

TODAY'S PRESENTATION

Context:

Ricardo was commissioned by ADPA to develop a study on the benefits of affordable vehicle repair and maintenance

We will cover:

- Introduction to the report
- Safety benefits of repair and maintenance
- Sustainability benefits of repair and maintenance



ABOUT US - RICARDO

Ricardo is a global strategic, environmental and engineering consulting company.

Our teams of consultants, environmental specialists, engineers and scientists support customers in solving the most complex and dynamic challenges to help achieve a safe and sustainable world.

Ed Eyton

Sustainable Transport
Senior Consultant



Ricardo were commissioned by ADPA to assess the benefits of automotive repair and maintenance



Study for the European Automotive Data Publishers' Association (ADPA), February 2025:

- Policy and market context
- Impacts of repair and maintenance on:
 - Safety
 - Sustainability
- Affordability trends in R&M
- Policy recommendations



Full study can be downloaded via this link



THE BENEFITS OF VEHICLE REPAIR AND MAINTENANCE ON SAFETY AND SUSTAINABILITY

Report for The European Automotive Data Publishers' Association (ADPA)

Ref. 7722534

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Issue: 02-00

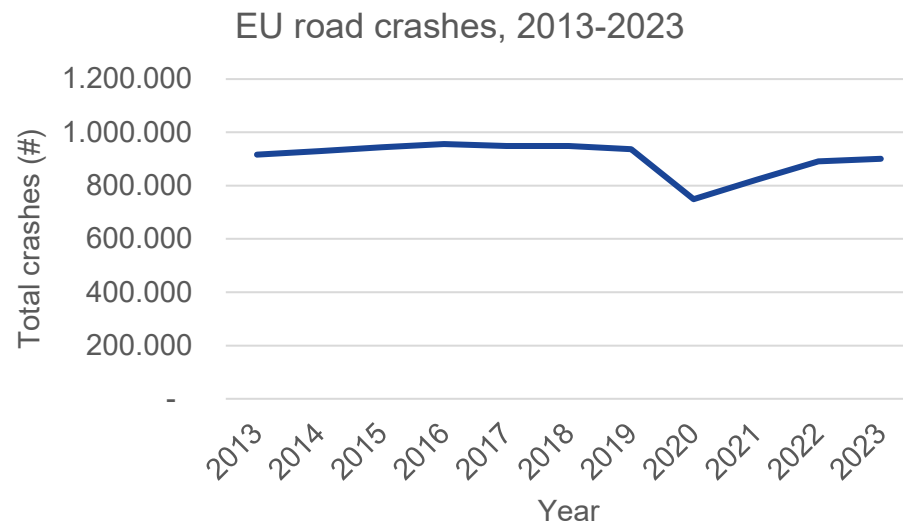
13/02/2025

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Vehicle repair and maintenance (R&M) can prevent accidents related to technical defects

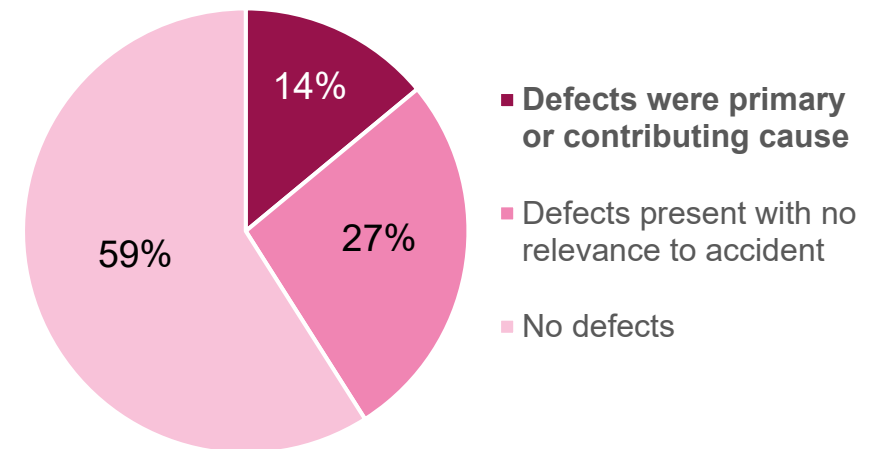
Road accidents in the EU are only slightly lower than they were 10 years ago

[1]



14% of accidents in Germany are caused, at least partly, by vehicle defects

[2]



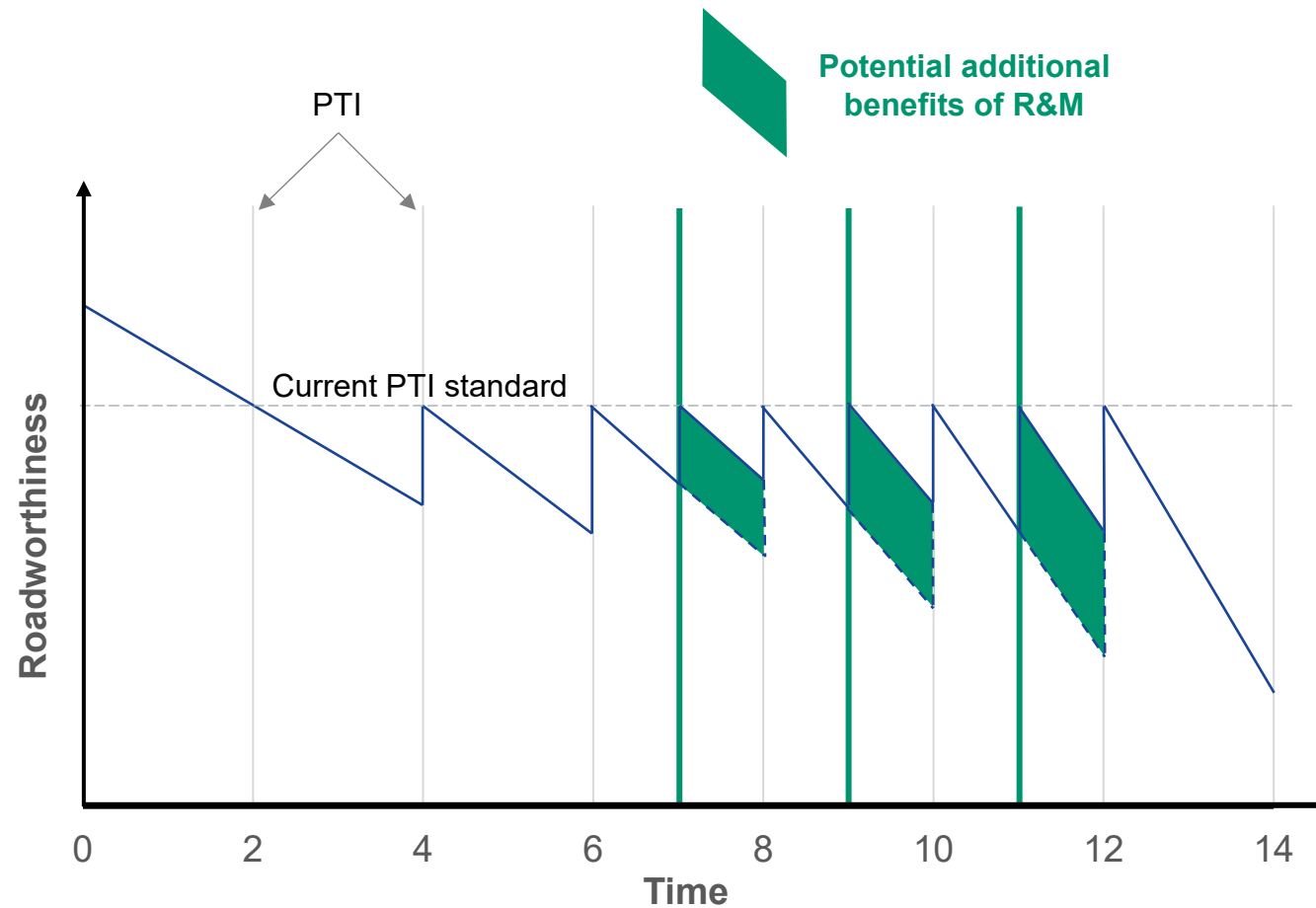
- Defects were primary or contributing cause
- Defects present with no relevance to accident
- No defects

Sources:

[1] European Road Safety Observatory, 2025

[2] German Motor Vehicle Inspection Association (DEKRA), 2017

A large proportion of vehicle owners rely on periodic technical inspection (PTI) to trigger R&M. Additional R&M beyond PTI inspections generate potential benefits.



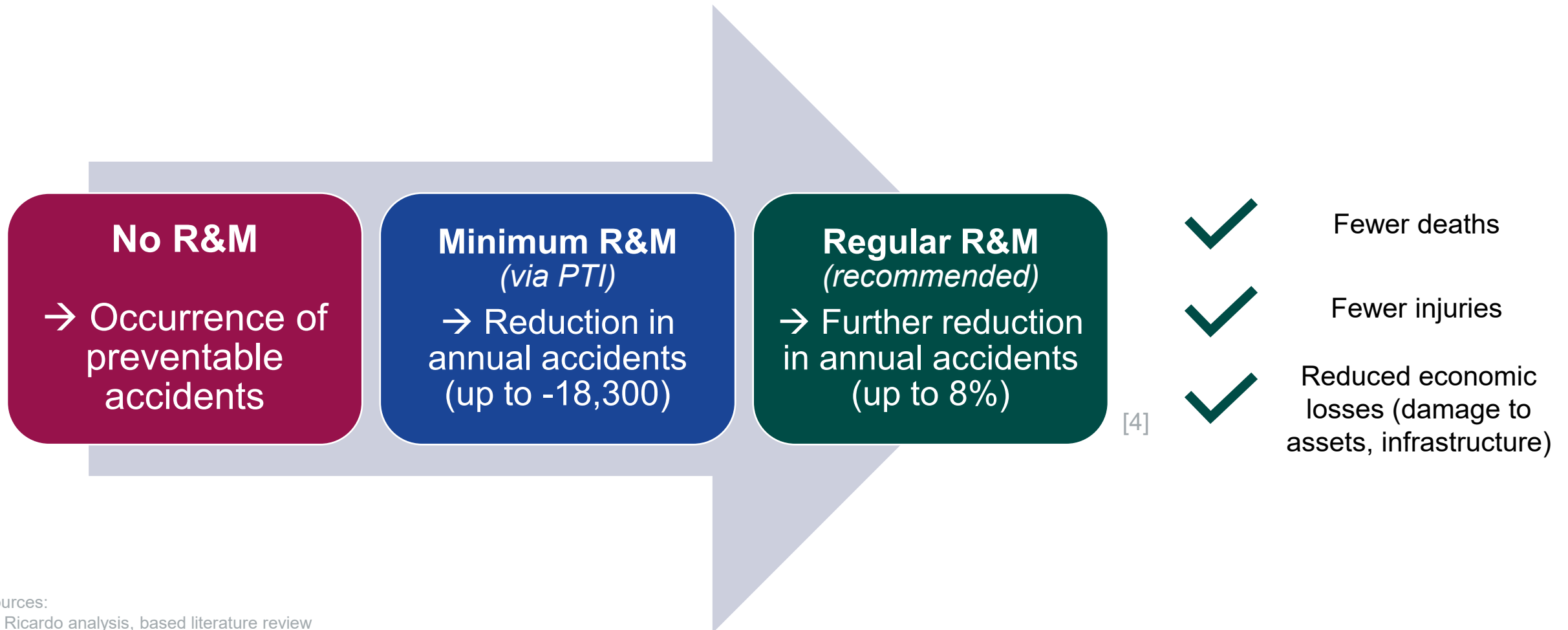
Roadworthiness deteriorates faster in older vehicles

Regular R&M limits deterioration in roadworthiness - which is increasingly important as vehicle gets older

[3]

Source:
[3] Ricardo illustration

R&M is a 'low-hanging fruit' when it comes to maintaining road safety



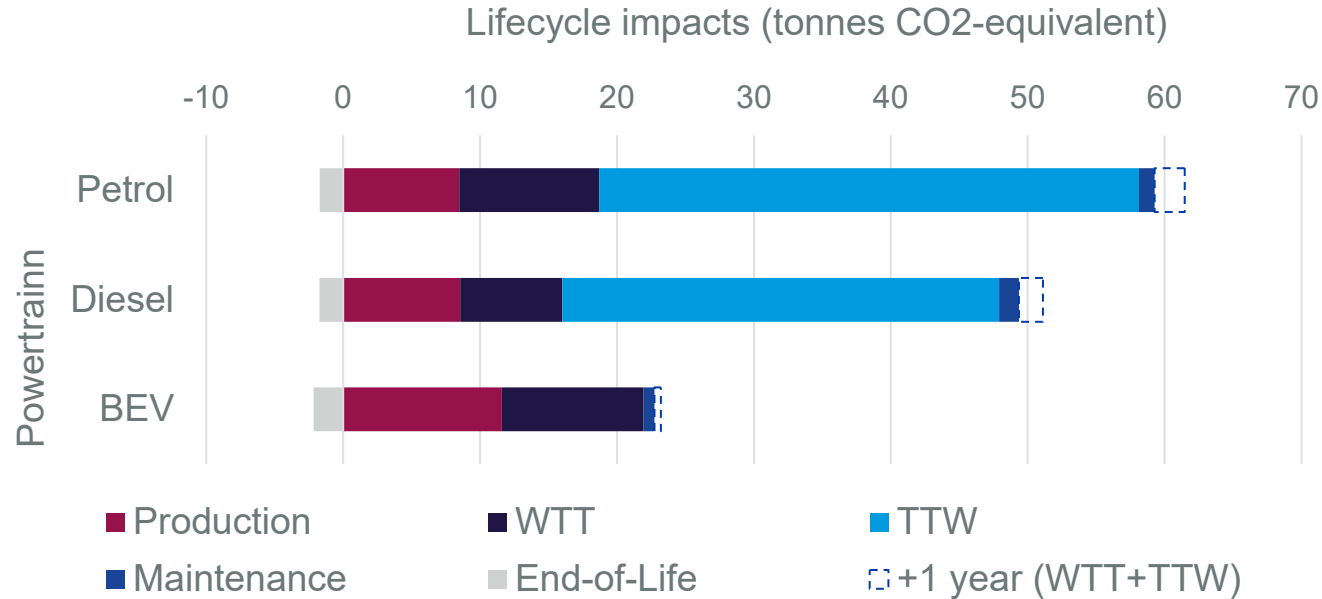
Sources:

[4] Ricardo analysis, based literature review

R&M extends vehicle lifetimes, reducing the per-year environmental impacts of vehicles on the road

The optimal lifespan of an ICEV, minimising its lifecycle environmental impact, may be 20–30 years. Most vehicles in the EU are not reaching this threshold.

[5,6]



Running an ICEV for one year longer:
→ **+1-2 tonnes CO₂e**

Producing a new ICEV or BEV:
→ **+9-12 tonnes CO₂e**

[7]

Sources:

[5] Danilecki, Smurawski, & Urbanowicz, 2023

[6] Montoya-Torres, Akizu-Gardoki, & Iturrondobeitia, 2023

[7] Ricardo analysis based on Ricardo, 2020

R&M maintains full function of emissions control technologies, preventing ‘deterioration effects’

Key technologies

Established technologies reducing air pollutant emissions include:

Diesel Particulate Filter (DPF)
→ **95% less PM** (if equipped)

[8]

Selective Catalytic Reduction (SCR)
→ **8-28 times less NOx** (if functional)

[9]

Deterioration effects

Absolute increase in annual emissions (grams) for typical diesel vehicles after 160,000km:

Vehicle	PM	NOx
Euro 4	+457g	+630g
Euro 5	+49g	+493g

[10]

Benefits of R&M

Prevention of deterioration over European car fleet for next 6 years leads to:

Reduction in air pollutants
-1,500 tonnes PM
-22,000 tonnes NOx

[11]

Sources:

[8] Rypos, 2024

[9] JRC, 2024

[10] Carlslaw et al., 2022

[11] Ricardo analysis based on the above

Vehicle repair and maintenance (R&M) has various benefits, of which the study only addressed a few



Fewer road accidents



Improved air quality



Reduced greenhouse
gases (GHGs)



+ many more
(not in study)

START A CONVERSATION ABOUT
ACCELERATING AND OPTIMISING
YOUR SUSTAINABILITY JOURNEY



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