



# PIARC Asset Management

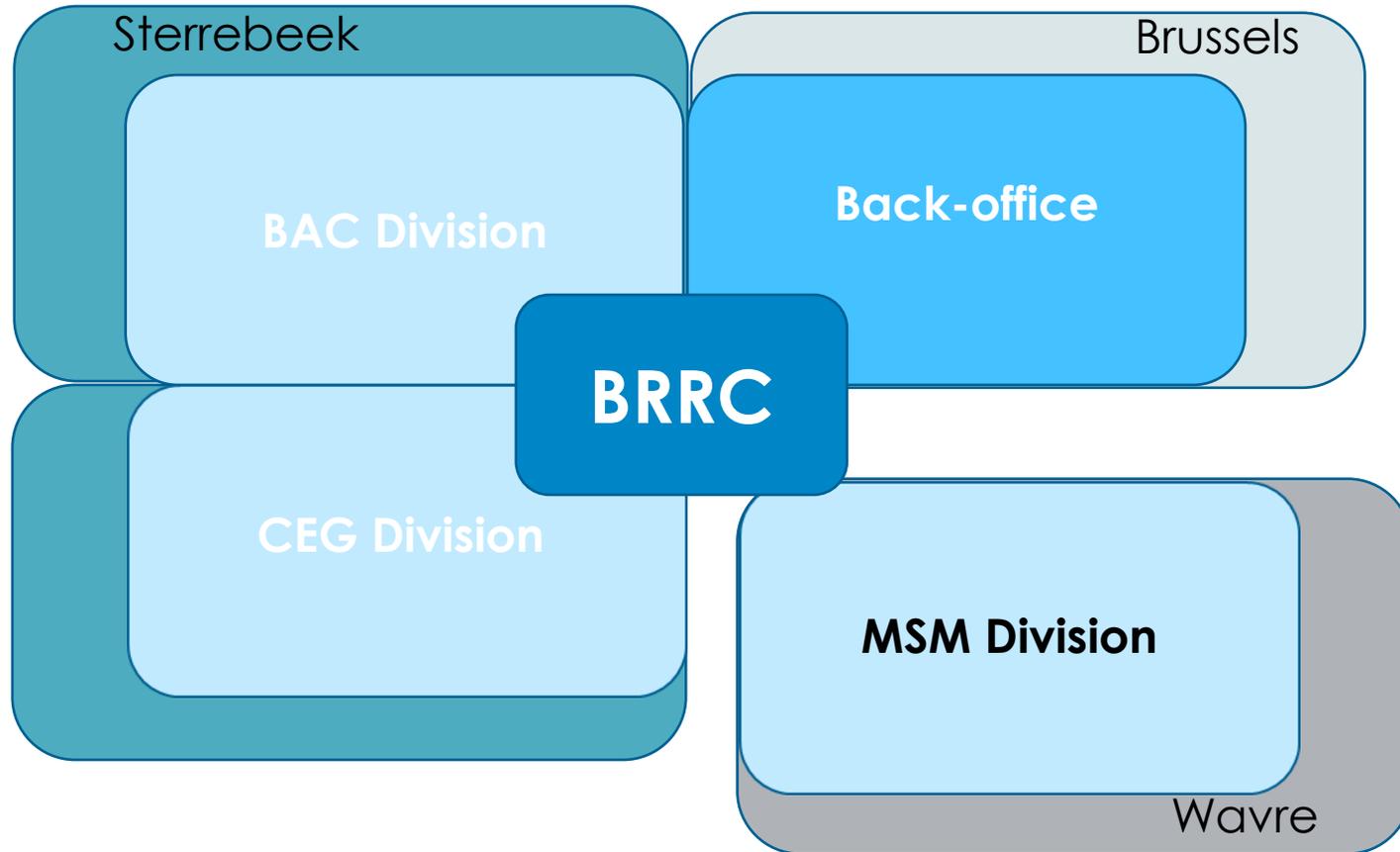


Belgian Road Research Centre  
Together for sustainable roads

**Presenter:** Tim Massart  
**Presenter:** Ali Yeganeh

**Mai 2024**

# BRRC – MSM



Technical assistance  
Innovation, R&D  
Training

**M**obility



Road

**S**afety



Road

**M**anagement



# Three core activities



Training



Assistance

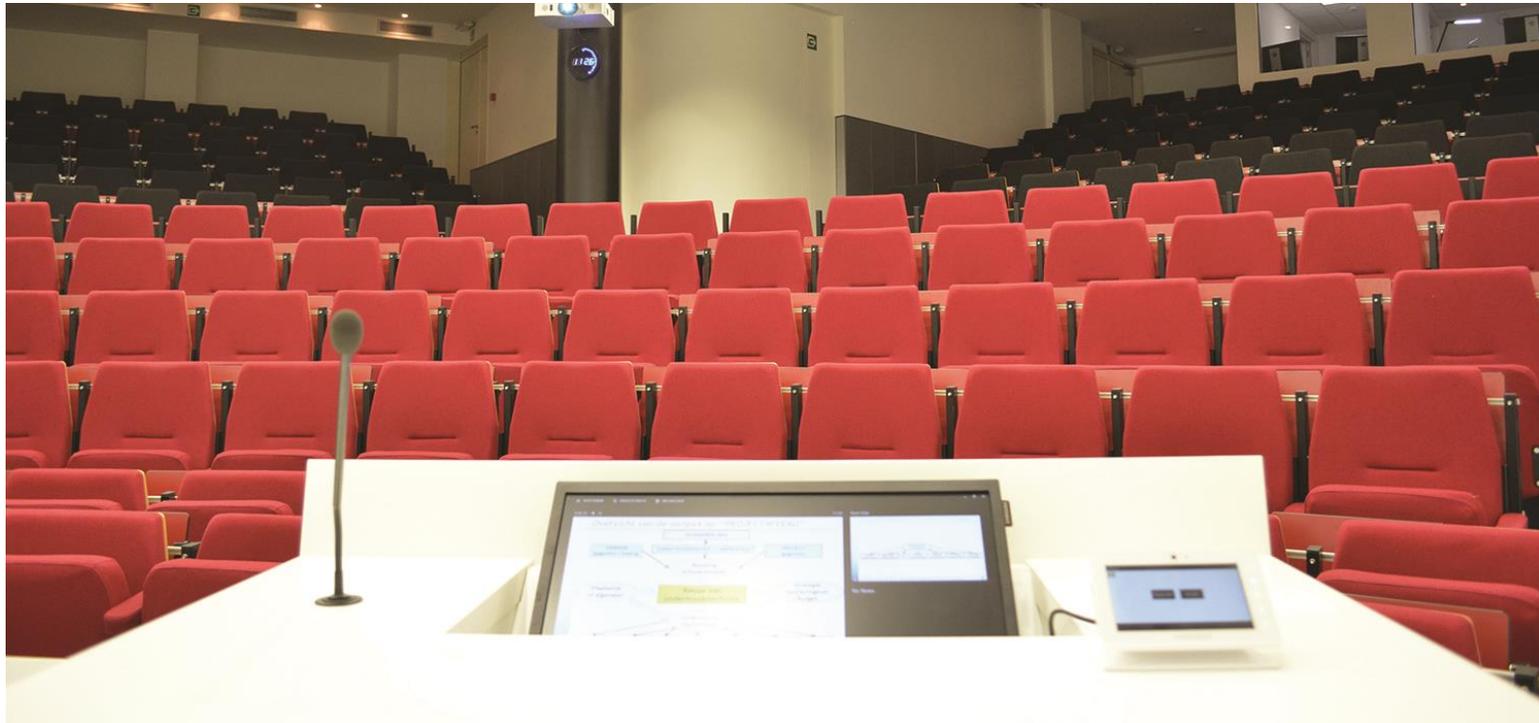


Innovation, R&D

# Training

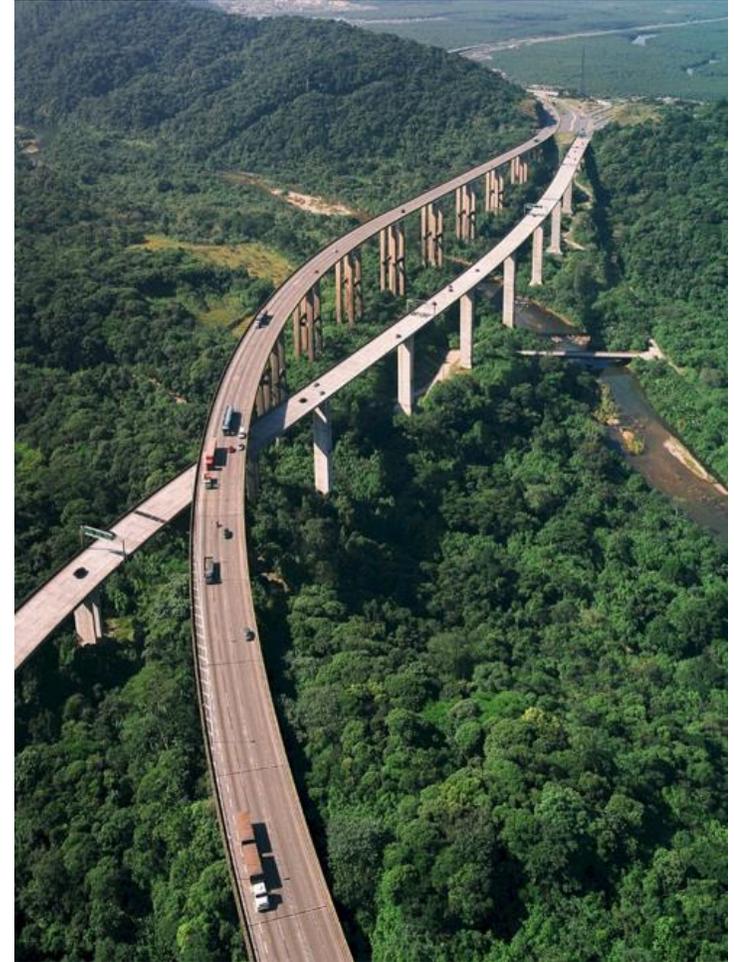
[training@brrc.be](mailto:training@brrc.be)

Belgian Road Academy (BRAc)



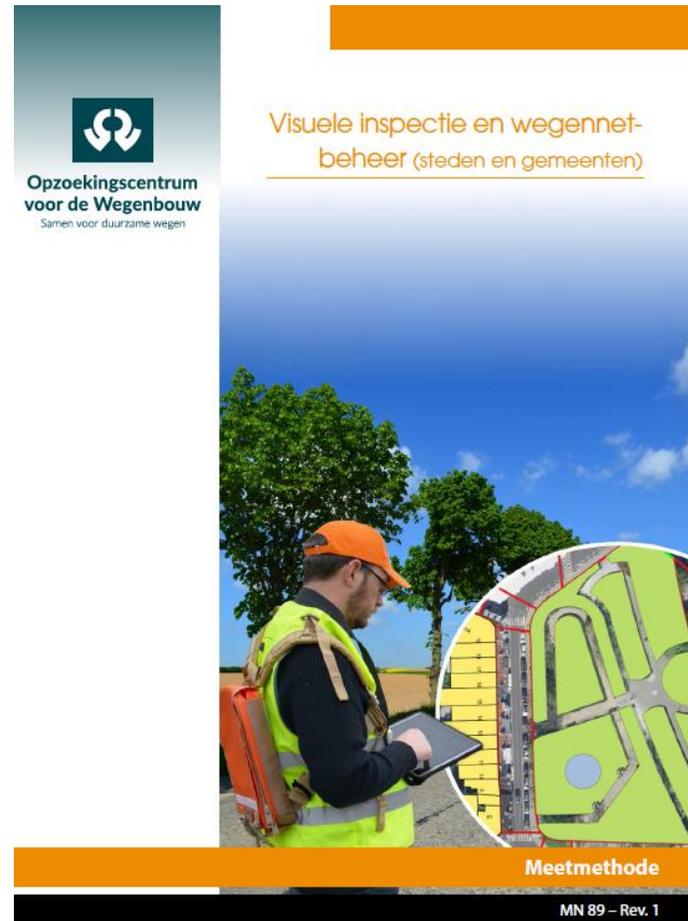
# TC D.1 Asset Management 2016-2019

- WG1: Road Asset Management Manual
- **WG2: Dissemination and education**
- WG3: Innovative approaches to AM
- (WG4: HDM-4)
  
- Regional group Latin-America



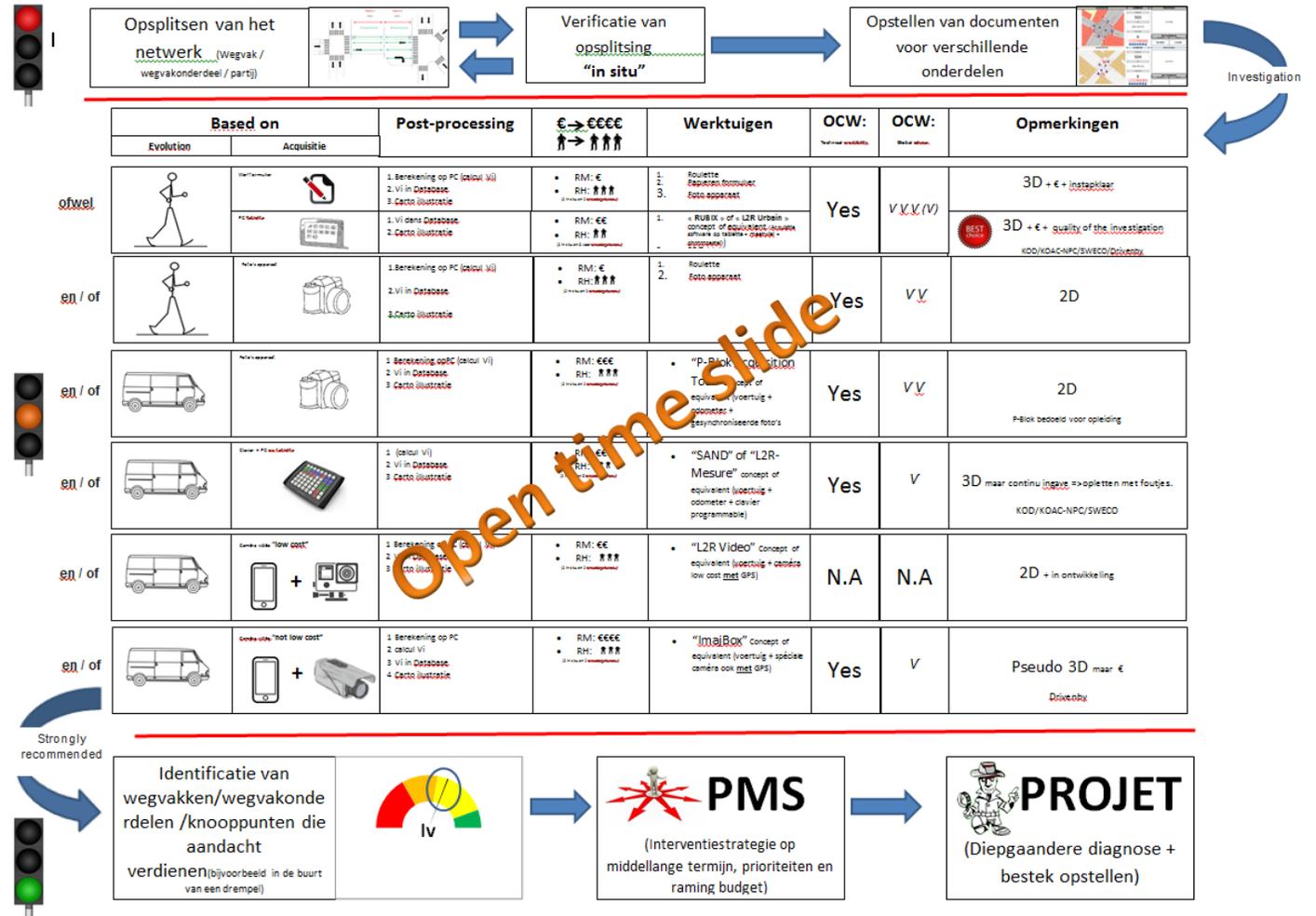
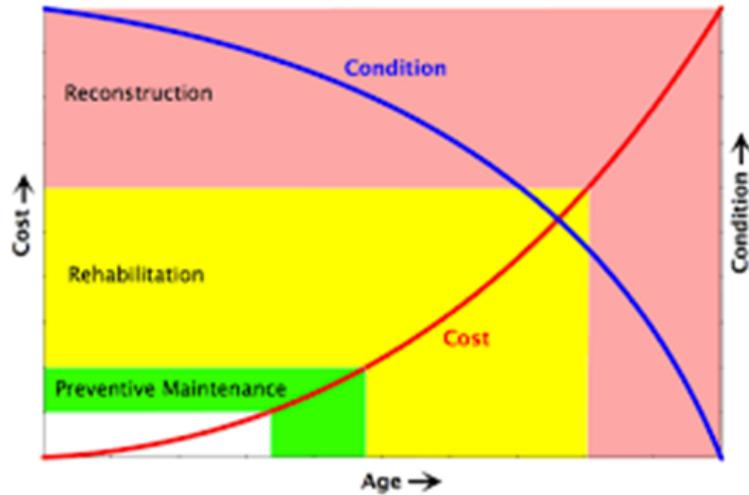
# AM - management of municipal road networks (MN89 + MN94) since 2015

- PIARC
- International benchmarking
- Continuous improvement



# Context in Belgium

- 90% of the length of the road network = local roads



# AM- management of municipal road networks (MN89 + MN94) since **2015**



# TC 3.3 Asset Management 2020-2023

- **WG 3.3.1: Innovative approaches for asset management systems**
- **WG 3.3.2: Measures for improving resilience of road network**
- **WG 3.3.3: Renewal and rejuvenation of aging infrastructure**
- **WG 3.3.4: Update of the Asset Management Manual**

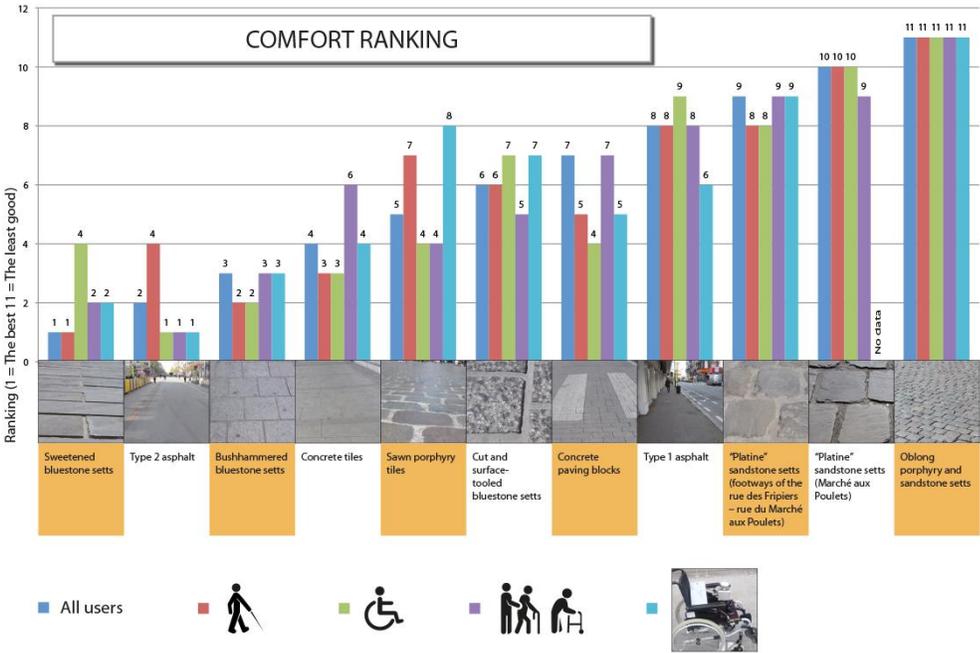
■ **!COVID!**



# Innovation, R&D



Belgian Road Research Centre



# Geoportal BRRC

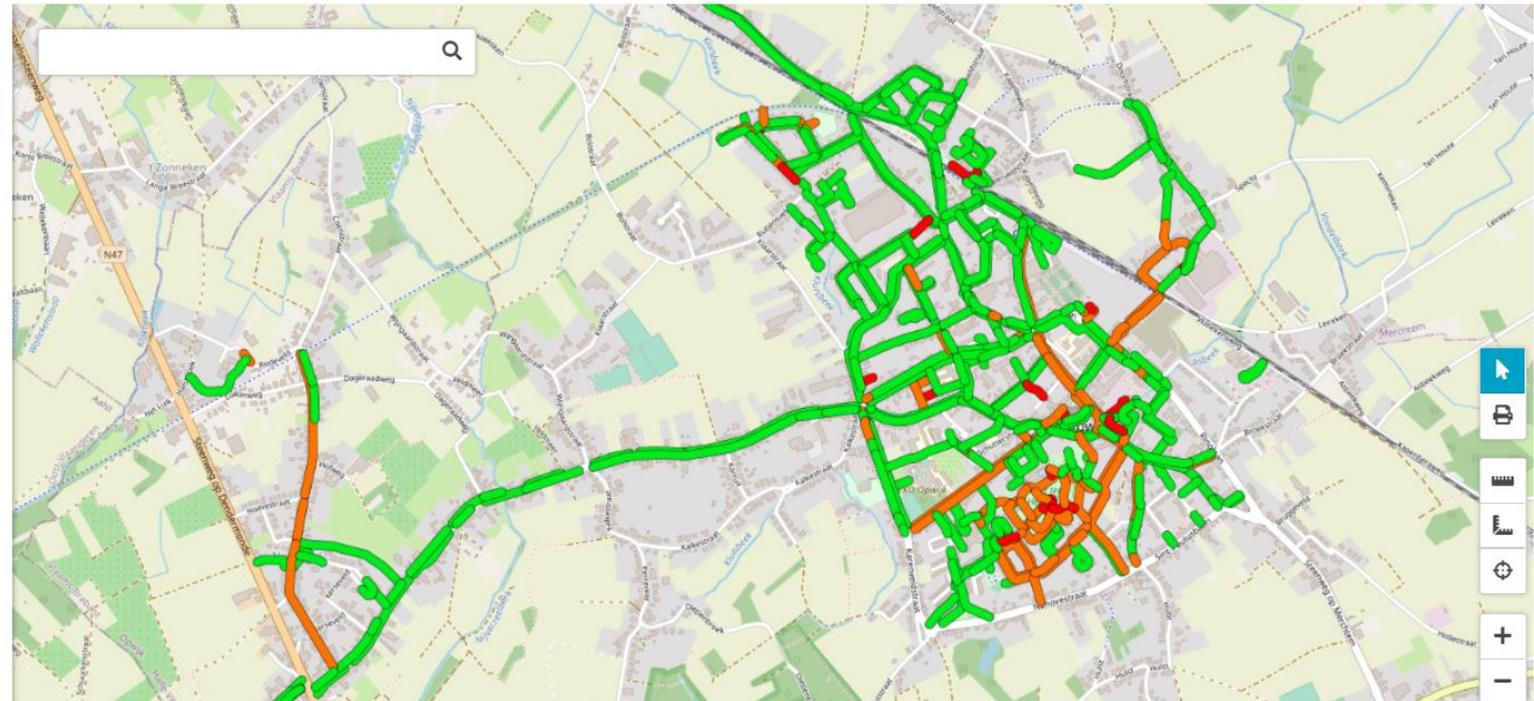
Data catalog

Layer explorer

## ← Browse Catalog

BRRC Catalog

- ▶ Asphalt and other bituminous applications
- ▶ Infrastructure management
- ▼ Mobility, transport and traffic
  - ⊕ wheelchair\_measure\_bm
  - ⊕ wheelchair\_measure\_bm\_delimitation
  - ⊖ wheelchair\_measure\_bm\_section
  - ⊕ wheelchair\_measure\_bm\_block



# AM – development method for footpath management

- PIARC
- International benchmarking
- Continuous improvement



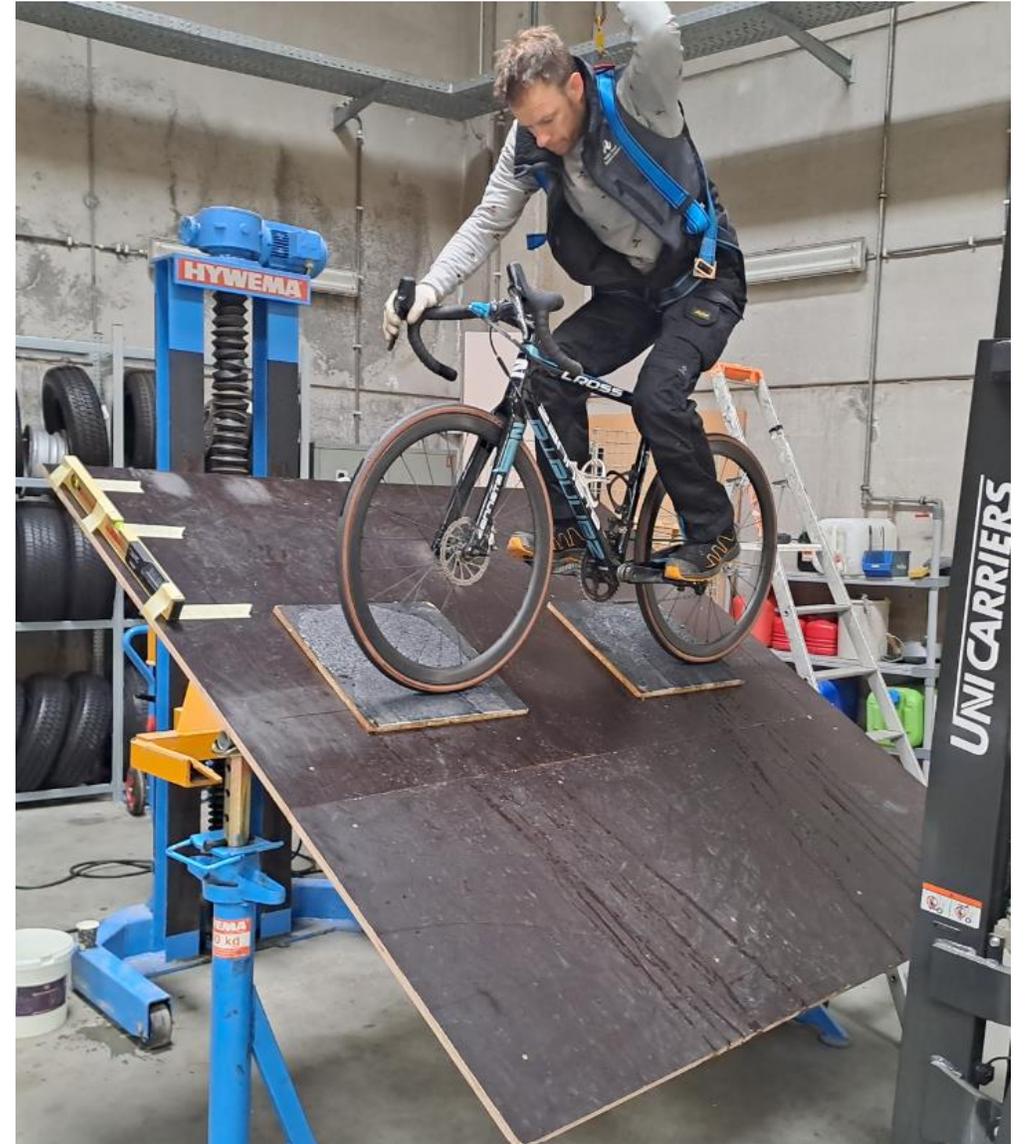
# SuChar\_BiLan project

- Surface Characteristics of Bicycle Lanes
- **Prenormative** research funded by NBN
- Preparation of **dedicated** standards for surface characteristics of **bicycle lanes**:
  - Evenness/comfort
  - Skid resistance
  - Rolling resistance
  - (texture)



# SuChar\_BiLan project: main topics

1. **Survey stakeholders**  
**Bicycle lane users**  
Network managers  
Developers and producers of measurement instruments
2. **Panel tests: subjective “measurement” of:**  
**Comfort**  
**Evenness**  
**Rolling resistance**
3. Comparison of measurement devices
4. **Laboratory testing for “bicycle skid resistance”**
5. Measuring rolling resistance for bicycles



**FINAL EVENT: 14 October 2024**

# TC 3.3 Asset Management 2024-2027

- 3.3.1a - BIM and Asset Management
- **3.3.1b - Innovative data collection and analysis**
- 3.3.2 - Measures for reducing risks and improving the resilience of road networks
- 3.3.3 - Renewal and rejuvenation of aging infrastructure
- 3.3.4 - Update the content of the Road Asset Management Manual



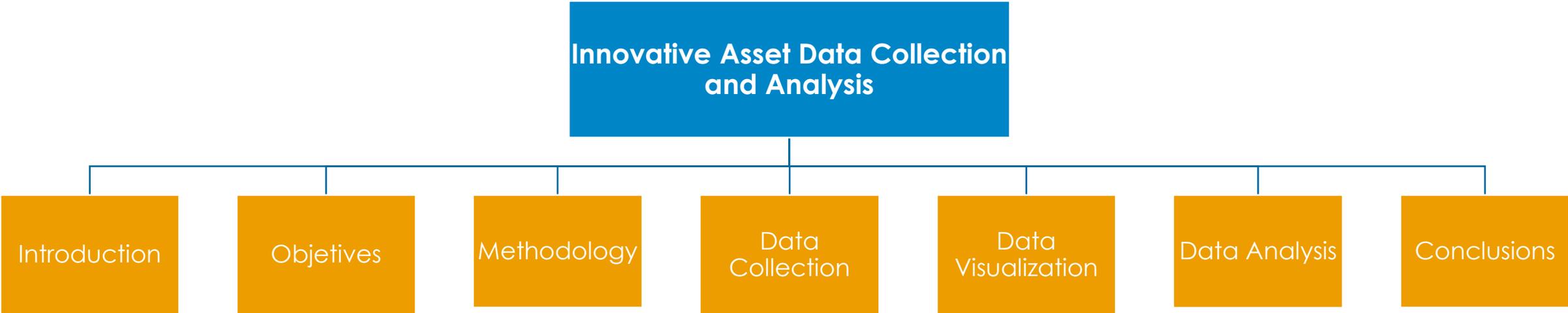
# PIARC special project:

## Application of AI in the road sector

- Member of project oversight team **(POT)**
- We have received and evaluated 18 proposals and have shortlisted 2 for the presentation



# TC 3.3 Asset Management 2024-2027



# INFRACOMS project - Scope

The Conference of European Directors of Roads (**CEDR**) 2021 call for research projects



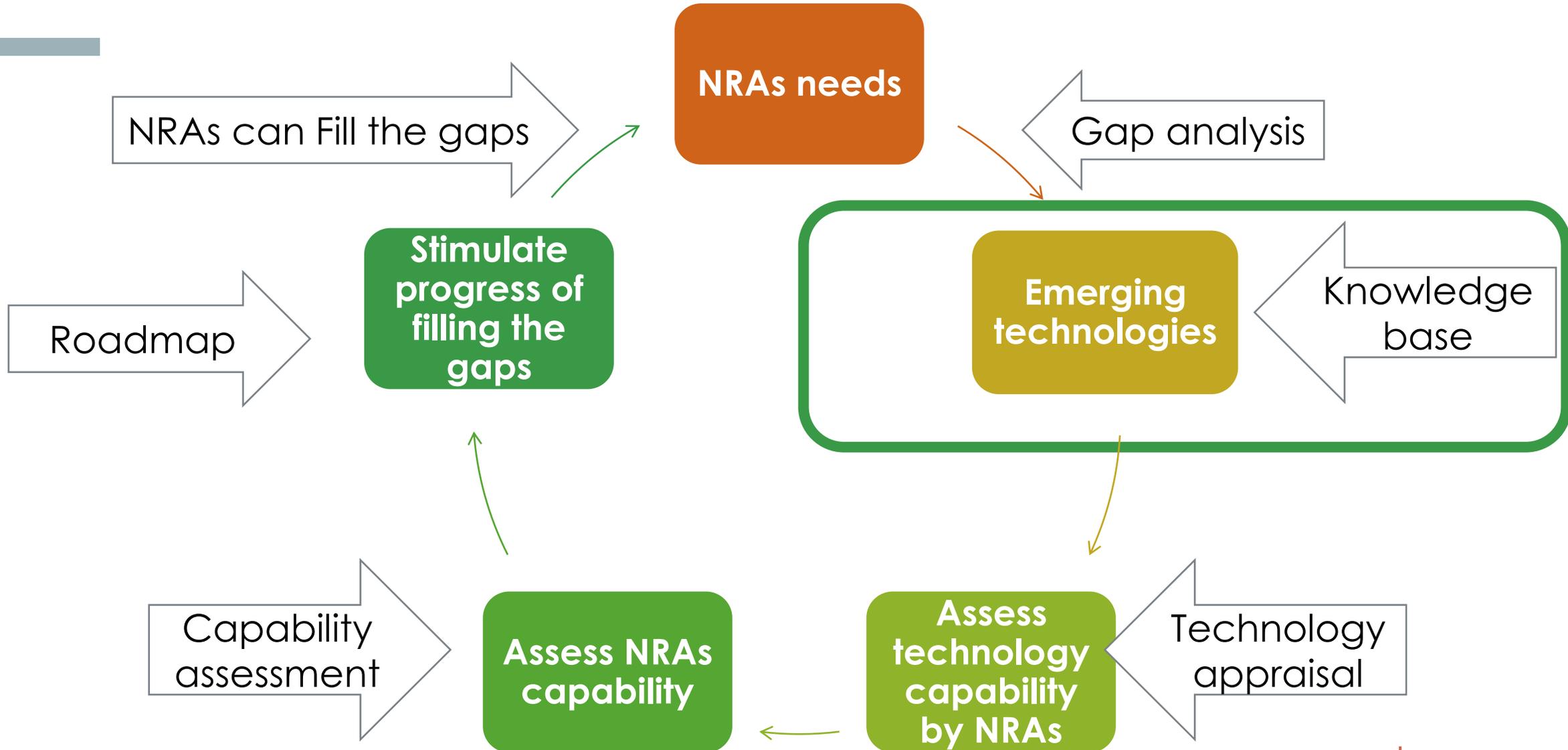
Flanders is one of the sponsors

Aims to improve European road authorities' knowledge of **innovative remote asset condition monitoring and data collection technologies.**

The INFRACOMS project was commissioned to meet the needs of



# INFRACOMS project – Overview

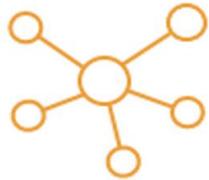




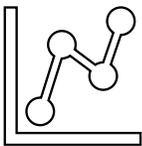
## Crowd Sourcing



## Remote Sensing



## Intelligent Infrastructure / IoT



## Advanced data processing

INFRACOMS Knowledge Base and Appraisal Portal

INFRACOMS Knowled... / INFRACOMS Knowled... / Technology Database 1.0

**Technology Database 1.0**

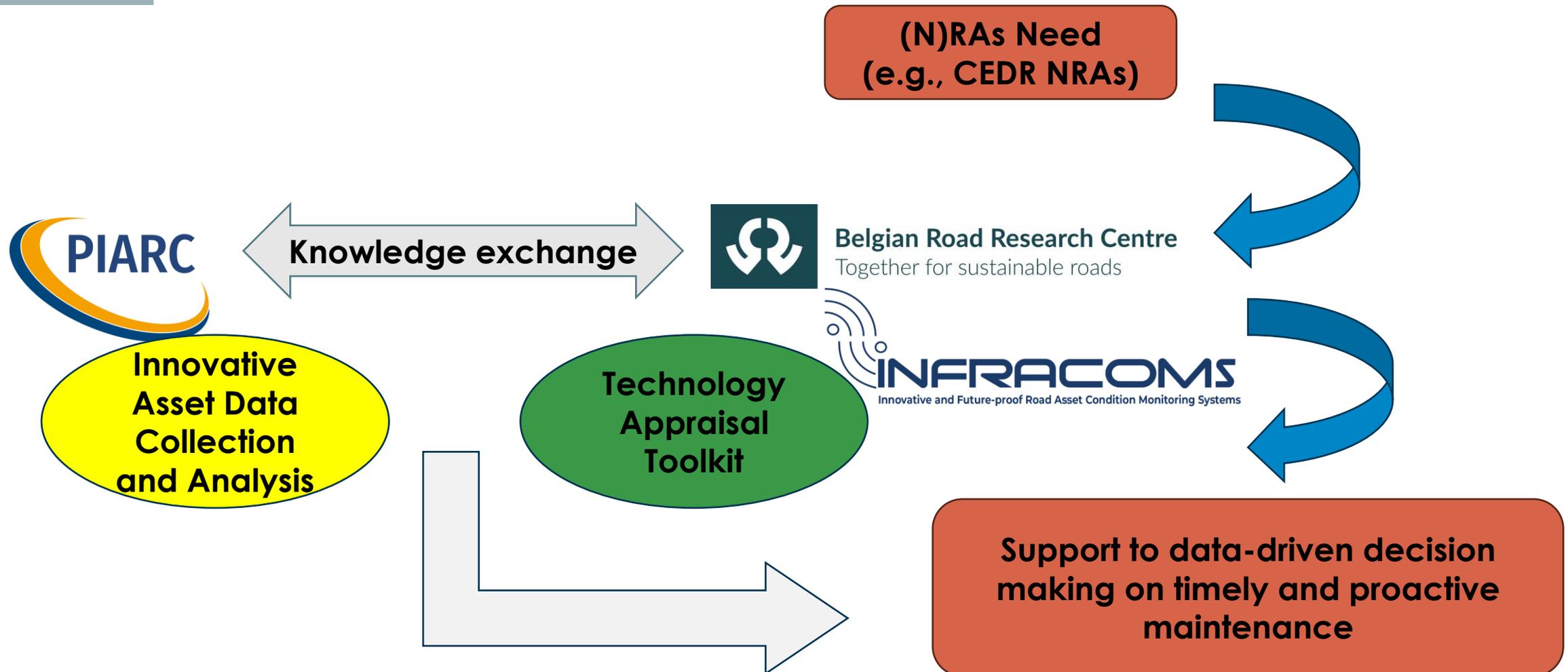
Owned by Kevin McPherson  
Last updated: Dec 27, 2023 • 9 min read • 20 people viewed

The INFRACOMS Technology Database 1.0 represents an **initial assessment** of available technologies from literature review, web searches, known technologies, and a workshop conducted under INFRACOMS WP1. This was used to populate the list of technologies for appraisal. Note that the estimated TRL levels in this table are purely an estimate given the quick assessment of the technology. The high value of these estimates is sufficient justification for using the INFRACOMS appraisal methodology. The final column in this table gives a link to a full INFRACOMS appraisal for a particular use case of the technology if stored in the INFRACOMS Knowledge Base.

Id	Solution	Solution Description	Solution Group	Solution provider(s)	Estimated TRL level	Justification for Estimated TRL level	Asset Type	Other uses (describe)	Key Imperative	INFRACOMS Use Case Appraisal
1	Crowdsourcing vehicle telemetry (Friction)	Road friction measured by regular passenger vehicles	• Crowd sourcing	NIRA dynamics	9	The system is in use	• Carriageway		CW - Availability	Appraisal
2	Corrosion diagnostic	Embedded sensors with data processing	• Internet of Things (IoT)	Duramon	7	The system is used on case studies	• Bridge		B - Reliability (Bridge Condition Index, BCI)	
3	COWI virtual inspection platform	Visualisation and condition history including AI engine (3D presentation)	• Advanced Data Analytics	COWI	9	The system is in use for several owners	• Carriageway • Bridge		B - Reliability (Bridge Condition Index, BCI)	Appraisal
4	EpsilonRebar	DFSO Strain and crack measurement along entire length		Nerve-sensors	9	The system is in use for several owners	• Carriageway • Bridge		B - Reliability (Bridge Condition	Appraisal Quickstart

# Technology data base

# PIARC Links with BRRC, INFRACOMS, and Maintenance needs in Belgium



# HAIRoad Project - Scope



Developing a Hybrid Pavement Management System (PMS) that outperforms current technologies in damage detection and maintenance prediction, all while staying cost effective to suit municipal budgets.



# HAIRoad Project – Consortium

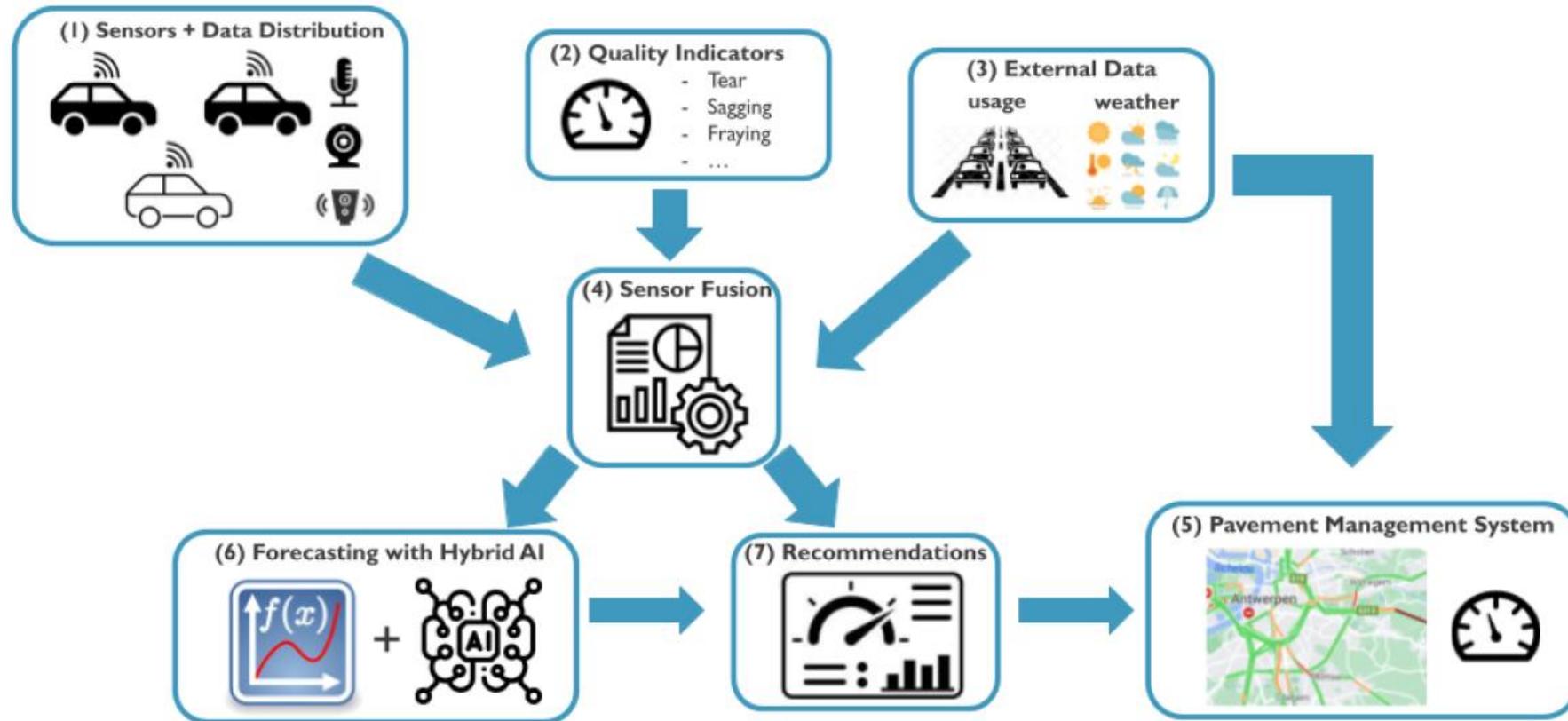


HAIRoad



# HAIRoad Project – Overview

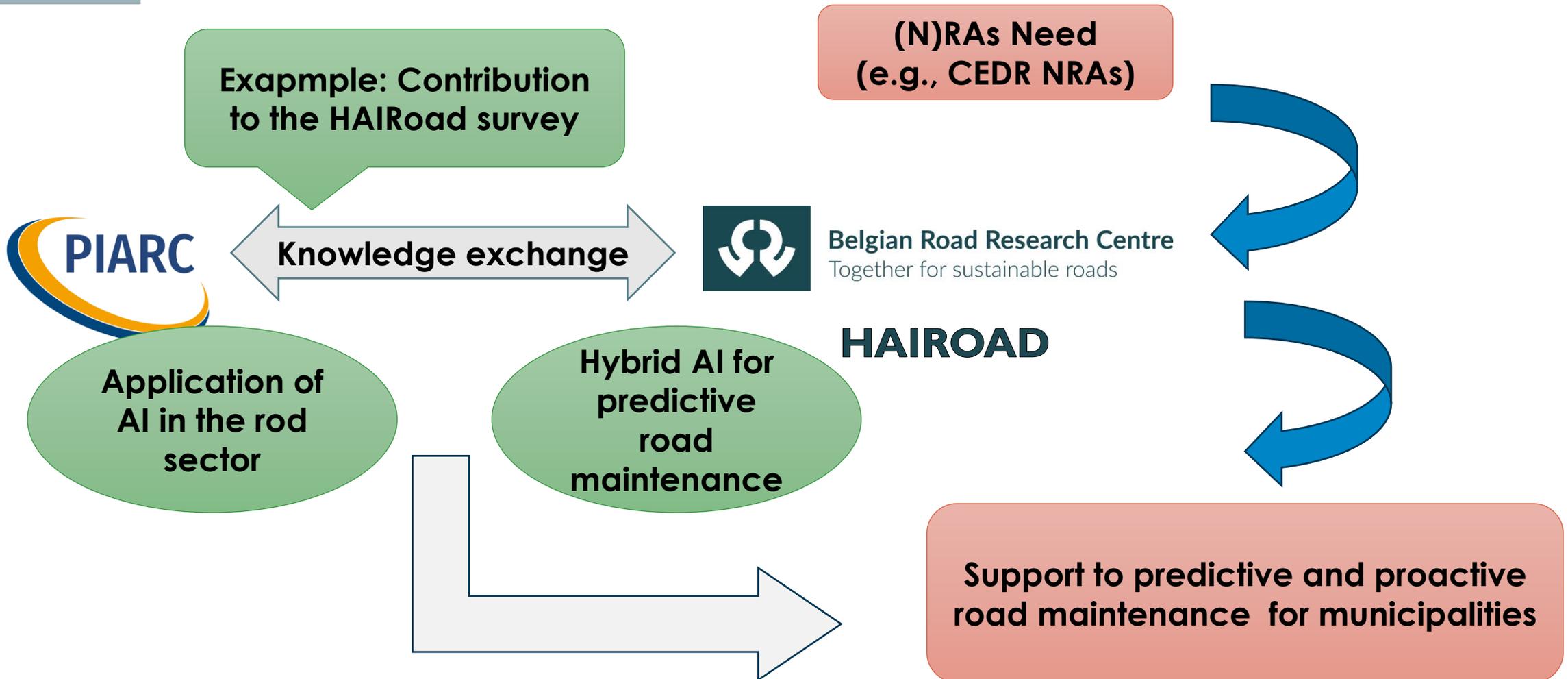
## Overview HAIRoad:



16

confidential

# PIARC Links with BRRC, HAIRoad, and Maintenance needs in Belgium



# Takeaway message

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BRRC's role in PIARC TC3.3 enhances our connectivity with global road experts, directly benefiting national road maintenance.



We are establishing ourselves as a premier reference for road research in Belgium, recognized both nationally and internationally.



**Belgian Road Research Centre**  
Together for sustainable roads



# Thank you for your attention!

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