



SLAIN

Saving Lives Assessing and Improving TEN-T Road Network Safety

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*saving lives by extending
Directive 2008/96/EC
in Croatia, Greece, Italy and Spain*



EuroRAP previous EU projects

- ▶ *EuroRAP I – EUR 1.1m project, 2002-3 – 3 country pilot*
- ▶ *EuroRAP II (for the programme's continued development and expansion)– EUR 2.0m project, 2004-05*
- ▶ *European Road Safety Atlas EUR 2.3m project, 2008-2010 – mapping in 21 countries*
- ▶ *SENSoR Project (South East Europe) 2013-15 – 14 countries*
- ▶ *Danube Strategy START programme RADAR 2014-15 – EUR 39k*
- ▶ *Interreg Danube Transnational Programme – RADAR (Risk Assessment on Danube Area Roads), EUR 2.15m in 12 countries of Danube region 2018-2021 – 10 Project Partners, 12 ASPs, 13 countries*



Connecting Europe Facility (CEF) – “SLAIN”

- ▶ 8 beneficiaries, 4 countries of activity plus Belgium
- ▶ EUR 1.9m
- ▶ 2 Years, 2019-2021
- ▶ Eight activities to support and encourage the amendments of Directive 2008/96/EC
- ▶ EuroRAP, university, road authorities, road agencies, non-governmental organisation





Beneficiaries

1. *EuroRAP - iRAP*
2. *Anas – road authority (new partner, high on European experience)*
3. *FPZ – University of Zagreb (partner in other projects since 2010)*
4. *RSI 'Panos Mylonas' (Partners with EuroRAP since 2010)*
5. *RACC-ACASA (Partners since 2000, EuroRAP Board member)*
6. *DGT Spain (long-term partner of RACC)*
7. *SCT Spain (Catalonia) (Partners with EuroRAP since 2000)*
8. *TES Spain (Catalonia) (Long-term partner of RACC)*



Star Rating and Crash Risk Mapping

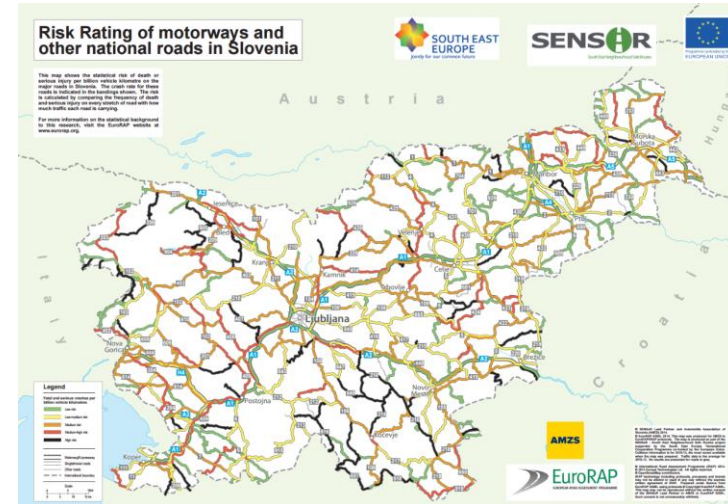
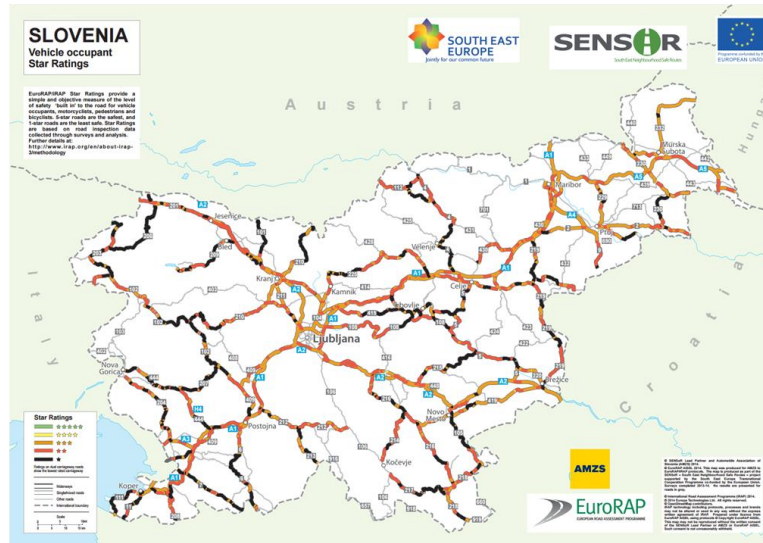
“once you can measure, you can manage”

Star Rating: like NCAP, RAP measures built-in safety of road infrastructure

Crash Risk Mapping: measures system safety



Once Star Rating is measured, high return **Safer Road Investment Plans** can be generated.



Risk Mapping enables performance tracking

Maps: a common language for public, elected members, police, engineers, Treasuries, Banks...



Risk Mapping of death and serious injury

- ▶ *Maps showing total risk as an overall part of network-wide road assessment*
- ▶ *Output:*
 - ▶ *4 Crash Risk Maps (approx. 8,000km)*
 - ▶ *Performance tracking*
- ▶ *Supporting Articles 5 and 6 of Directive 2008/96/EC and EC proposal 2018/0129 (COD) amending the Directive, in particular Articles 5 (new methods of safety ranking), Article 6 (proactive safety inspections) and the new Article 11a (reporting requirements)*



Star Rating

- ▶ *Maps showing total risk as an overall part of network-wide road assessment, together with investment plans*
- ▶ *Output:*
 - ▶ *Croatia, Italy & Spain (approx. 4,000km)*

- ▶ *Supporting Articles 5 and 6 of Directive 2008/96/EC and EC proposal 2018/0129 (COD) amending the Directive, in particular Article 5 (new methods of safety ranking), Article 6 (proactive safety inspections) and the new Article 11a (reporting requirements)*



Technical justification for network-wide road assessment

- ▶ *Compare network-wide road assessment alongside other methods*
- ▶ *Output:*
 - ▶ *production of a technical justification report*

- ▶ *Supporting Articles 5 and 6 of Directive 2008/96/EC and EC proposal 2018/0129 (COD) amending the Directive, in particular Article 5 (new methods of safety ranking), Article 6 (proactive safety inspections) and the new Article 11a (reporting requirements)*

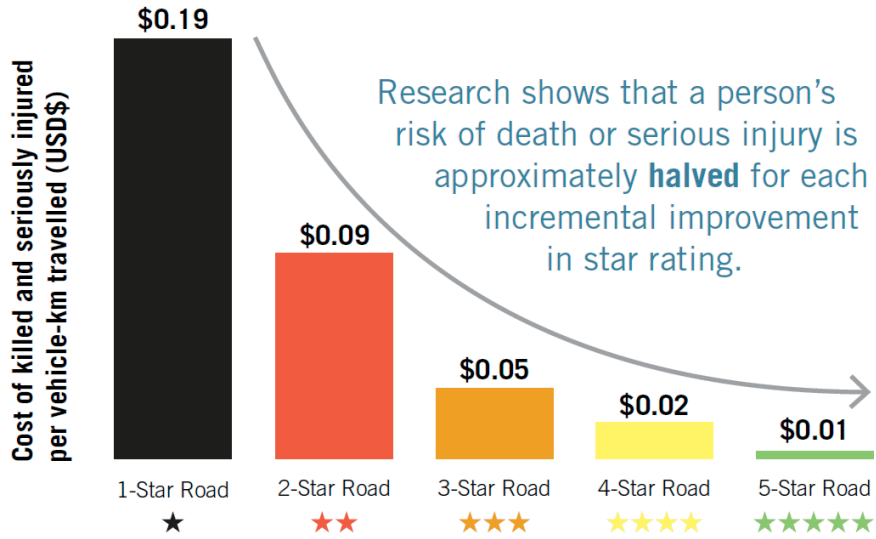


“How to” guide for network-wide road assessment

- ▶ *Production of a “How to” guide*
- ▶ *Output:*
 - ▶ *manual for network-wide road assessment*

- ▶ *Supporting Articles 5 and 6 of Directive 2008/96/EC and EC proposal 2018/0129 (COD) amending the Directive, in particular Article 5 (new methods of safety ranking), Article 6 (proactive safety inspections) and the new Article 11a (reporting requirements)*

3-Star or Better: Global Safety Benchmark

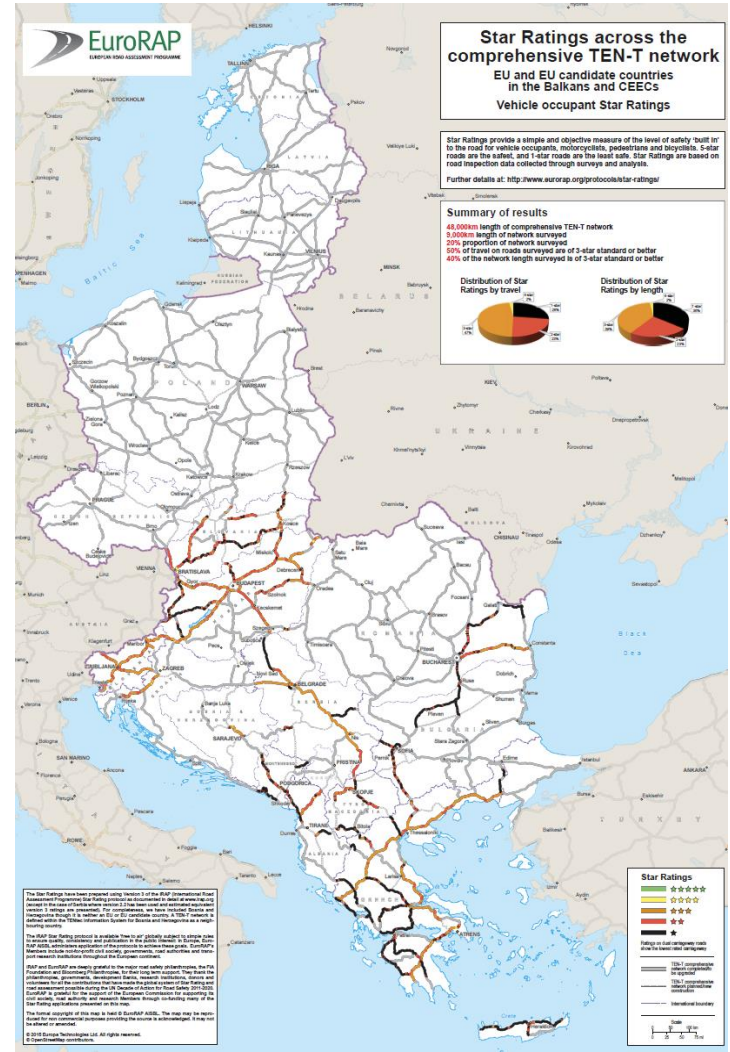


Source: OECD (2016)

TARGET 3 2030 ★★ ★★

Target 3: By 2030, all new roads achieve technical standards for all road users that take into account road safety, or meet a three star rating or better.

Today, just 44% of travel at 3-Star or better on comprehensive TEN-T in eastern Europe





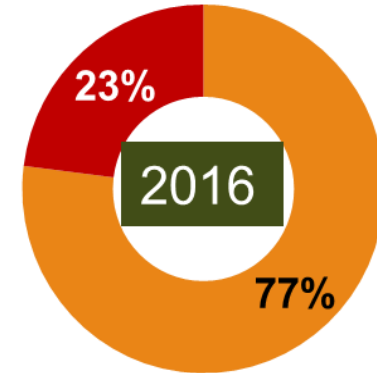
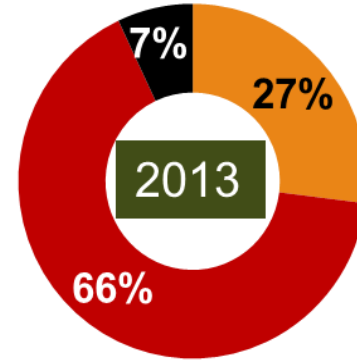
Technical analyses and estimates of safety of the entire core TEN-T network

- ▶ *Estimate a budget for individual European countries which could be implemented in practice to deliver major savings in serious road trauma and with high economic returns.*
- ▶ *Output:*
 - ▶ *Identify measures that will raise roads to 3-star or better through crash countermeasure budgets proposed for the 1- and 2-star road length*
- ▶ *Supporting Articles 5 and 6 of Directive 2008/96/EC and EC proposal 2018/0129 (COD) amending the Directive and making the general case for network investment*



Case studies e.g. Slovakia: Safer Road Investment Plan (SRIP)

- ▶ More than HALF inspected major roads were 2-stars or less
- ▶ Safer Road Investment Plan implemented on 327kms
- ▶ cost €40m, 27% to 77% at 3-Star
- ▶ 350 KSI saved over economic life
- ▶ Now 3-Star+ for all motorways





Slovakia: Example Countermeasures

D1 Trnava – Lúka Junction

- ✓ completion of safety barriers, passenger side
- ✓ sealed shoulder extension, passenger side



▶ 2013

▶ 2016

- ✓ installing of energy-absorbing barrier ends
- ✓ sealed shoulder extension, driver side





Case studies using the application of network-wide road assessment

- ▶ *Identification, data collection-analyses, before-after assessment*
- ▶ *Output :*
 - ▶ *100+ Case Studies to demonstrate:*
 - ▶ *Risk Mapping to guide selective Star Rating*
 - ▶ *Before and after studies of network upgrading*
 - ▶ *Identifying road sections to install 2+1 barrier*
 - ▶ *Maintenance-only remedies*
 - ▶ *Network-wide road assessment and Star Rating from Design Plans*
- ▶ *Supporting Articles 5 and 6 of Directive 2008/96/EC and EC proposal 2018/0129 (COD) amending the Directive, in particular Article 5 (new methods of safety ranking), Article 6 (proactive safety inspections)*



“Roads that cars can read IV”





Preparing the physical infrastructure for automation

- ▶ *Survey of quality of road markings in four Mediterranean countries (2,000km)*
- ▶ *Consultation on definition of a good vertical sign for automated vehicles*
- ▶ *Software development to enable data capture for survey of roads*
- ▶ *Output:*
 - ▶ *proposal for a vertical road sign readable by automated vehicles*
 - ▶ *assessment report of Europe's roads that have high standard horizontal marking*
 - ▶ *research needs to meet the safety of automated cars*
 - ▶ *review of what is required for improvements in the automatic coding of road networks*
- ▶ *Supporting EC proposal 2018/0129 (COD) amending the Directive, in particular (section 3, page 7) "the wish to support a degree of harmonization of the physical infrastructure to allow the smooth roll-out of higher levels of automation and to ensure that automated vehicles operate safely in mixed traffic"*



Continuous advocacy and communication to support the amendment of the road infrastructure safety management Directive

THANK YOU FOR YOUR ATTENTION