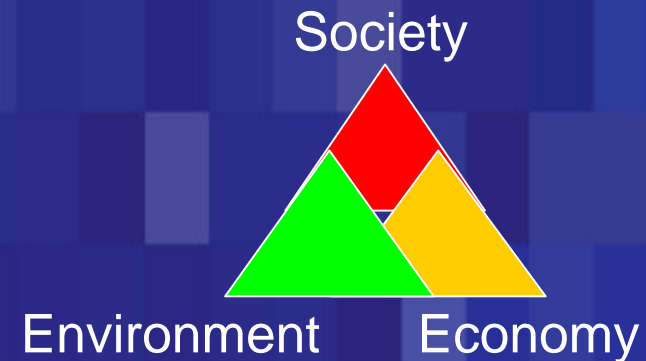


Ford of Europe's Product Sustainability Index - Learnings for SCP indicators -



Wulf-Peter Schmidt

**Ford of Europe, Vehicle Environmental Engineering
Supervisor CO2/Sustainability & Tech. Spec. Vehicle Recycling**

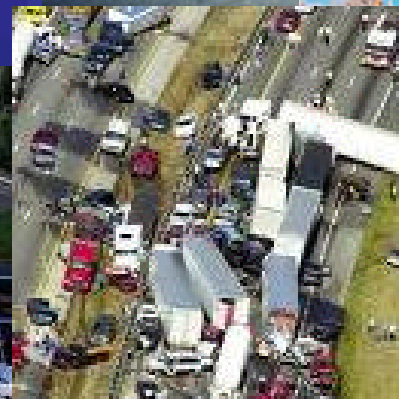


Sustainability of Cars – The Challenges

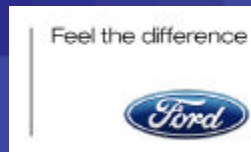
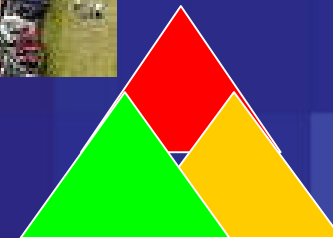
- CO2 / Climate change
- Other Pollution (e.g. Summer Smog)
- Oil dependency
- Overcrowded streets / mobility capability per car
- Safety
- Affordability
- Etc.



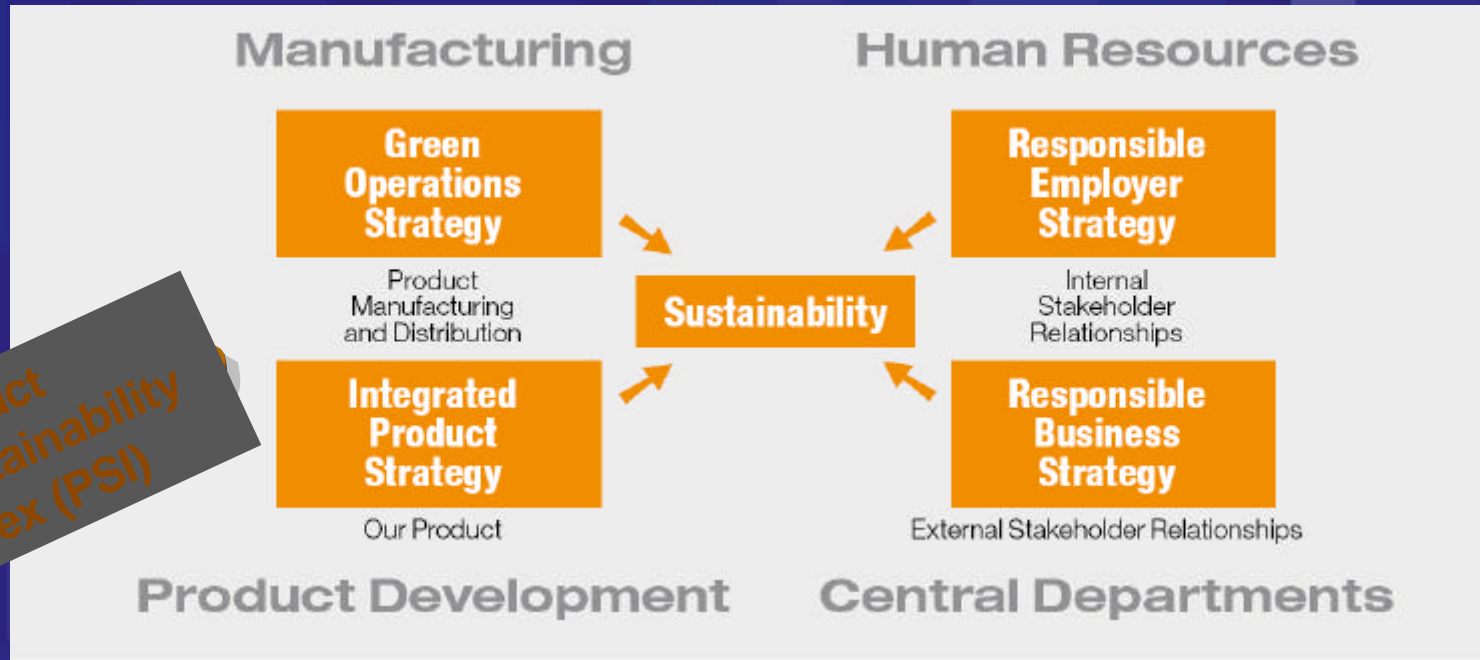
Step 1: Identify key challenges and positive contributions to sustainable development



All dimensions of sustainability

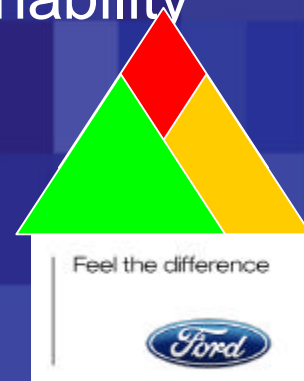


Ford of Europe's functional organisation of sustainability



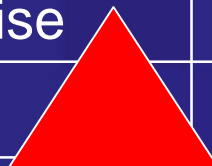
- Main functions are responsible for their bit of sustainability
- Tailored Sustainability Management Tools

Step 2: Identify main players and key decision makers



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 ₂ 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 + costs, t	consumer focus/ competitiveness



Step 3: Focus on key, controllable indicators that show challenges, opportunities and trade-offs by PSI



* (from raw material extraction through production)

Note: legal compliance is also aspects decided by

Roles & Resp

Pro

• PSI Methodology



• Data Input



• PSI Calculation



• PSI Target Setting, Reporting, Compliance



• Integration / Awareness / Training



• Supplier Communication



• Cross Carline Co-ordination

• Governance

Step 4: Have an implementation process that is driven by main decision makers/non-sustainability people (base mainly on data and processes that are already established by them, that they can control)

• Vehicle Integration (VI)

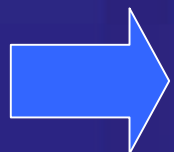
• Chief Program Eng. / Project Mg'ment / Vehicle Integration

• PD Factory

• Purchasing

• Product Planning

• FoE Operating Committee



After finalization of PSI methodology all done by Product Development itself

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Feel the difference



Ford S-MAX and Galaxy: pilots for PSI

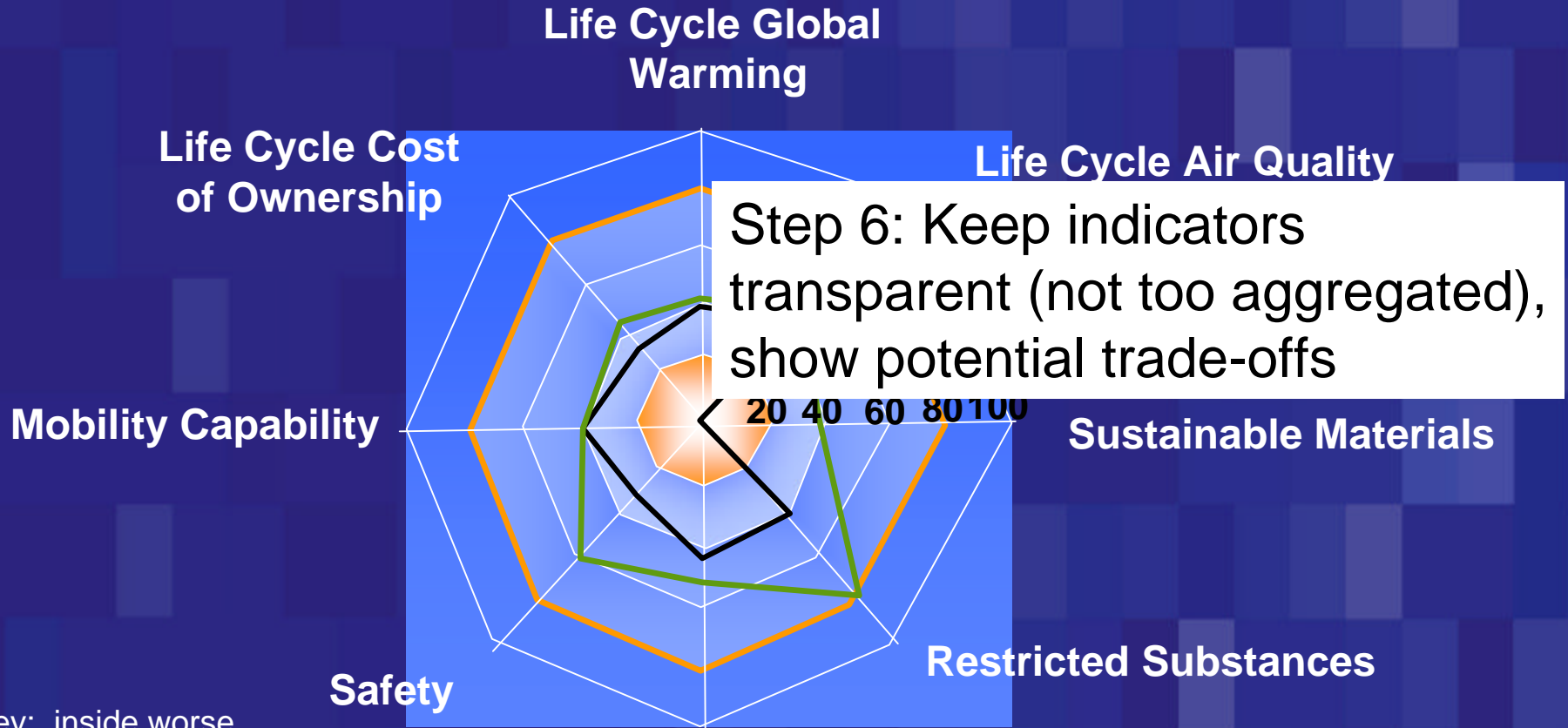
- 2002 Senior management decision for PSI piloting (all new FoE products starting with S-MAX/Galaxy)
- 2002 Target discussions
- 2002-2005 Tracking PSI by Vehicle Integration
- 2006 ISO14040 Verification Study, external review (ISO 14040)



Step 5: Ensure buy-in of top decision maker & verify



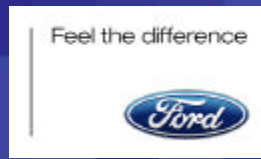
PSI – Example Galaxy diesel



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

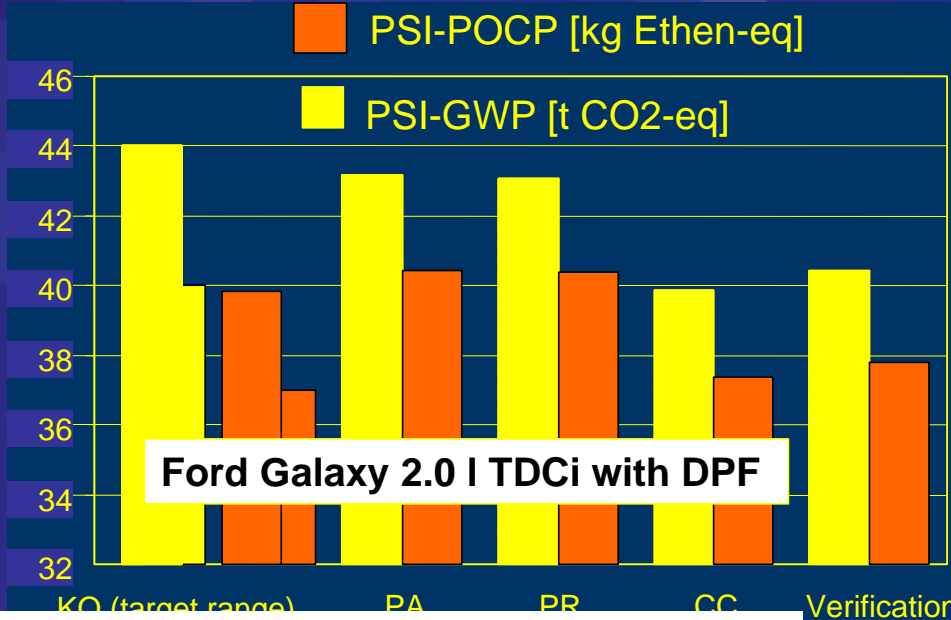


Improvements in all three dimensions (described area is getting bigger)

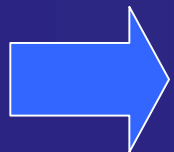


Implementing Life Cycle Thinking in PD

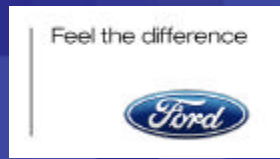
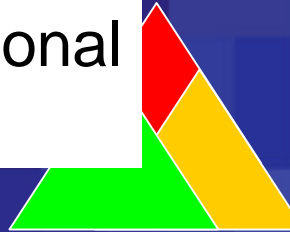
- Calculation of PSI based on simplified LCA / LCC via spreadsheet file
- Based on available data of PD vehicle attribute target / status charts plus few additional data (in total approx 20 entered data)
- PSI included in normal Multi-Panel Chart managing all vehicle attributes throughout the PD process
- PSI run by PD engineers who are no specialists in the area of LCA or LCC
- Optimal fit to Ford design approach -> each company has to find its own way



Step 7: Not one-size fits all but adoption to individual culture/no need for additional resources, lean.



Lean management, no incremental resources, fit to Ford culture



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 (rather than one-size-fits all, no competitive advantage)