



Network-wide Road Safety Assessment (Article 5) of RISM II

January 16, 2023

Network-wide Road Safety Assessment

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Unit C.2 – Road Safety

Presentation Outline

1. RISM Directive
2. RISM Study
 - Overview
 - Objectives
 - Status
 - Outcome
3. Role of EGRIS
4. Methodology Advantages



DIRECTIVE (EU) 2019/1936 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

of 23 October 2019

amending Directive 2008/96/EC on road infrastructure safety management

- Briefly, the Directive is about:
 - Road networks – *increase safety on roads, prevent/avoid crashes, mitigate consequences of accidents*
 - Procedures – *audits, assessments, inspections, management*

- Amendments
 - Scope extension
 - Enhancing provisions (e.g., VRUs)
 - Network-wide road safety assessment

DIRECTIVE (EU) 2019/1936 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

of 23 October 2019

amending Directive 2008/96/EC on road infrastructure safety management

➤ Amendments

▪ Scope extension:

- TEN-T networks
- EU-funded roads
- + **Motorways**
- + **Primary roads**
- Member States may:
 - Exempt primary roads with low risk
 - Include additional roads

DIRECTIVE (EU) 2019/1936 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

of 23 October 2019

amending Directive 2008/96/EC on road infrastructure safety management

➤ Amendments

- Enhancing provisions:
 - Systematic inclusion of Vulnerable Road Users — MS to take account of particular needs in all procedures

 - Road markings & signs
 - Readability & detectability – MS to pay specific attention
 - Common specifications

 - Information & Transparency

Article 5: Network-wide road safety assessment

- **Network-wide road safety assessments** shall evaluate crash and impact severity risk, based on:
 - primarily, a visual examination, either on site or by electronic means, of the **design characteristics** of the road (in-built safety); and
 - an analysis of sections of the road network which have been in operation for more than three years and upon which a large number of **serious crashes** in proportion to the traffic flow have occurred
- Based on the results of the assessment, Member States shall classify all sections of the road network in **no fewer than three categories** according to their level of safety.
- Member States shall **complete** this assessment by the end of 2024 and then, re-assess the roads every 5 years.

Importance of Network-Wide Road Safety Assessment

Multiple reasons dictate the implementation of network-wide road safety assessment methods, as these methods can:

- provide the **wide picture** about the entire road network safety level,
- combine the **advantages** of both reactive (crash analysis) and proactive (in-built safety) assessments
- assist more **efficient allocation of resources** for road infrastructure safety improvements
- motivate stakeholders to initiate **further actions** for road safety
- inform road users on the most/least **safe routes**


NetSafety

Study on a Methodology for Network-wide Road Assessment

(in response to call for tenders: N° MOVE/C2/SER/2019-547)

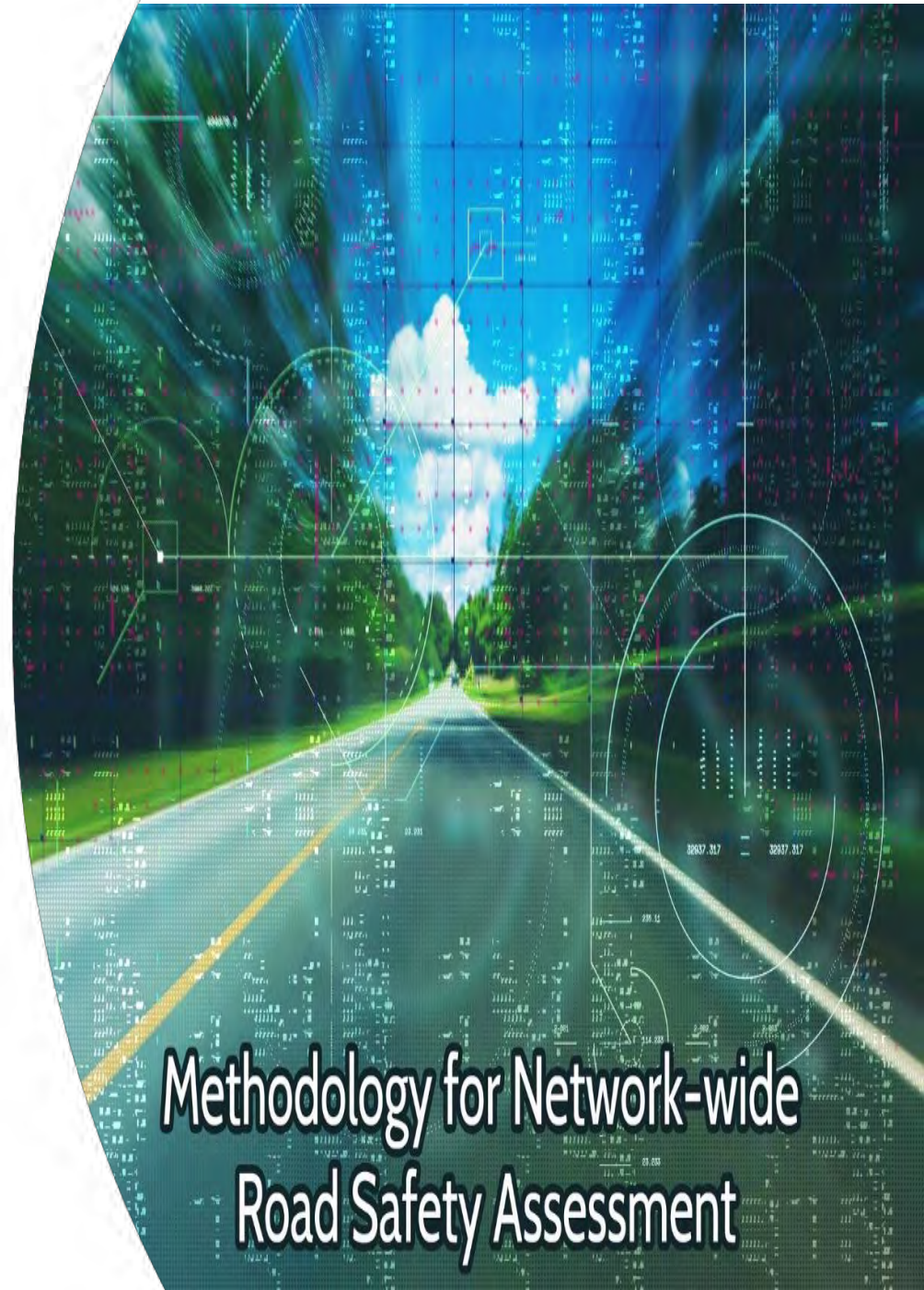
Project team

 National Technical University of Athens (NTUA),
Greece

 University of Zagreb Faculty of Transport and
Traffic Sciences (FPZ), Croatia

 FRED Engineering s.r.l. (FRED), Italy

**Methodology for Network-wide
Road Safety Assessment**



RISM Study Objectives

This project aims to develop an **integrated methodology** for a common **network-wide** road safety assessment and a common safety rating system for classification of the existing road network in categories, in accordance to the provisions of **Directive 2019/1936/EC**.

The methodology developed:

- integrates **proactive** (in-built safety) and **reactive** (crash occurrence) safety assessments,
- **achieves a balance** between accuracy, validity, data needs and ease of use,
- is **flexible** enough to allow its common implementation in all Member States
- is **transparent**



RISM Study Tasks & Status

T.1 Review and Inventory of Methodologies and Practices
(completed)

T.2 Assessment of the in-built safety of roads *(completed)*

T.3 Assessment of roads on the basis of crash occurrence
(completed)

T.4 Integrated methodology for network wide road safety assessments *(completed)*

T.5 Network wide road safety assessments in EU Member States *(on-going)*

T.6 Outreach activities & Reporting *(on-going)*



RISM Study Outcome – NWA methodologies

- The **NWA-proactive** methodology ranks road sections based on their in-built safety characteristics.
- Sections are classified as:
 - Low risk (**class 1**)
 - Intermediate risk (**class 2**)
 - High risk (**class 3**)

- The **NWA-reactive** methodology ranks road sections based on their crash statistics.
- Sections/ junctions) are classified as:
 - Low risk (**class 1**)
 - Unsure (**class 2**)
 - High risk (**class 3**)

- The **NWA-integrated** methodology based on a set of rules, combines the ranking of the two other methodologies in the final ranking consisting of 5 classes:

Very High Priority
(class 5)

High Priority
(class 4)

Intermediate Priority
(class 3)

Low Priority
(class 2)

Very Low Priority
(class 1)

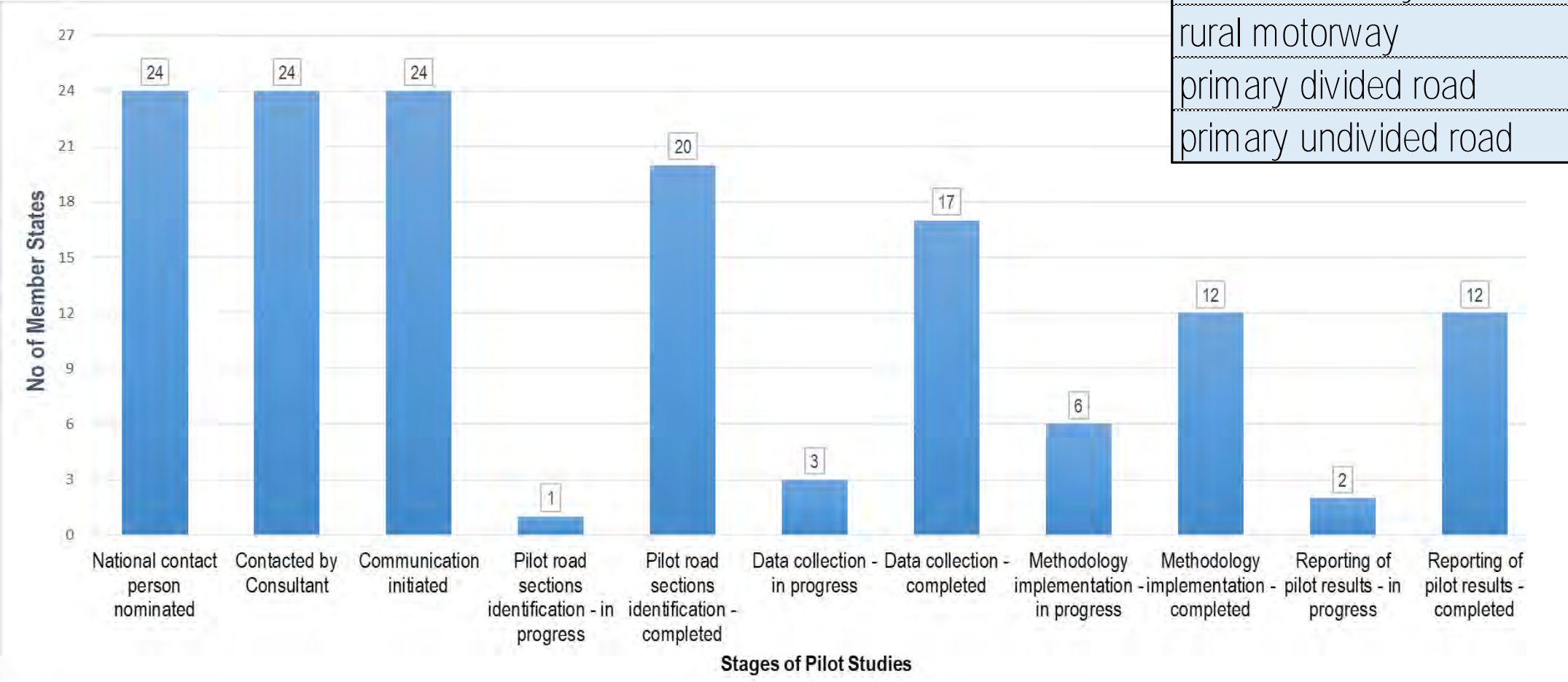
RISM Study Outcome – Deliverables

- The methodology is described in 3 Deliverables:
 - Deliverable D2: Assessment and rating of the in-built safety of roads
 - Deliverable D3: Assessment of roads on the basis of crash occurrence
 - Deliverable D4_1: Integrated network-wide safety assessment methodology
- The guidelines to implement the methodology are presented in a comprehensive manner along with supporting material (Excel-based tools):
 - Deliverable D.4.2 - Network-wide safety assessment tool and guidance document

At this stage, the methodology and all supporting material are in place and therefore, MS can properly meet the 2024 deadline.

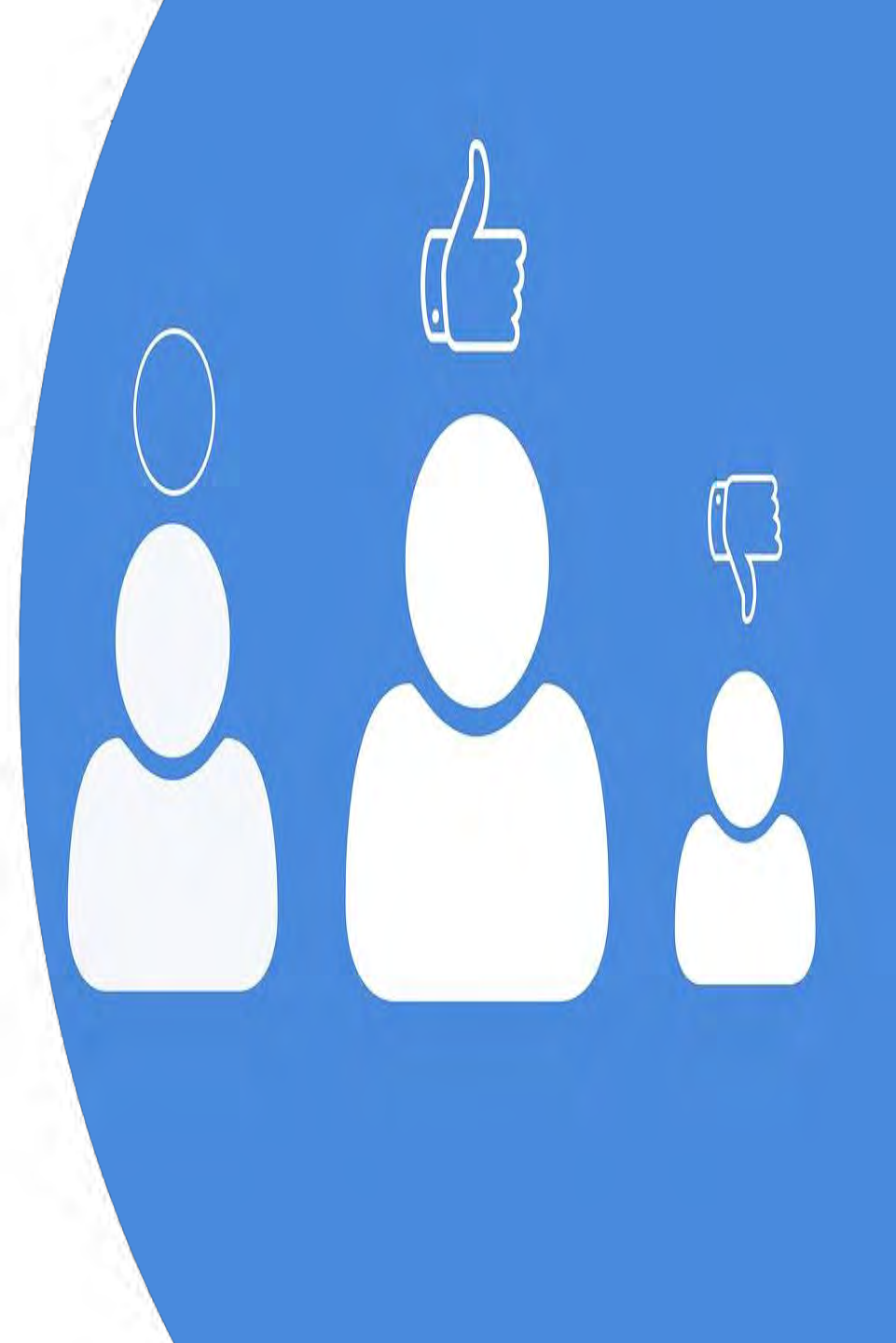
RISM Study Outcome – Pilot studies

Road types	Total KM
urban motorway	28
rural motorway	464.4
primary divided road	132.5
primary undivided road	291



EGRIS Members

- EGRIS **Plenary and SG2** Members played a very important role throughout the RISM Study.
- Feedback on **technical aspects** provided during the EGRIS SG2 meetings assisted in developing a significantly sound methodology.
- Through the presence of various entities, it is ensured that **all views** were considered in the methodology (e.g., cyclists, motorway concessionaires, etc.).
- EGRIS Plenary Members bring up **national insights**, which were incorporated in the methodology to ensure that it is flexible enough to accommodate various needs.



EGRIS Members

- EGRIS Members have had an important role in the initiation and implementation the **pilot studies**.
- They have provided detailed **feedback** to further improve technical and practical aspects of the methodology.
- During the last EGRIS Plenary meeting (November 2022), the Members **approved the developed methodology**:

"The Expert Group supports the work carried out so far in the context of the RISM Study and we have now produced as an expert group a methodology for the network-wide road safety assessment. The methodology is to be used as a guideline, especially with the deadlines imposed in the implementation of the Directive, while noting that Member States might have some specificities to consider and make adjustments of the methodology at national level. The Group also recommends that further work should be carried out to refine the methodology to be able to demonstrate in the future the safety savings that the safety assessment might bring."



Methodology Advantages

1. Fully aligned to DIR.2019/1936/EU
2. Low data needs
3. Ease of application
4. Low cost
5. Transparent assessment models
6. Flexibility and versatility



Benefits

Methodology Advantages (detailed)

1. Fully aligned to DIR.2019/1936/EU

- Developed under EC and EGRIS supervision and has received consensus

2. Low data needs

- NWA-proactive uses few of parameters (6 for motorways & 9 for primary roads)
- Data for several parameters are easily available
- Data availability in EU Member states has been explicitly considered in the development process (dedicated RISM Study questionnaire survey)
- Data needs in NWA-proactive are further reduced through the possibility of long segments (i.e. defining data values for 1,5km segments instead of 100m segments)



Benefits

Methodology Advantages (detailed)

3. Ease of application

- Data collection does not necessarily require special equipment (e.g. instrumented vehicles).
- NWA-reactive does not require strong scientific/statistical expertise (e.g. as in the Empirical Bayes approach)
- NWA-proactive is implemented using convenient excel calculators provided by the Study (Del. D4.2)
- The integration is a straight-forward procedure using a single table.

4. Low cost

- Due to the low data needs and the ease of application, the methodology can be applied with a comparatively low cost; it is efficient to implement it according to the RISM Directive.



Benefits

Methodology Advantages (detailed)

5. Transparent assessment models

- models are based on existing research and are presented and justified in a fully transparent way (Del. D.2 and D.3)

6. Flexibility and versatility

The methodology can provide reliable results with only basic data, while at the same time accuracy may be improved if additional data are available, such as: A. consideration of traffic volumes (both NWA-reactive and proactive), B. specific consideration of junctions (NWA-reactive, if junction dimensions are available), C. consideration of V85 speed (NWA-proactive), D. flexibility in the selection of NWA-proactive segment lengths.





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