

Optimized electric Drivetrain by INtegration

FP7-2012-ICT-GC

ODIN

Abstract:

One of the primary goals in the development of electric vehicles is to reduce cost while ensuring performance and meeting automotive quality standards necessary for market success.

Consequently the e-powertrain has to be both cost attractive and power efficient. Highly integrated powertrains have a high potential to reduce cost and enable the use of high-speed electric motors to reduce space and weight.

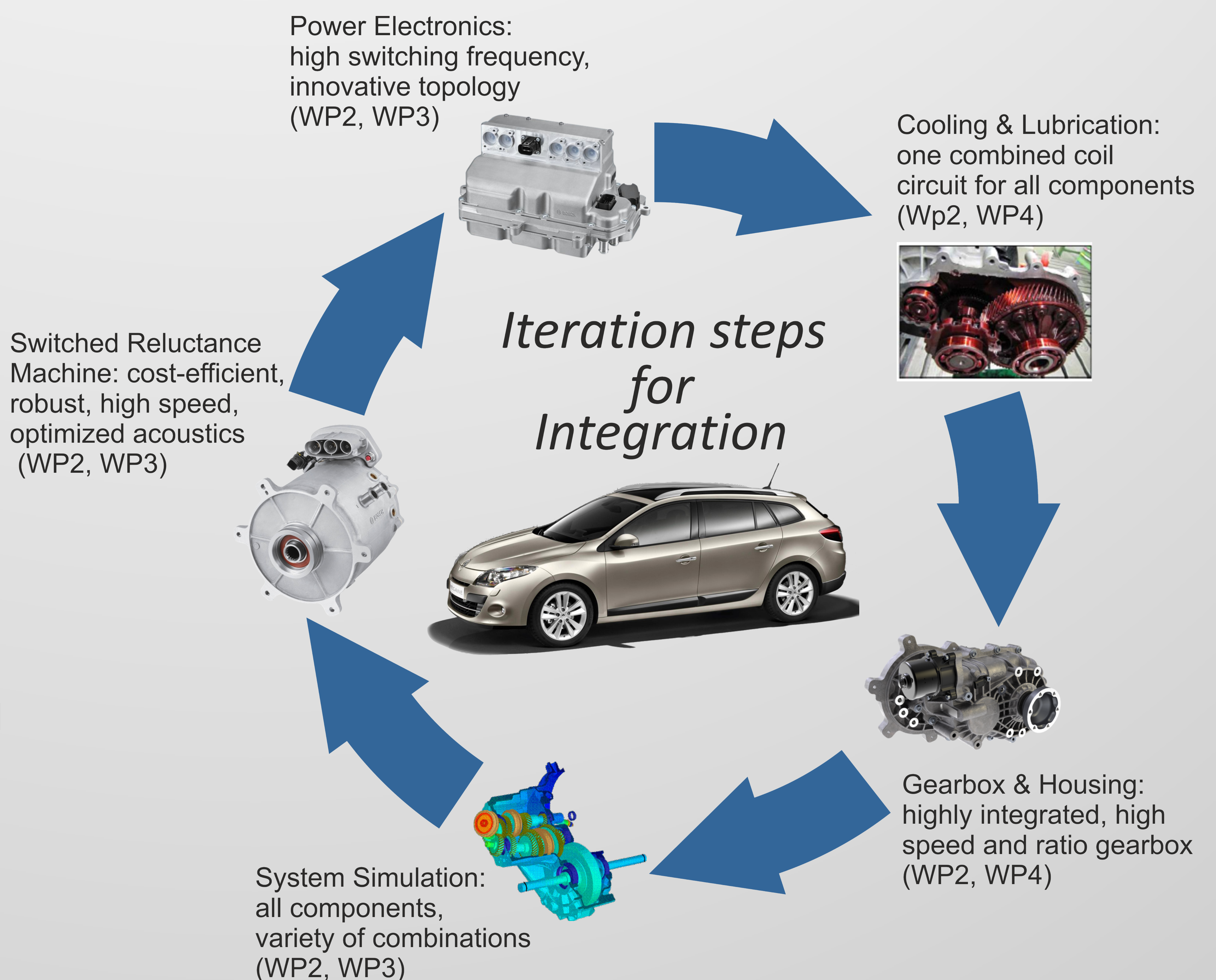
The ODIN project plans to combine a high-speed electric motor with gearbox and power electronics in a common housing to confirm this potential.

The ODIN Consortium is convinced that high integration from the very first design step makes use of synergetic effects between the components and optimizes the overall production process.


The result of the ODIN project will be a light and compact e-powertrain mounted in a Renault Zoe to prove its qualification as the future technology for electric vehicles.


Concept:

- System Simulation:
 - Drive-cycle efficiency
 - NVH behavior
- Switched Reluctance Motor:
 - Robust & high power
 - NVH optimized
- Power Electronics:
 - Innovative topology
 - High switching for high speed
- Cooling & Lubrication:
 - One cooling and lubrication circuit
 - Cost & space benefit
- Gear Box:
 - High efficiency despite high speed
 - NVH optimized
- Housing
 - Synergies by high integration
 - Innovative cooling structure





Consortium:


- Bosch (Germany):  **BOSCH**
Technik fürs Leben
 - Project Coordination
 - Power Electronics
 - E-Machine Construction


- CIE (Spain): 
 - Housing Design
 - Materials Selection/Qualification

- Fuchs (Germany): 
 - Lubrication & Cooling Concept

- GKN (France):  **GKN DRIVELINE**
 - Gear Box Concept
 - Gear Box Construction

- Renault (France): 
 - Vehicle Specification
 - Vehicle Integration

- Romax (UK): 
 - System Simulation
 - NVH Optimisation

- RWTH Aachen (Germany): 
 - E-Machine Design
 - Drive Control

Start	07/2012
End	06/2015
Budget	9.4 Mio€