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# **Sustainable Management Tool: Ford of Europe's Product Sustainability Index**

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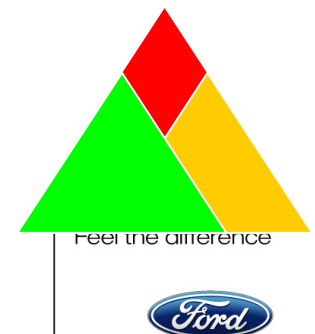


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# Ford of Europe's functional organisation of sustainability



- Main organisational functions are responsible / accountable for their bit of sustainability
- Tailored Sustainability Management Tools



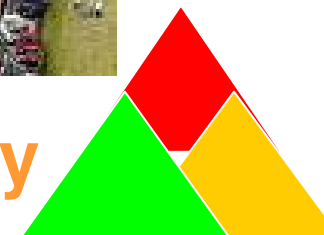
# Sustainability of Cars – The Challenges

- CO2 / Climate change
- Other Pollution (e.g. Summer Smog)
- Oil dependency
- Overcrowded streets, low mobility capability per car / mobility access (aging EU population)
- Safety
- Affordability/ often precondition for development
- Etc.



**All dimensions of sustainability**

SCP & Passenger Vehicles



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# What is PSI measuring – how and why?

Indicator	Metric	Why Important?
Life Cycle Global Warming Potential	Climate Change gases along the product life cycle* (LCA)	Carbon intensity as main strategic issue
Life Cycle Air Quality Potential	Summer Smog gases (NOx, VOC) along the life cycle* (LCA)	Potential trade-off: non-CO <sub>2</sub> emissions
Sustainable Materials	recycled & natural materials per vehicle polymer weight	Resource Scarcity
Restricted Substances	Allergy-tested label etc. (15 point rating)	Substance risk management
Drive-by-Noise	Drive-by exterior Noise = dB(A)	Society concern
Safety	Different Safety criteria	Main direct impact
Mobility Capability	Mobility capacity (seats, luggage) to vehicle size	Crowded cities (future: disabled)
Life Cycle Ownership Costs	Price + 3 years fuel, maintenance costs, taxation - residual value	Consumer focus/ Competitiveness

\*(from raw material extraction through production to use (150000 km) and recovery)

Note: legal compliance issues (recycling) are the baseline, i.e. not a topic of PSI.

Most data anyway tracked by PD / panel charts

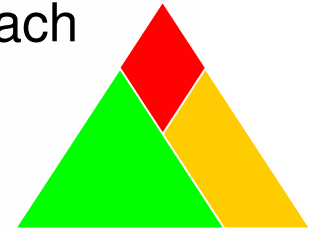




# Better Products – Already covered

## Example Ford Product Sustainability Index (PSI)

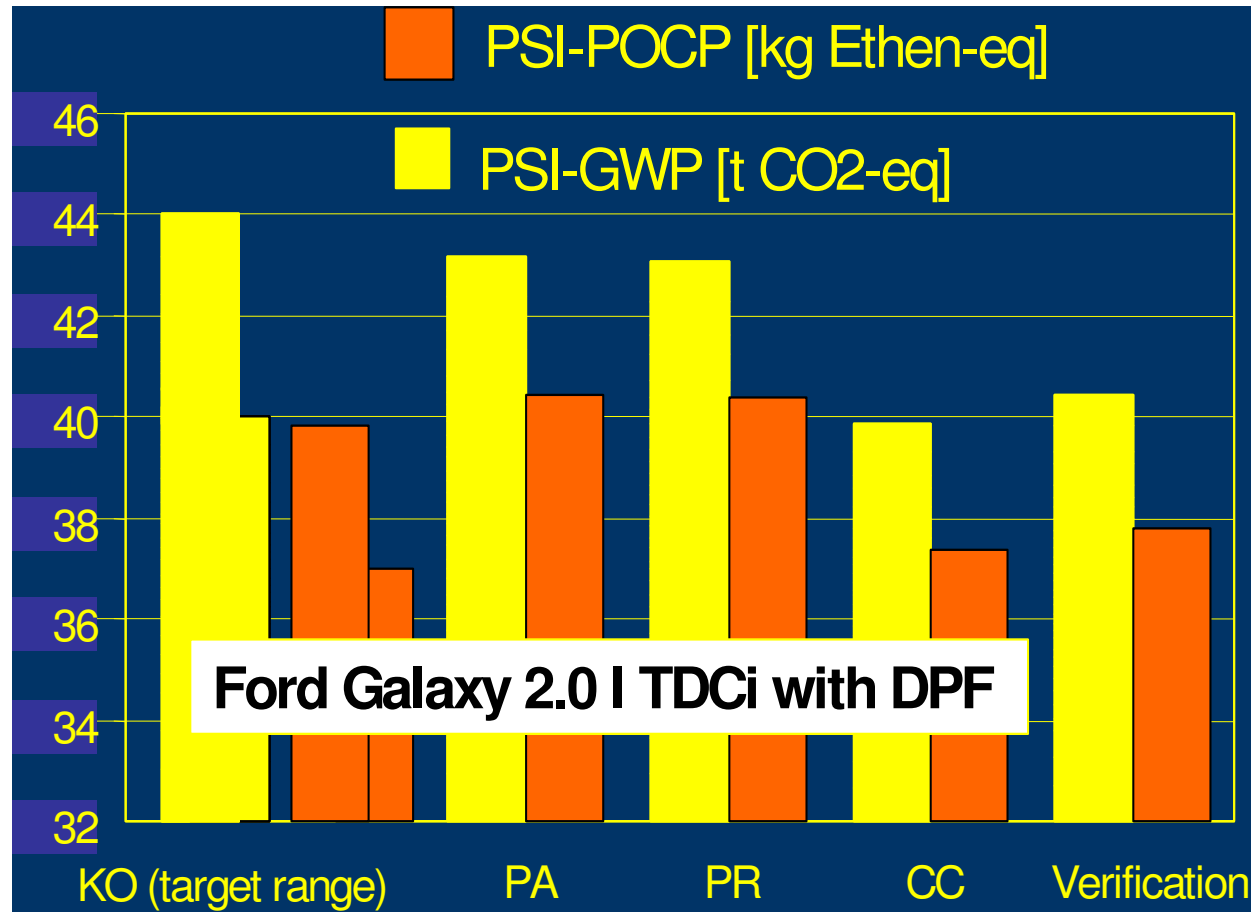
- 2002 Senior management decision for piloting Product Development tool PSI for sustainability management (all new FoE products starting with S-MAX/Galaxy)
- Used by engineering management to check target vs status at each development gateway – ensuring full ownership
- Process and approach tailored to Ford of Europe – no need for incremental resources / no bureaucracy



**Not an after-thought but built-in the product development process**

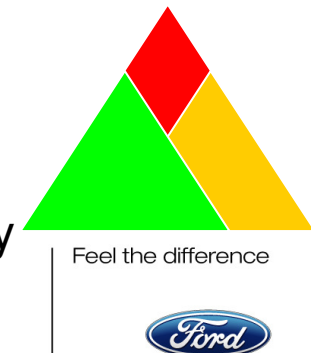


# Implementing Life Cycle Thinking in PD



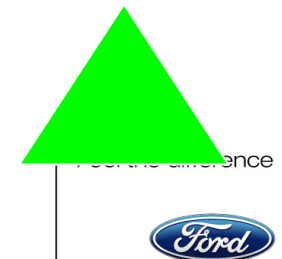
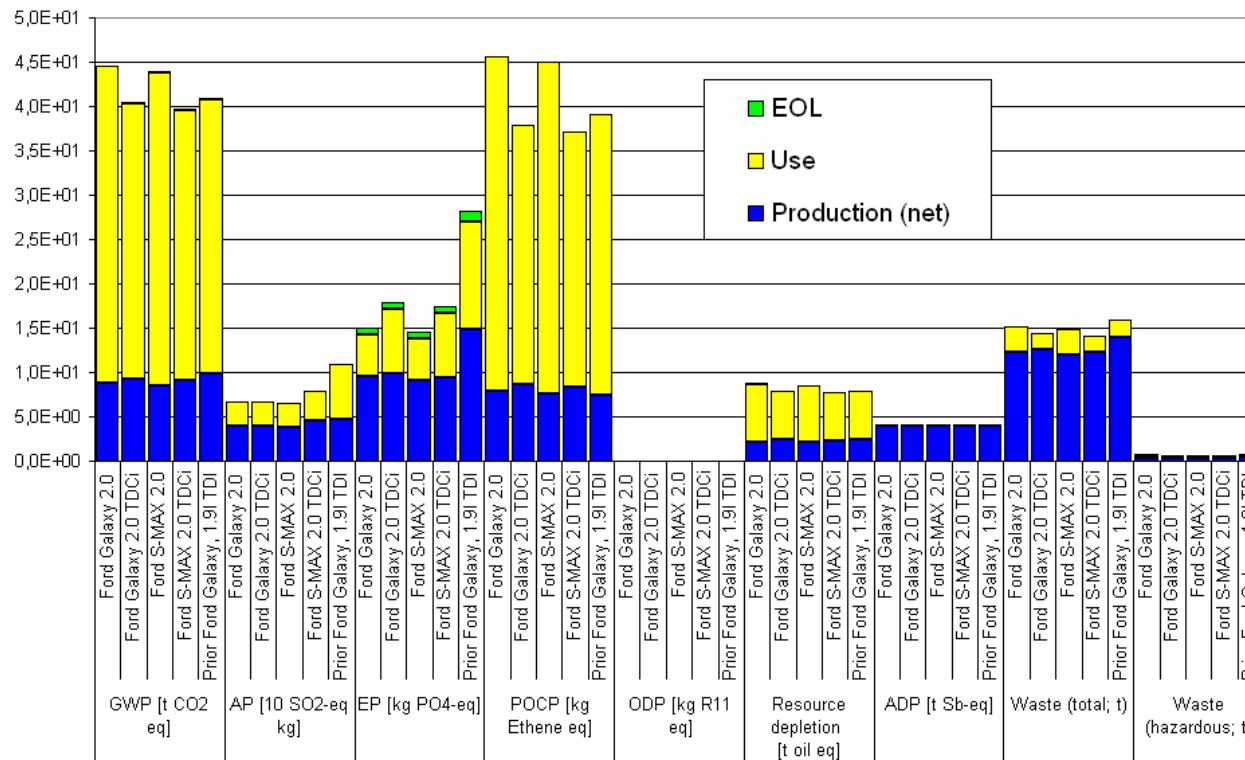
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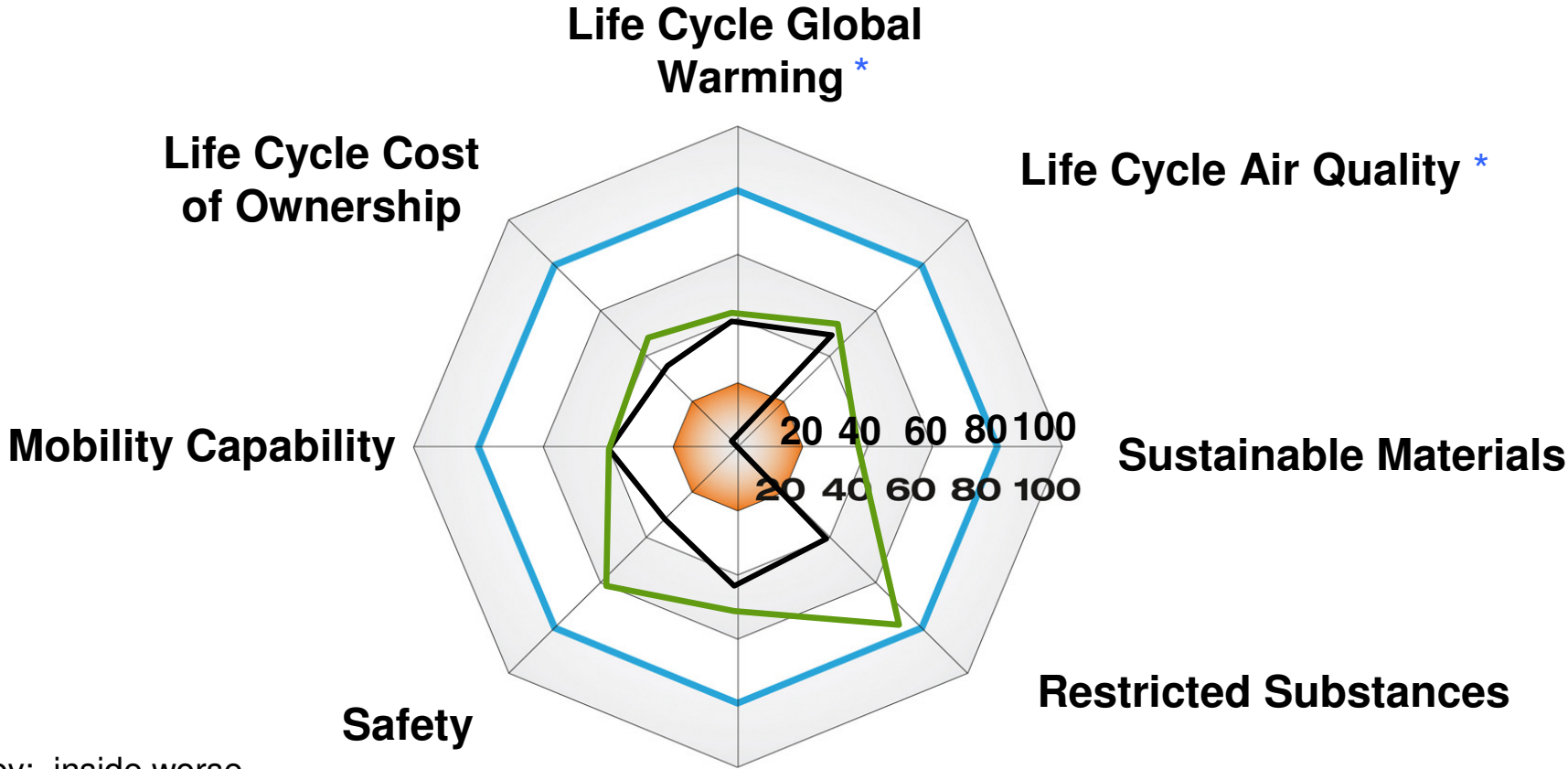


# PSI Verification Study

- Internal LCA & LCC expert study (more details, more impacts, sensitivity, Monte Carlo analysis etc.)



# PSI – Example Galaxy diesel



- Key: inside worse  
outside better
- Prior Ford Galaxy 1.9l TDI
- New Ford Galaxy 2.0 I TDCi with DPF
- 80% theoretical best cross-industry B to V segment Europe



**Improvements in all three dimensions (described area is getting bigger)**

Feel the difference



Note: legal compliance issues are the baseline, i.e. not a topic of PSI.

Also aspects decided before PD (e.g. service aspects) cannot be covered by PSI

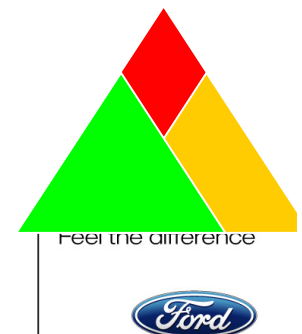
\*(from raw material extraction through production to use (150000 km) and recovery)



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# PSI experiences

- Incremental work (tracking, calculation) due to PSI only 10 – 15 hours as perfectly fit to existing structures (voluntary not legally mandatory).
- Facilitated new insights for PD regarding costs along the life cycle (LCC) and trade-offs along the environmental life cycle (LCA).
- Incremental work of verification / expert study much higher (months, external costs etc.).
- Verification study was – as a once-off study - important to verify the simplified calculations.
- External review allowed sharing the experience with external world and to get scientific confidence by external, leading scientists.



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# Motivation – Business Case

- Internal voluntary tool – no external pressure to do so (no legal, no competitive pressure).
- No legal requirement is tracked by PSI- >prerequisite to find the optimal fit to Ford structure
- Allowing long term perspective / avoid unwanted shifting of impacts (life cycle environmental impacts)
- Ensuring product competitiveness (economic indicator)
- Allowing a comprehensive overview about impact of design actions to sustainability aspects



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# Product Sustainability Index Conclusions

- Making different corporate function accountable for their sustainability
- Ensure tailored approaches requiring no additional resources and no expert knowledge
- Implementation and application need to be done by affected corporate functions – making they feel owning the subject
- Voluntary approach superior to mandatory one (one size fits all, no competitive advantage)

