Road Infrastructure Safety in regional projects – safety for all users

Olivera ROZI

European Institute for Road Assessment – EuroRAP (EIRA-EuroRAP)

www.interreg-danube.eu/RADAR

Project co-funded by European Union funds (ERDF, IPA, ENI).

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DANUBE REGION strategy
Mobility | Rail-Road-Air

Project identity

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Who we are

Project Partners

European Institute for Road Assessment - EuroRAP, Ljubljana, Slovenia

Automobile and Motorcycle Association of Slovenia, Ljubljana, Slovenia

Road Safety Board, Vienna, Austria

Faculty of Traffic Science, Zagreb, Croatia

General Automotoclub of the Czech Republic, Prague, Czech Republic

KTI Institute for Transport Sciences Nonprofit Ltd, Budapest, Hungary

Bulgarian Association for Road Safety, Plovdiv, Bulgaria

Bosnia and Herzegovina Automobile Club, Sarajevo, BiH

Automobile Club of Moldova, Chisinau, Moldova

Associated Partners

Ministry of Infrastructure, Slovenian Infrastructure Agency, Slovenia

National Motorway Company, Ltd, Slovakia

Croatian Roads ltd, Zagreb, Croatia

The Road and Motorway Directorate of the Czech Republic

Public Company Roads of Federation of Bosnia and Herzegovina

European Union Strategy for Danube Region Priority Area 1b - Road, Rail and Air links

Ministry of Transport and Maritime Affairs, Montenegro

Road Infrastructure Agency, Bulgaria

National Company For Roads Infrastructure Administration, Romania

Ministry of Economy and Infrastructure, Moldova

iRAP, United Kingdom

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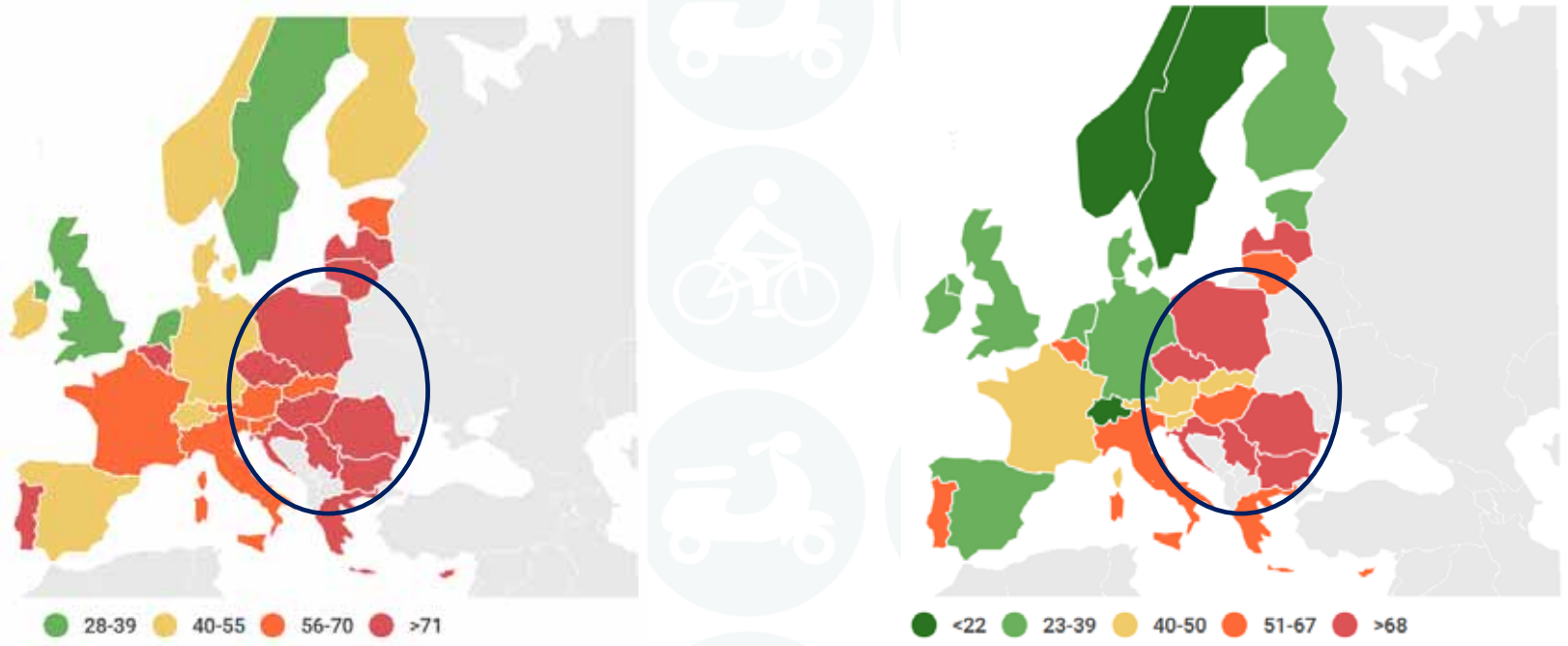
Why RADAR with one look

Road deaths per million inhabitants



2010

2019

Source: European Transport Safety Council, www.etsc.eu

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RADAR as Strategic Project

Strategic objectives

IMPROVE THE CAPACITIES TO IDENTIFY AND REDUCE RISK ON ROADS

FOSTER TRANSNATIONAL COOPERATION, EXCHANGE OF EXPERIENCE AND KNOW-HOW

DEMONSTRATION OF ROAD SAFETY LAYOUT CONCEPT SOLUTIONS

Improving Performance

- Road Safety Procedures Training Concept
- Training Courses

- Road Safety Expert Group
- Road Safety Thematic Areas Reports

- 4 pilots implementation ready design plans for road safety improvements

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Danube Infrastructure Road Safety Improvement Strategy and Action Plan

Project co-funded by European Union funds (ERDF, IPA, ENI).

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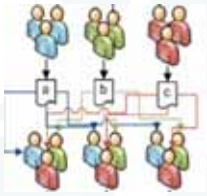
RADAR first 2 years in brief



Road Safety procedures Training Concept

- Survey on needs
- Status Report
- Training Syllabus
- All training materials and software translated to 7 principal languages of the partner countries

Training Courses

- 8 countries: 3-day live training sessions
- 4 webinars

Exchange of good practices

- 4 thematic Study Visits
  - Slovenia/Croatia – VRU
  - UK – Safer Roads Investments Plans
  - HU – Speed Management
  - AT – Safety near Schools

Road Safety Expert Group

- SAFER ROADS INVESTMENTS PLANS
- VULNERABLE ROAD USERS
- ITS AND SPEED MANAGEMENT
- ROAD SAFETY NEAR SCHOOLS

Danube Infrastructure Road Safety Improvement Strategy and Action Plans

COMING SOON!

Methodology used: EuroRAP and ViDA software

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Road Safety Procedures Training Concept

- www.interreg-danube.eu/approved-projects/radar/outputs

Training Courses

- www.interreg-danube.eu/approved-projects/radar/section/road-infrastructure-safety-training-courses

Exchange of Good Practices

- www.interreg-danube.eu/approved-projects/radar/outputs

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Next steps

4 Pilot Actions in 7 countries:
Implementation ready concept plans

COMING SOON!

4 thematic areas reports and **recommendations:**

- Safer Roads Investments Plans
- Vulnerable Road Users
- ITS provisions for Speed Management
- Road Safety Near Schools

Road Infrastructure Improvement Strategy and Action Plans

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RADAR Thematic Areas

- Safer Roads Investments Plans
- Vulnerable Road Users
- Speed Management
- Road Safety Near Schools

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TA1: How to target infrastructure spending with Safer Roads Investment Plans?

State of the art in Danube region Countries:

- No dedicated road safety fund or budget in the majority of participating countries
- Where present, there is no specific report of implementation
- About half of participating countries do use EU funding for road infrastructure safety upgrades at the moment.
- Funds often distributed ad-hoc, no systematic approach, no prioritization

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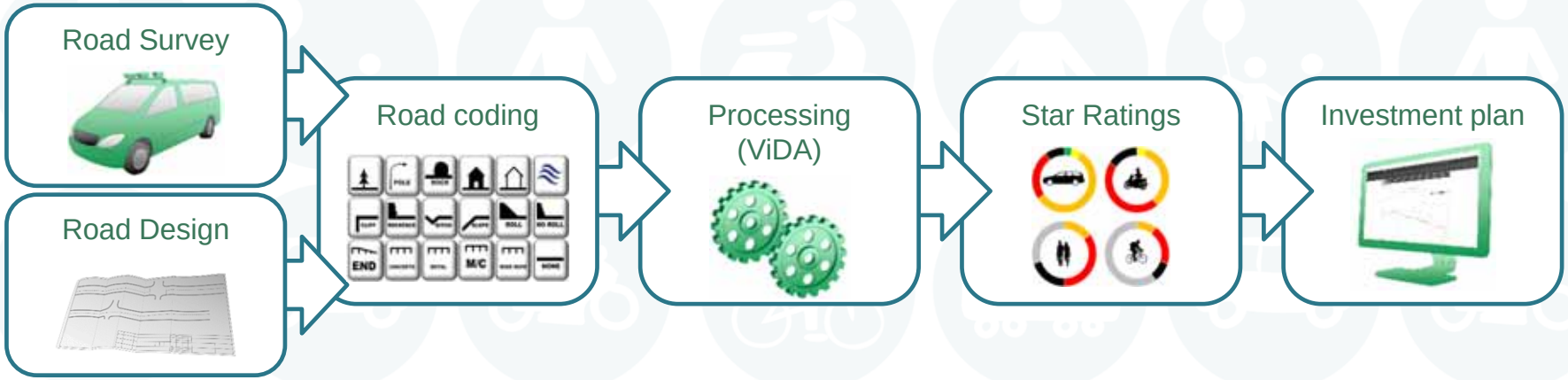
Safer Roads Investment plan



- SRIP - the final output of the iRAP road assessment procedures
- Benefit to cost ratio (BCR) is calculated for each countermeasure proposed
- Analysis of costs and benefits is country-specific, based on country's statistical value of life and the countermeasure costs

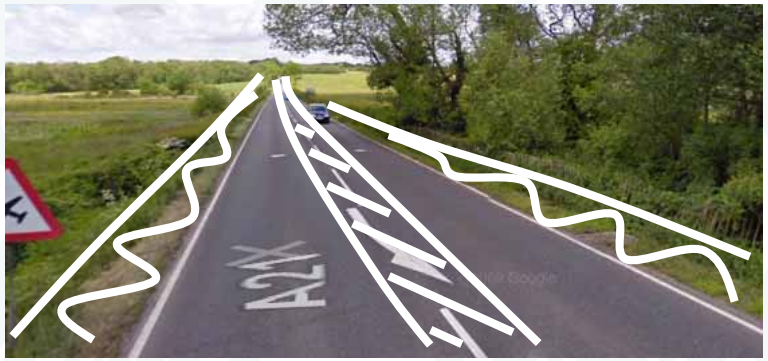
Safer Roads Investment plan

90 proven countermeasures

300+ engineering trigger sets

Calculate potential lives saved

Minimum BCR criteria set



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Example of Safer Roads Investment Plan

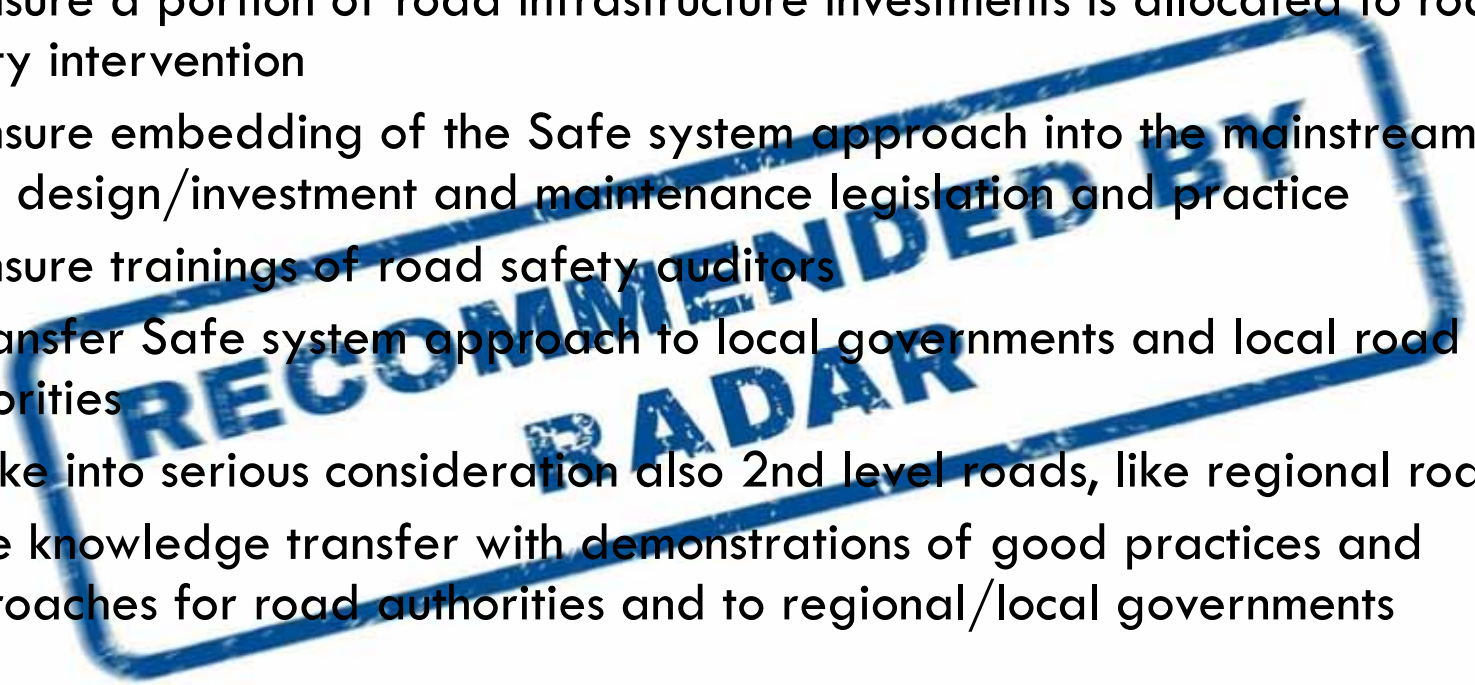
COUNTERMEASURE TYPE	LENGTH	FSI'S SAVED (20 YEARS)	PV OF SAFETY BENEFIT (20 YEARS)	ESTIMATED COST (20 YEARS)	COST PER FSI SAVED	PROGRAM BCR
ROUNDABOUT	9	23,86	6.683.573 €	1.350.000 €	56.585 €	4,95
SHOULDER SEALING (>1 M)	9,7 KM	15,09	4.227.369 €	79.100 €	5.242 €	53,44
LANE WIDENING (UP TO 0,5 M)	6,5 KM	7,88	2.208.867 €	443.520 €	56.250 €	4,98
ROADSIDE BARRIERS – RIGHT	3,6 KM	5,75	1.610.054€	151.500 €	26.362 €	10,63
ROADSIDE BARRIERS – LEFT	3,3 KM	5,03	1.409.705 €	139.500 €	27.724 €	10,11
FOOTPATH PROVISION (SEPARATED FROM ROAD)	3,5 KM	2,45	686.215 €	152.500 €	62.258 €	4,5
		58	16.139.568 €	2.163.620 €	172.163 €	7,46

Safer Roads Investment Plan enables information on:

- where the most affordable and cost-effective road improvements can be made on the network
- the number of deaths and serious injuries that would be avoided if the plans were to be implemented
- the economic benefit of the plan, in terms of the benefit-cost ratio showing returns on investment
- the cost of the plan, incorporating capital and maintenance costs
- the estimated cost per death and serious injury avoided
- the results of the plan can be displayed as the entire road network or filtered for individual road sections

Recommendations for states (governments/ministries/agencies)

- to ensure a portion of road infrastructure investments is allocated to road safety intervention
- to ensure embedding of the Safe system approach into the mainstream of road design/investment and maintenance legislation and practice
- to ensure trainings of road safety auditors
- to transfer Safe system approach to local governments and local road authorities
- to take into serious consideration also 2nd level roads, like regional roads
- make knowledge transfer with demonstrations of good practices and approaches for road authorities and to regional/local governments



Recommendation for local governments

- to start systematic road safety data collection and analysis to plan interventions/investments on most critical locations.

Recommendations for road authorities

- to form own special road safety funds within regular or investment funds dedicated for direct investments in road safety upgrades in terms of road safety equipment and measures at locations with most effectiveness

- to follow the road safety trends and good practices to plan maintenance and upgrades of existing road network in operation,

- to use the methodologies for selecting most critical locations with highest potential savings

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TA 2: What can we do for Vulnerable Road Users infrastructure safety?

AREA TYPE

UNDERREPORTING

MOST INVOLVED VRUs AGE GROUPS

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	Safe system concepts (multilateral approach)	Relevant legislation	Road planning, design, construction and maintenance	Road safety audits, assessments and projects	VRUs countermeasures selection criteria
	Harmonise and align legislation	Remove legal barriers	National laws	In-country regulations	Sub-normative acts and ordinances
	Unified protocol for VRUs risk assessment	Official, standardised methodology	Objective road safety indicators	Defined minimal threshold values for road safety indicators	Comparable results
	Standardised countermeasures implementation process	Objective criteria	Considers AADT, peak-hour VRUs flows and Vo	Defined threshold values of Vo and AADT for segregation	CBA, tactical urbanism, space-wise planning and stakeholder inputs
	Develop or restructure and link relevant databases	Periodically collect supporting data	Link police database with hospital data	Develop new analytical software	Provide free and easy access to all stakeholders
	Improve traffic culture and public awareness	Trainings for children in kindergartens and schools	National campaigns and conferences for VRUs	Disseminating information to the public by various media sources	

TA3 Smart Speed Management Infrastructure

Speeding and speed limits

- Absolute speeding
- Relative speeding

- Speed has a direct influence on crash occurrence

	Built-up areas	Rural roads	Motor roads	Motorways
Austria	50	100	100	130
Montenegro	50	80	100	130
Greece	50	90	110	130
Romania	50	90	100	130
Slovenia	50	90	110	130
Bosnia and Herzegovina	50	80	100	130
Bulgaria	50	90	120	140
Croatia	50	90	110	130
Hungary	50	90	110	130

Project co-funded by European Union funds (ERDF, IPA, ENI).

Recommendations for state governments/ministries/agencies

- To define – at least on long run - a national minimal standard for the safety of existing and new roads based on one of the internationally recognized methodologies. To elaborate guidelines for Intelligent Transportation System, speed management and traffic calming approaches;
- To ensure certain portion of road infrastructure investments is allocated to road safety intervention;
- To ensure embedding of the Safe System approach into the mainstream of road design/investment and maintenance legislation and practice;
- To ensure trainings of road safety auditors;
- To transfer Safe system approach to local governments and local road authorities;
- To take into serious consideration also 2nd level roads, like regional roads;
- Make knowledge transfer with demonstrations of good practices and approaches for road authorities and to regional/local governments.

Project co-funded by European Union funds (ERDF, IPA, ENI).

Recommendations for local governments

- To start systematic road safety data collection and analysis to plan interventions/investments on most critical locations.
- New ideas and recommendations:
  - Speed-activated warning signs (e.g. “Slow down” in the approach of bends and other dangerous locations);
  - Variable speed limit signs on high-level roads (traffic and/or weather-dependent);
  - Time-dependent speed limits, e.g. in the vicinity of schools during opening hours;
  - Transversal rumble strips in the approach of junctions or sharp bends;
  - Efficiency of administration of fines from automatic speed enforcement;
  - Lack of resources among authorities tasked with the issuing of fines;
  - Different degrees of automation (centralized & nearly full automation in France. Inefficient manual processing in other countries).

Project co-funded by European Union funds (ERDF, IPA, ENI).

Recommendations for road authorities

- Speed limits setting: elaboration and continuous revision of guidelines & systematic implementation;
- Speed limits consistency: differentiated speed limits depending on the function, alignment, volume and structure of traffic must be defined, in accordance with the reasonable local speed limits;
- Speed enforcement: implementation of section control, minimization of the obstacles in violation, processing procedures;
- Speed data collection and analysis: systematic collection of speed data development of anonymized speed database. Further development of the methodology of analysis (for example speed development by road types, etc.)

Project co-funded by European Union funds (ERDF, IPA, ENI).

Road Infrastructure Safety near Schools in Danube region

- A free to use tool for treatment support and infrastructure assessment www.starratingforschools.org

Project co-funded by European Union funds (ERDF, IPA, ENI).

Recommendations for state authorities

- Develop and support specific design guidelines for road sections in the vicinity of schools,
- Define in the Road Traffic Code special speed limits to be applied on road sections in the vicinity of schools,
- Ensure adequate funding for road safety interventions in primary roads in the vicinity of schools,
- Ensure embedding of the Safe System approach into the mainstream of road design/investment and maintenance legislation and practice,
- Start systematic collection of data on road crashes near schools and related casualties,
- Systematically estimate and publish key performance indicators on the road network around schools,
- Transfer Safe system approach to local governments and local road authorities,
- Support knowledge transfer with demonstrations of good practices and approaches towards road authorities and regional/ local governments.

Project co-funded by European Union funds (ERDF, IPA, ENI).

Recommendations for local governments

- Ensure adequate funding for road safety interventions in local roads in the vicinity of schools,
- Start systematic collection of data on road crashes near schools and related casualties,
- Organize educational campaigns to promote safer transport to/ from schools.

Project co-funded by European Union funds (ERDF, IPA, ENI).

Recommendations for road authorities

- Form own special road safety funds within regular or investment funds dedicated for direct investments in road safety, to implement upgrades in the vicinity of schools
- Follow the road safety trends and good practices to plan maintenance and upgrade of existing road network in the vicinity of schools,
- Use appropriate methodologies to identify hazardous locations near schools and the causes of road safety problems, identify intervention priorities and implement countermeasures,
- Conduct "before and after" studies to evaluate the road safety effect of implemented interventions.

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SABRINA: Safer Bicycle Routes in Danube Area

Project duration:
1 July 2020–31 December 2022

Project budget:
Overall: 2,086,019.00 €
ERDF Contribution: 1,701,992.40 €
ENI Contribution: 71,123.75 €

Priority:
Better connected and energy responsible Danube region.

Specific objective:
Support environmentally friendly and safe transport systems and balanced accessibility of urban and rural areas.

Source: www.slovenia.info, Photo: Tomo Jeseničnik

www.interreg-danube.eu/SABRINA

Project co-funded by European Union funds (ERDF, IPA, ENI).

SABRINA in a nutshell

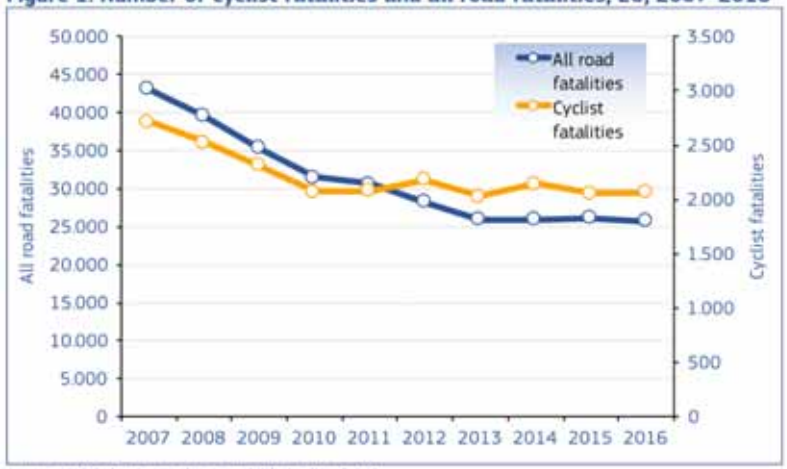
Maps infrastructure risks on existing Danube region EuroVelo routes and provides a strategic decision-making toolkit that will:

- increase stakeholders' capacity in all stages of decision making,
- build up knowledge and cooperation at different levels,
- prevent the development of killer cycling infrastructure in early stages of development.

Project co-funded by European Union funds (ERDF, IPA, ENI).

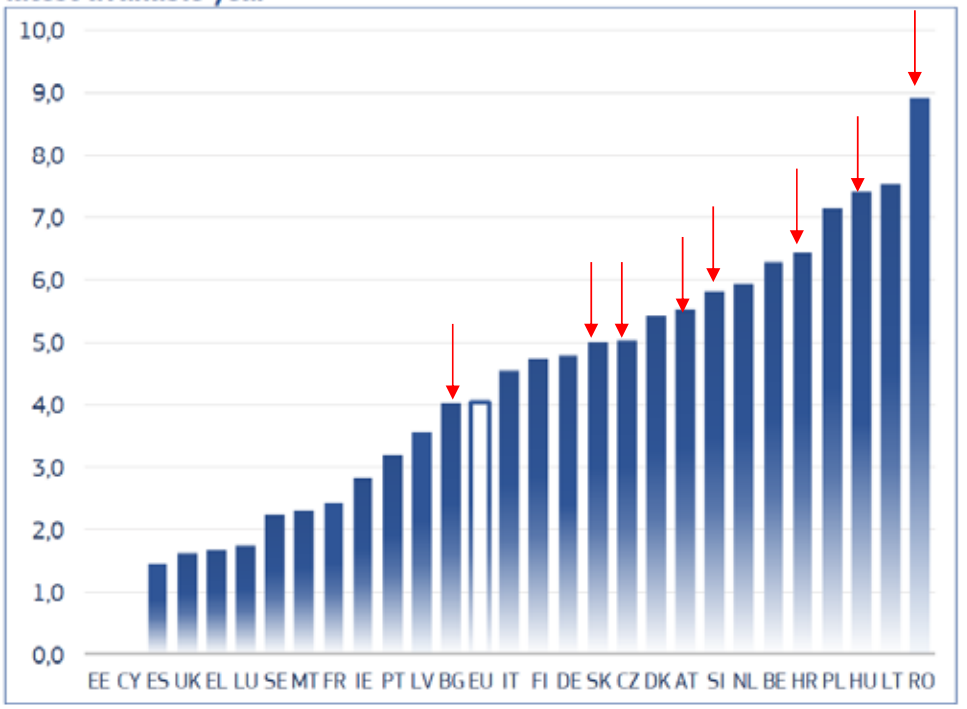
Some statistics

Figure 1: Number of cyclist fatalities and all road fatalities, EU, 2007-2016



Source: CARE database, data available in May 2018

Figure 3: Cyclist fatality rates per million population by country, 2016 or latest available year



Sources: CARE database (EUROSTAT for population data), data available in May 2018

European Commission, Traffic Safety Basic Facts on Cyclists, European Commission, Directorate General for Transport, June 2018.

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Projects component parts

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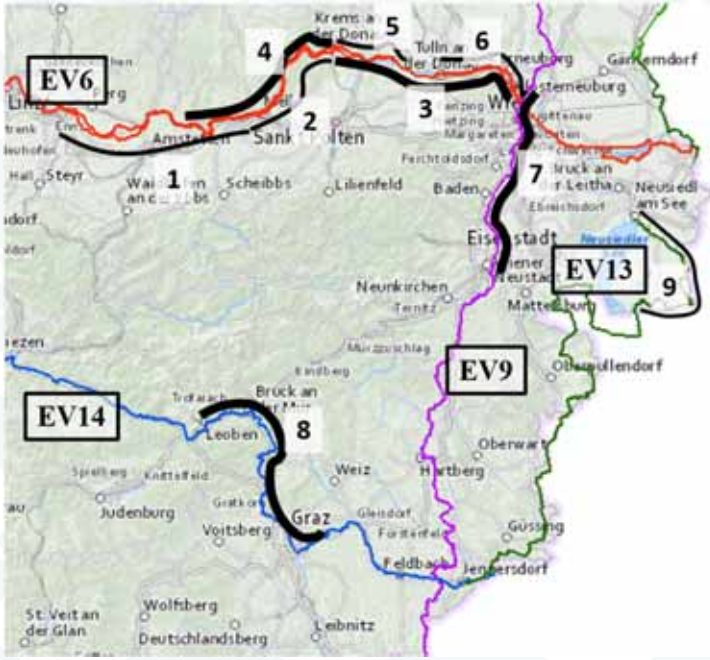
T1: Inspection and Safety Ratings of Bicycle Routes



- Network Definition
- Maps
- Inspections and Coding
- Analysis reporting and Safety Ratings
- Methodologies Capitalisation

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T1: Inspection and Safety Ratings of Bicycle Routes- Outputs

- Infrastructure Star Rating Maps
- Inspection database

Project co-funded by European Union funds (ERDF, IPA, ENI).

T2: Good Practice Analysis

Analysis of data collected during surveys

Desk research

Stakeholders Consultations

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T2 Good Practices Analysis Outputs

- Best practice bicycle safety improvement fact sheets
- Recommendation for implementation of best practices
- National Consultations Report

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T3: Strategic Decision-Making Toolkit

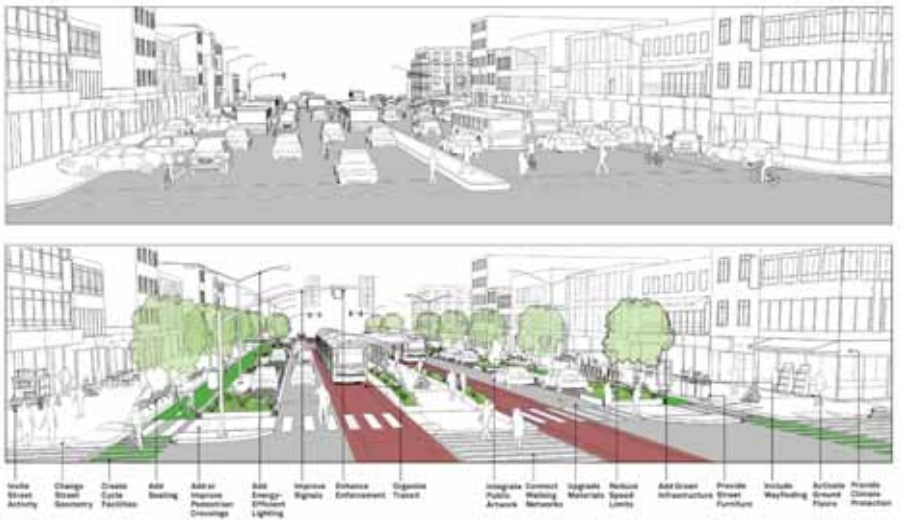


Photo: RAP Star Ratings of NACTO-GDCI's Global Street Design Guide

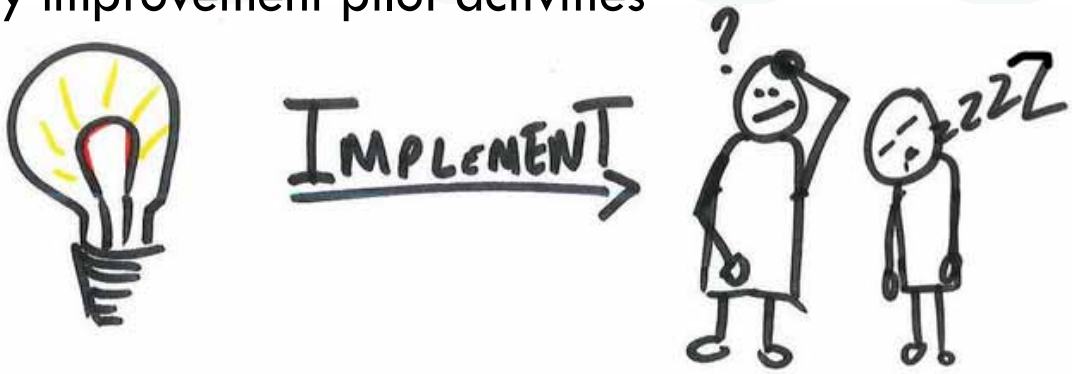
- AIM: To provide users of cycling infrastructure and road safety authorities and stakeholders with interactive web platform Safe Cycling Routes Toolkit – SCRT that will enable users to select recommended strategies and countermeasures for bicycle road safety improvements

Project co-funded by European Union funds (ERDF, IPA, ENI).

T4: Pilots and Trainings

Learning activities will combine trainings and pilot actions to demonstrate use of Safe Cycling Routes Toolkit

- Training course concept on improving bicycle road safety
- Training courses
- Cycling infrastructure safety improvement pilot activities
  - Missing link planning
  - Star rating of design
  - Safer cycling infrastructure



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A vision and strategy
aren't enough.
The long-term key
to success is
execution.
Each day. Every day.

Richard M. Kovacevich

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