

GAMIFIED ECO-COACHING IN PASSENGER CARS

MARKET STUDY

Gamified Eco-Coaches in passenger vehicles -
Engagement of behavioral fuel and emission reduction

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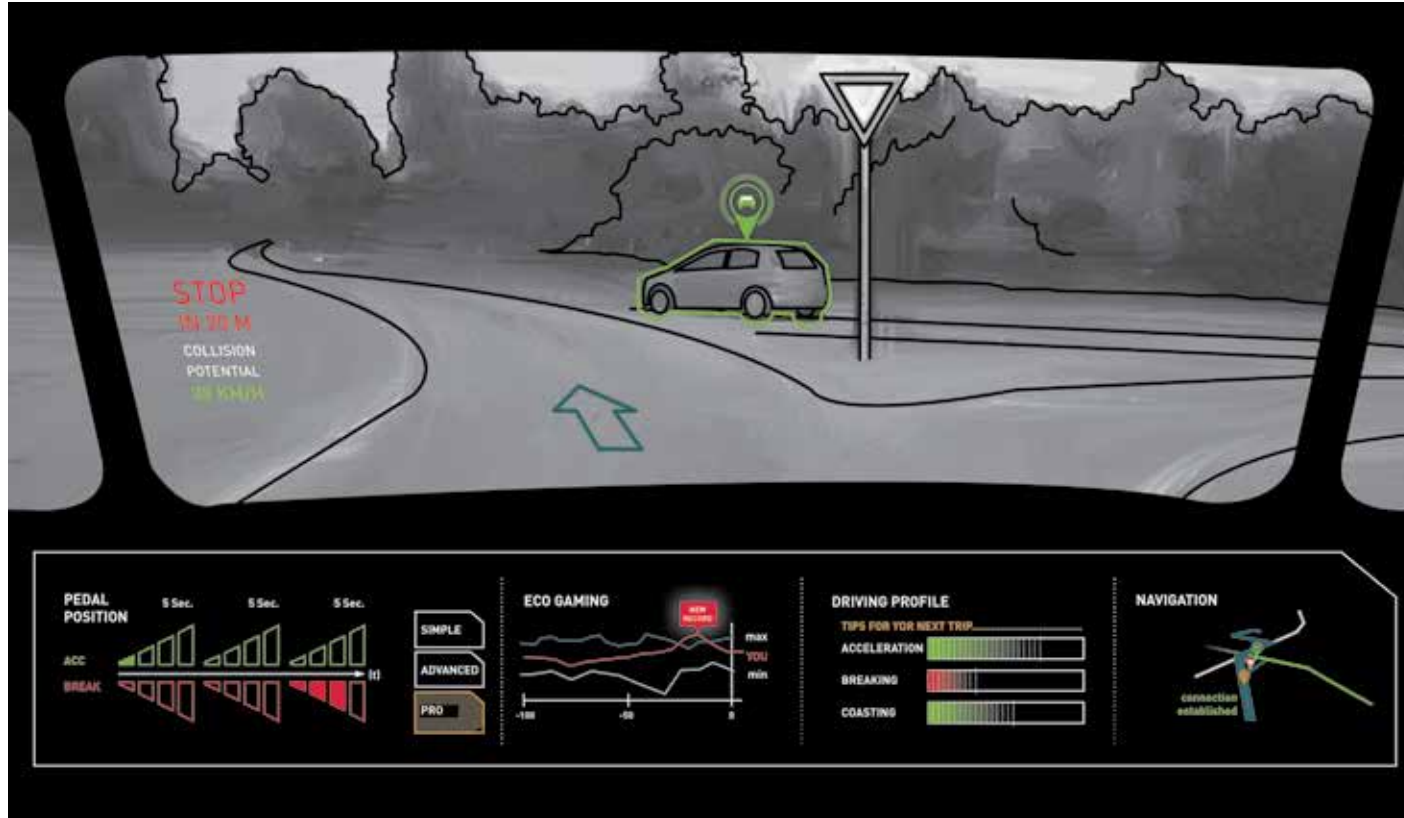
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**DEAR READER,**

FEV expects that targets in EU and China regarding fleet CO₂ emissions reduce by more than 50% in 2025 vs. 2006. In the past, exhaust pollutants such as NO_x or PM were in the focus of legislators and according limits have been reduced to a fraction of their original levels in all major markets.

Significantly further tightened GHG regulations have to be anticipated, because stringent pollutant as well as GHG limits have to be fulfilled at the same time. Recent approaches to improve engine efficiency include friction reduction measures, variable subsystems such as variable valve timing and lift, flexible fuel injection systems with increased fuel injection pressures,

advanced control algorithms and electrification. All of these measures are purely technology driven – one major impact factor has been left out: the engagement of behavioral fuel and CO₂ emission reduction.

FEV conducted a market study and found that pro-environmental driving behavior is one of the biggest factors reducing real-world fuel consumption and CO₂ emission next to pure technical optimization levers. Besides an excellent CO₂ cost-benefit ratio, Eco-Coaches also have the potential to reduce accidents. Nevertheless the application of current Eco-Coach systems is far below its optimum. Motivated by detailed engine know-how

and real world driving emission reduction insights, FEV evaluated current OEM Eco-Coaches. Additionally FEV developed a comprehensive approach taking not only technical but also human behavioral aspects into the Eco-Coach concept. One major success factor is to apply proven game mechanics to turn fuel saving actions into addictive driving behavior. Results have been summarized. FEV is very happy to share the study insights with you and hopes to have interesting discussions with you regarding this topic.

Alexander Nase

Alexander Nase, Managing Director

ABOUT FEV CONSULTING

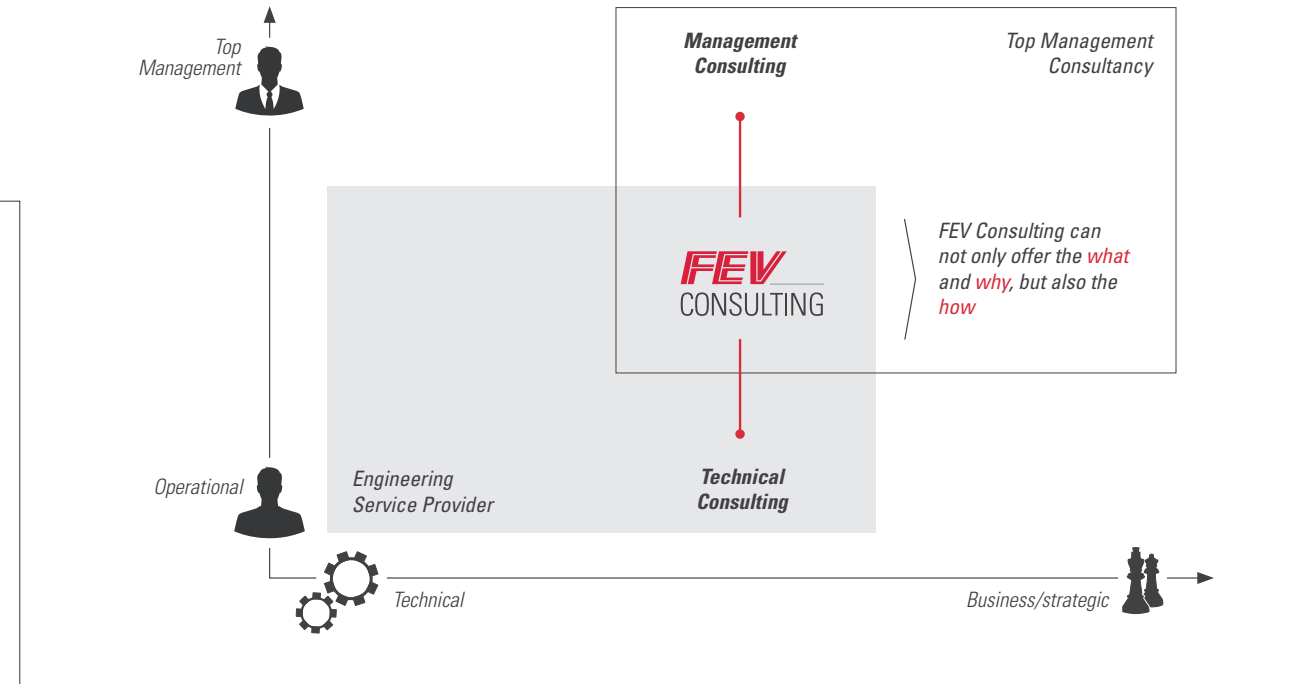
FEV Consulting combines top management consulting expertise with the technical capabilities and knowhow of the FEV Group. Our deep industry knowledge enables us to create pragmatic solutions to some of the most pressing and complex issues facing today's enterprises. In doing so FEV employs an analytical approach, proven capabilities and – most importantly – real industry knowledge to resolve clients' problems.

The current business environment is more complex than ever. Management at both large and small companies faces numerous critical challenges:

- Setting and effectively deploying successful business strategies
- Developing the right products for the right markets, and at the right price point
- Optimizing value chains and acquiring skills for new product and process technologies, and new markets
- Increasing sales and margins with increased product complexity and shorter product life cycles

- Maximizing returns on assets in the expanding global network

FEV Consulting features experienced consultants with real industry knowledge and the backing of FEV's extensive technical expertise to provide solutions that are both practical and sustainable.



EXECUTIVE SUMMARY

FIVE KEY RESULTS



Eco-Coaches have a **promising future** including **double digit growth rates** until 2025, mainly driven by evolving buying criteria, vehicle electrification and an ecological mind shift



Eco-Coaches have an **excellent CO₂ cost-benefit ratio** and the potential to **reduce** up to 20% of road **accidents** – yet an official recognition / legislation is missing (no “Eco-credits”)



All evaluated OEMs have at least a simple Eco-Coach system in their current vehicle fleets – some OEMs already published mobile and web solutions. **Fiat, BMW and Nissan** offer today's most advanced Eco-Coaches



Current Eco-Coaches score **very low** in the **Gamification** discipline. Eco-Coaches have the potential to leverage **proven game mechanics** and push fuel saving behavior towards an addictive driving pattern



Today's Eco-Coaches need to improve in terms of **personalization, customization, flexibility / adaptability, connectivity** and incorporate latest research of **human behavioral decision psychology**.

Future solutions need to be **synchronized** and **deployed** across platforms and **be tailored to segments**

