C**	**S**
0	0	0	0	0	0	0	0
Sum in children seat				0			
Sum				0			

Rear passengers with safety belt				Rear passengers without safety belt			
M	**F**	**C**	**S**	**M**	**F**	**C**	**S**
0	0	0	0	0	0	0	0
Sum in children seat				0			
Sum				0			

Finish the collection

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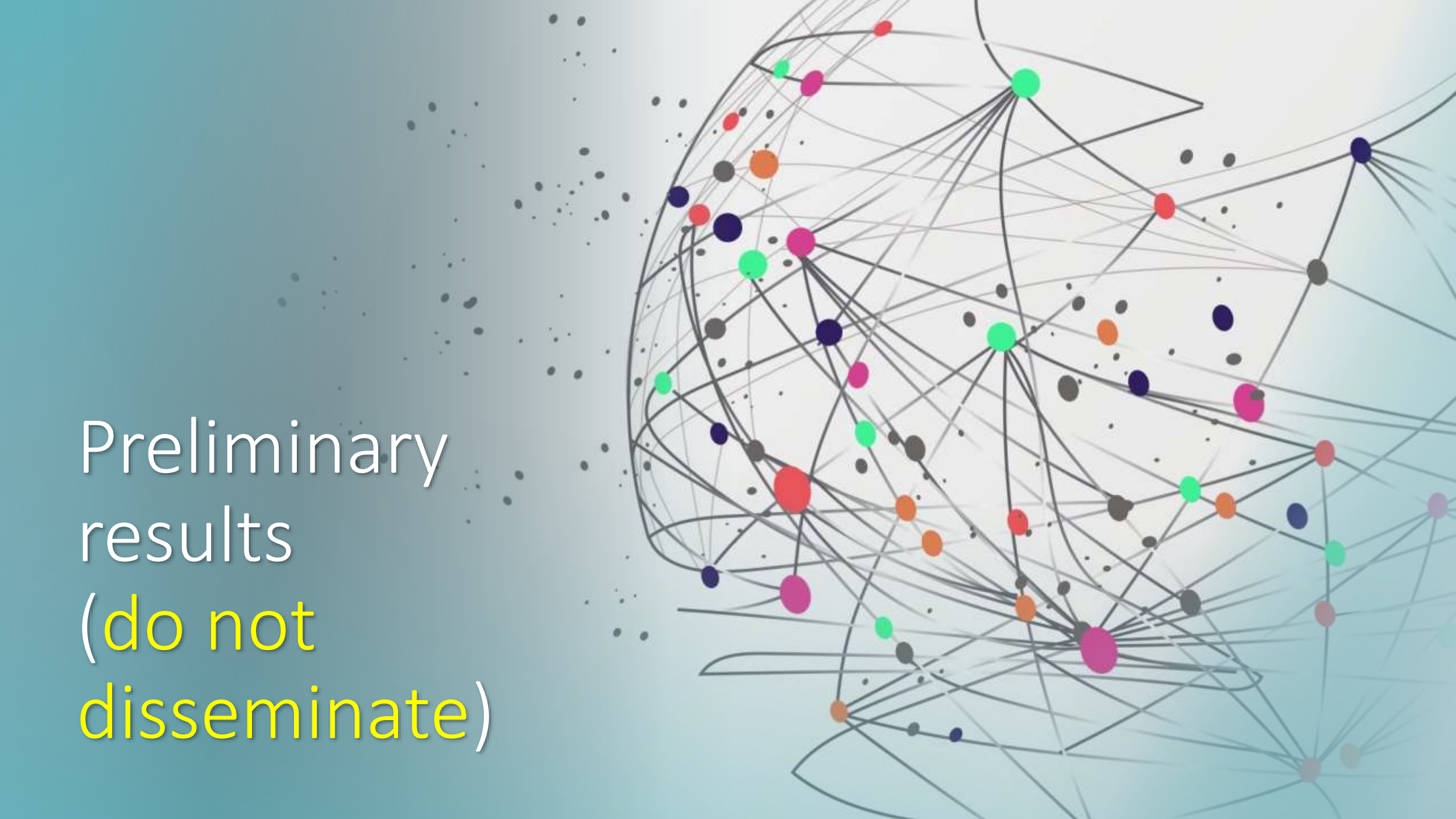
Data analysis

1. Analysis of the standard outputs from the SPIn application
2. Checking and cleaning of the data collected and preparation for analysis
3. Use of calibration data to determine the weights
4. Use of weighting factors and determination of the weighted sample
5. Calculation of the KPI values

Preliminary results (do not disseminate)



Absolute numbers (examples)

	Number of passenger cars			Number of goods vehicles	Number of vehicles
	Without children	With children	Total passenger cars		
Albania	3001	222	3223	987	4210
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	7173	53316

All Regional Partners exceeded minimal required numbers of observed vehicles.

Absolute numbers (examples)

	Number of occupants of 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

The most passengers were observed in Serbia and in Bosnia and Herzegovina (most populated Regional Partners).

General breakdown

KPI values on urban roads / rural roads / motorways

- for passenger cars, by occupant type
- for goods vehicles, by occupant type
- for passenger cars and goods vehicles combined, by occupant type

Deliverables are made – KPI for different strata

- road types
- vehicle types
- weekdays / weekends
- males / females / children

(in process: regional level KPIs)

KPI: usage of seatbelts (examples)

	URBAN ROADS - KPIs for passenger cars				
	Drivers	Front adult passengers	Rear adult passengers	Child passengers	Children in CRS
Albania	72,0	58,3	45,2	48,2	76,0
Bosnia and Herzegovina	57,8	64,0	24,0	35,9	86,1
Kosovo	43,6	52,1	0,9	8,0	88,0
Montenegro	49,1	43,8	16,0	39,0	75,1
North Macedonia	36,9	30,8	12,3	32,3	68,1
Serbia	90,2	81,5	11,9	30,0	71,9
Median value	**49,1**	**55,2**	**14,2**	**34,1**	**75,6**

Rear adult car passengers had the lowest seatbelt use rate.

KPI: usage of seatbelts (examples)

	KPIs for passenger cars on weekends				
	Drivers	Front adult passengers	Rear adult passengers	Child passengers	Child in CRS
Albania	89,3	80,2	31,8	48,4	83,3
Bosnia and Herzegovina	73,8	81,4	15,4	28,9	84,2
Kosovo	51,6	60,9	2,9	8,4	92,7
Montenegro	63,9	54,4	17,8	35,9	74,7
North Macedonia	42,6	39,9	11,9	26,6	65,1
Serbia	92,9	89,0	15,5	34,2	66,5
Median value	**68,7**	**69,3**	**15,4**	**29,5**	**74,8**

Drivers wore seatbelts more than passengers.

KPI: usage of seatbelts (examples)

Drivers	URBAN ROADS		RURAL ROADS		MOTORWAYS	
	Male drivers	Female drivers	Male drivers	Female drivers	Male drivers	Female drivers
Albania	73,5	77,3	71,0	79,2	91,8	98,0
Bosnia and Herzegovina	55,0	70,3	69,0	81,2	77,5	85,3
Kosovo	39,7	68,9	54,3	76,2	73,7	92,9
Montenegro	48,5	48,7	68,5	78,3	67,2	80,1
North Macedonia	35,1	49,6	32,6	46,2	65,3	46,6
Serbia	90,2	90,7	90,6	91,2	94,0	94,3
Median value	**51,8**	**69,6**	**68,8**	**78,8**	**75,6**	**89,1**

Women wore seatbelts more often than men.

Summary of deliverables

Initial

- Methodology
- Data set

Interim

- Inception report
- Progress report
- Final report

Final

- Overall thematic report
- Thematic report for each Regional Partner
- Brochure

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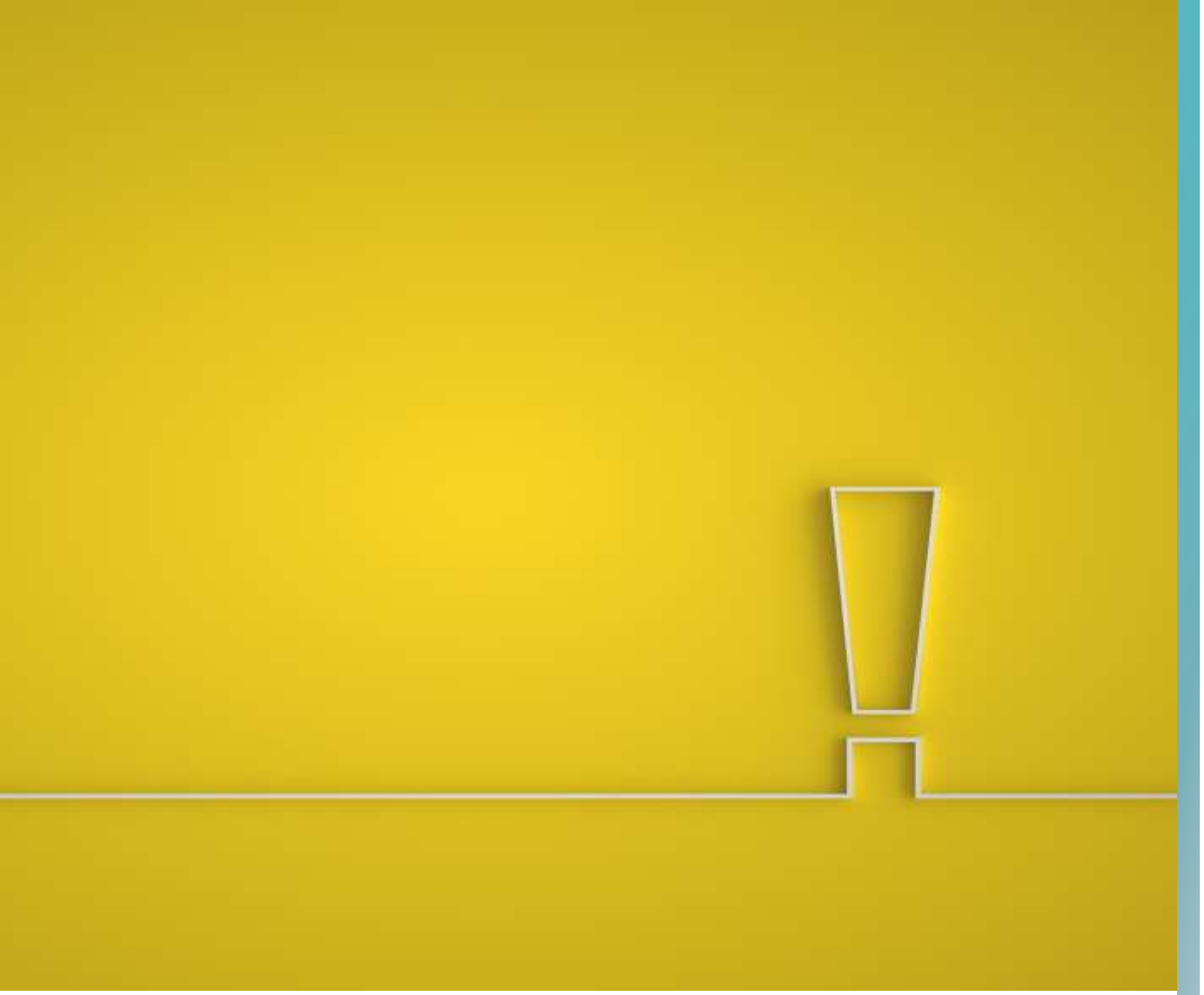
Technical Assistance for collecting Road Safety KPIs on Seat Belt and Child Restraint Systems in the Western Balkans region

Questions?



Thank you for your attention!

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