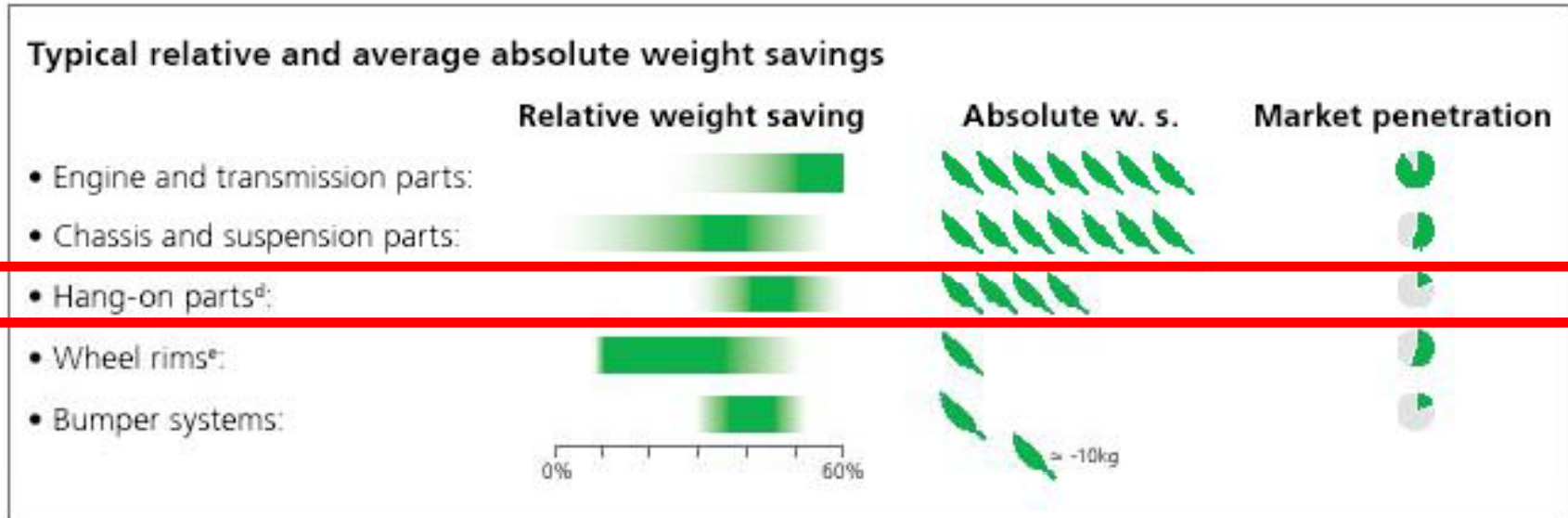


Low hanging fruits: Lightweight Hang-on parts



- **Market penetration of lightweight hang on parts is below 20%**
- **Changing from conventional design to lightweight design does not need a full re-engineering of the car**
- **Lightweighting potential of ~50 kg per car [1]**

Low hanging fruits: Lightweight Hang-on parts

- **50 kg on a car reduces the CO₂ emissions by ~4g CO₂/km [2,3]**
- **Reduces the CO₂ emissions during the lifetime of the car (200 000 km) with 800kg**
- **If all new cars registered in Europe during a year (15 million) would reduce the weight by 50 kg, it would reduce the total CO₂ emissions by 12 million tons over their full life span.**

Low hanging fruits: Lightweight Hang-on parts

References:

1. *An Assessment of Mass Reduction Opportunities for a 2017 – 2020 Model Year Vehicle Program*, Lotus Engineering Inc. The International Council on Clean Transportation (www.theicct.org). March 2010, Rev 006A
2. *On the calculation of fuel savings through lightweight design in automotive life cycle assessments*, Christoph Koffler & Klaus Rohde-Brandenburger. Int. Journal of Life Cycle Assessment (2010) 15:128-135
3. CO₂-potential of lightweight designed cars, Rohde-Brandenburger, Obernolte, Volkswagen AG. PowerPoint submitted to WP29 as document WLTP-DTP-LabProclCE-065

Calculations:

Diesel: 1l/100km => 26.5 g CO₂/km. [3]

Weight reduction of 100 kg => 0.29 l/100km if gear ratio is adapted to achieve equal performance. [2] (Table 2)

50 kg of weight reduction then corresponds to 0.145 l/100km which corresponds to 3.84 g CO₂/km