

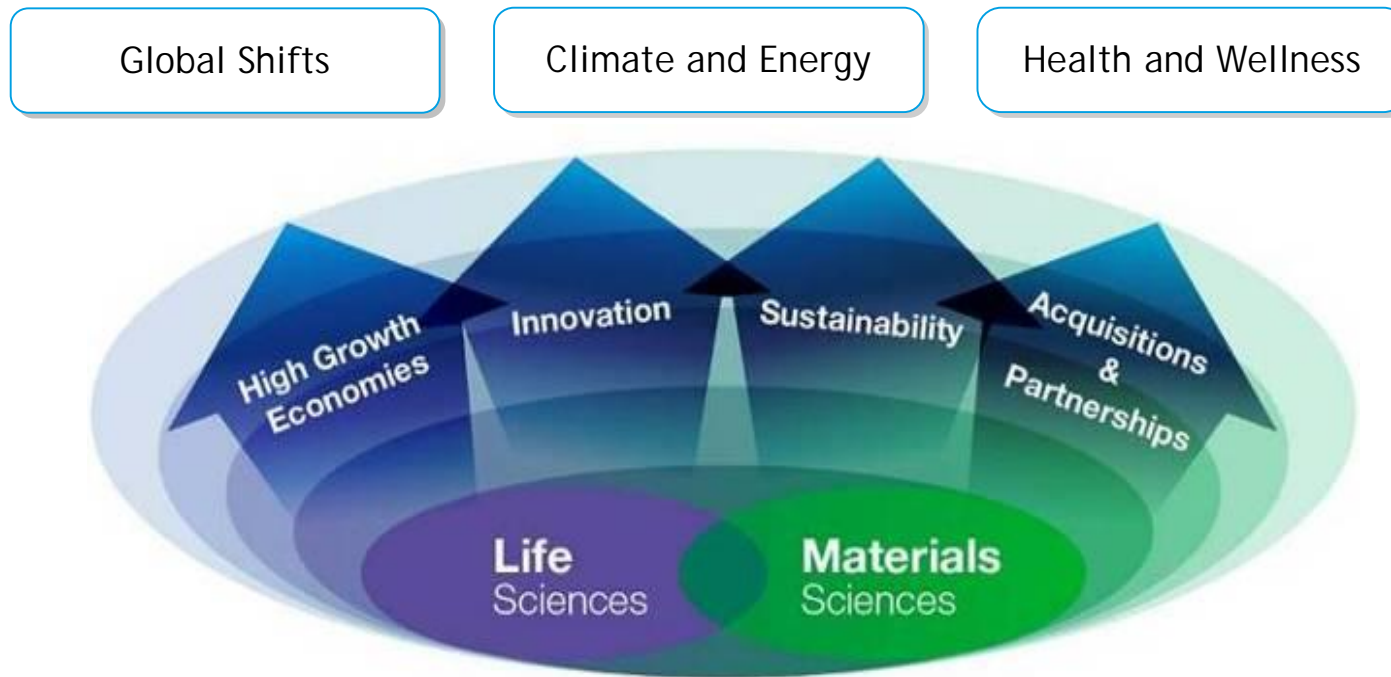
Sustainability Innovations

---Bright Solution for Automotive

DSM Engineering Plastic China
Gomas Cheng
Dec.2011

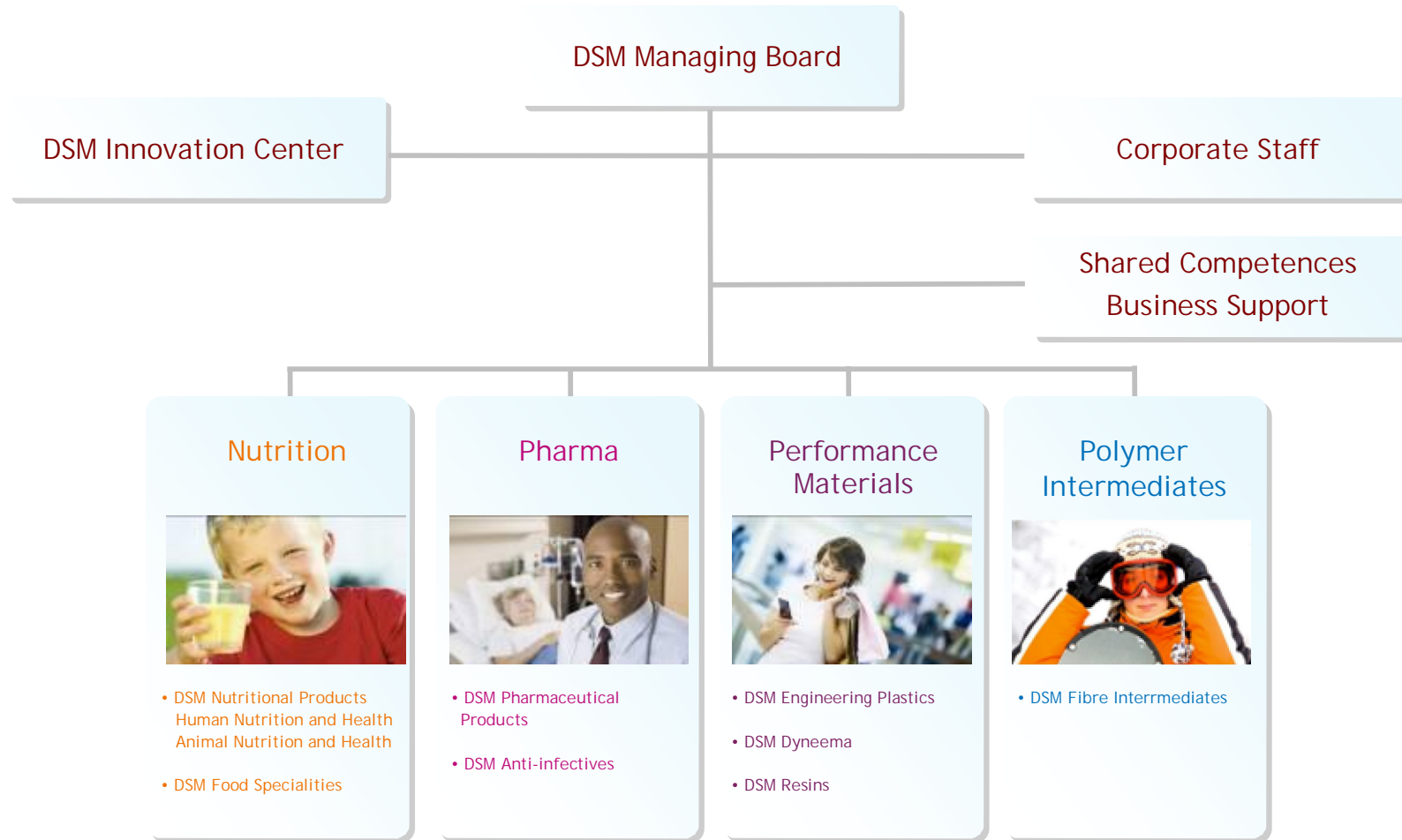
DSM: Connecting our competences

DSM in Motion: Driving focuses growth



People – Planet – Profit: creating value along three dimensions

DSM Organization chart



DSM Engineering Plastics: Proven Track Record



Air/Fuel



Safety



Auto E&E + Gears



Powertrain



Drivetrain



Lighting + Interior/Exterior

DSM Engineering Plastics' Portfolio

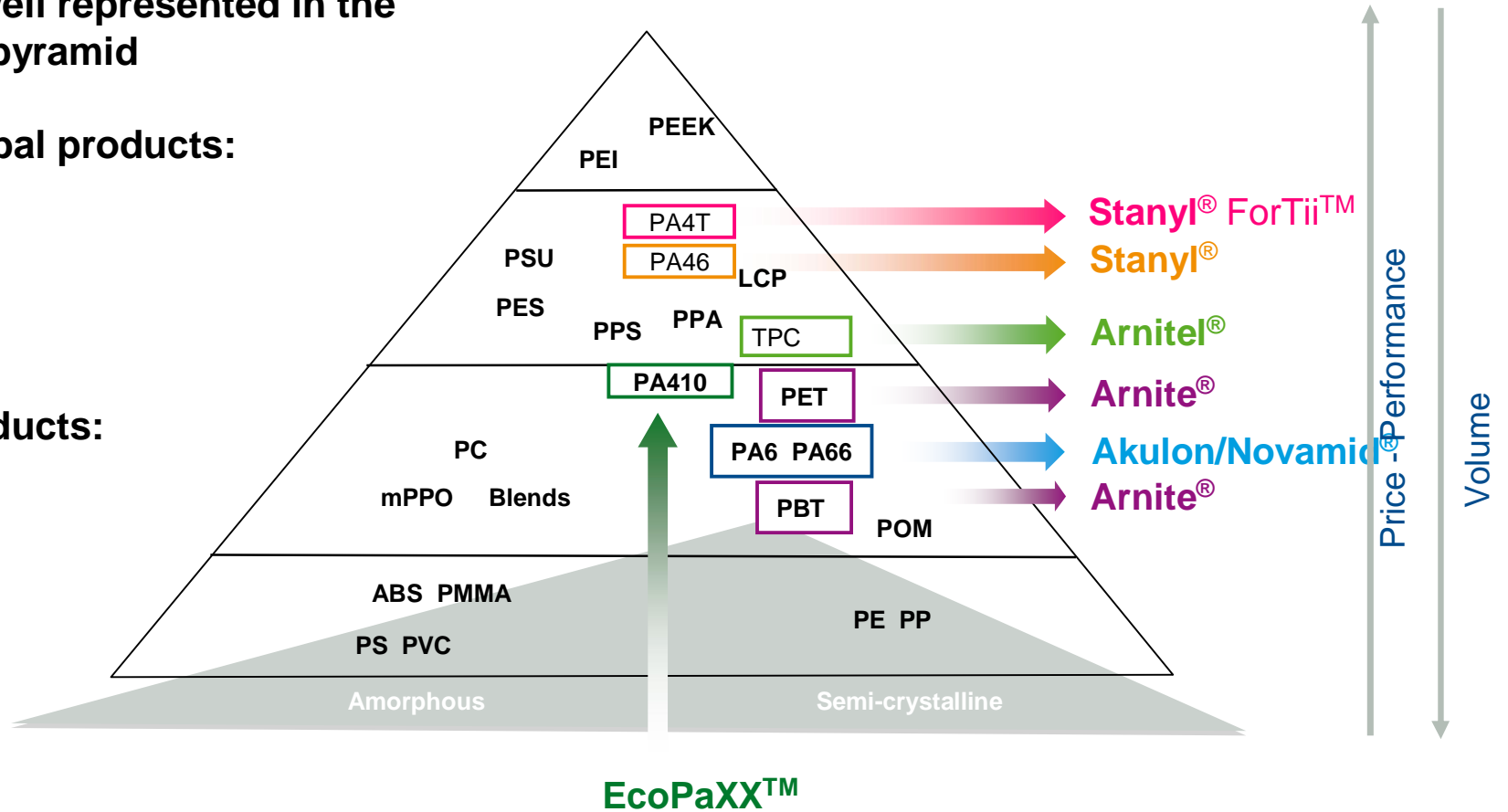
DSM is well represented in the plastics pyramid

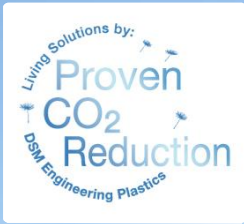
Main global products:

- PA46
- PA6
- TPC
- PET

New Products:

- PA4T
- PA410



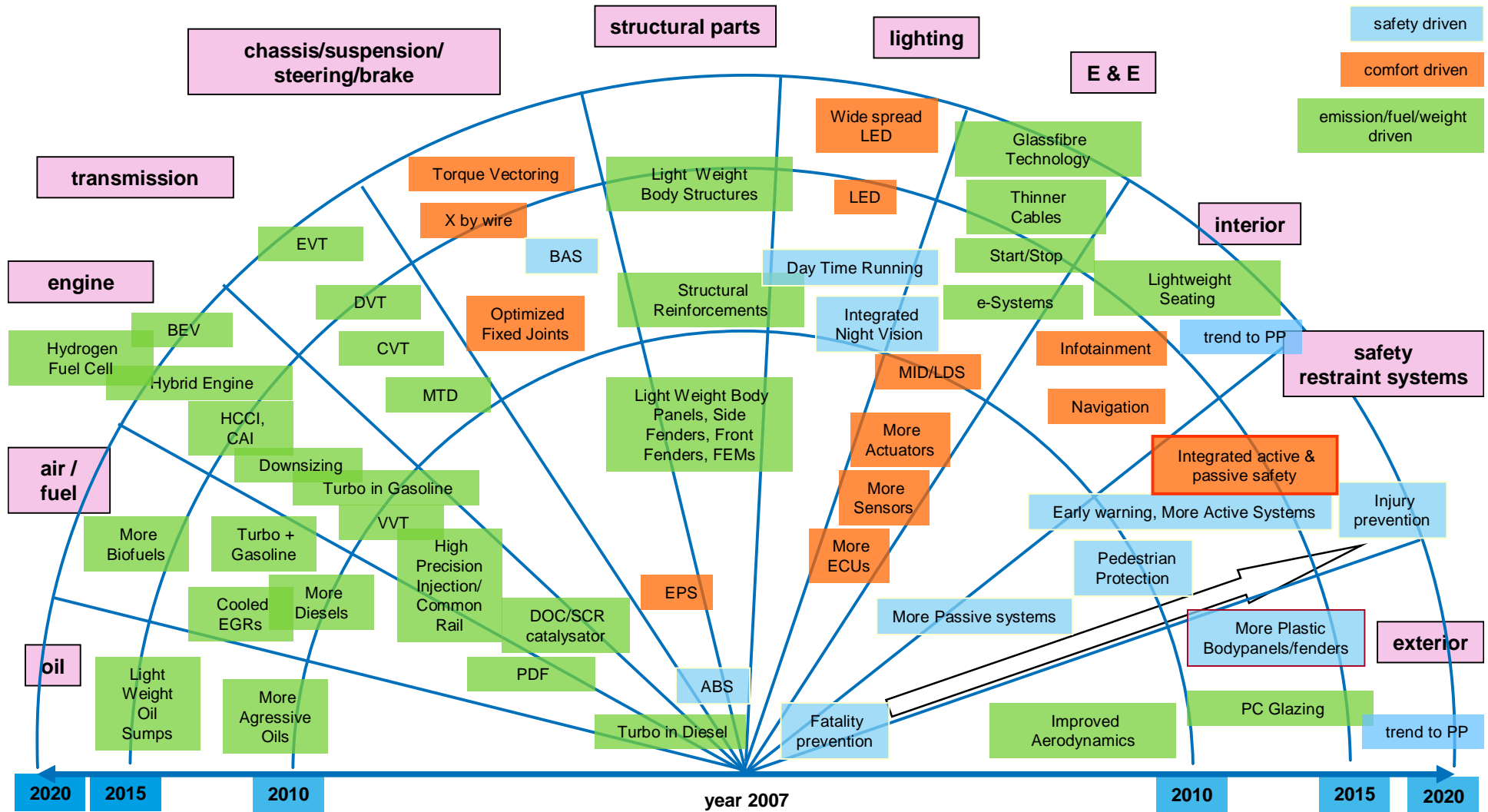


ECO+ Solutions from DSM Engineering Plastics for Automotive

Eco Footprint Improved
Fuel/Emission Down via

- Weight Down
 - Friction Down
 - Electrification
- System Cost Down

Technology Roadmap



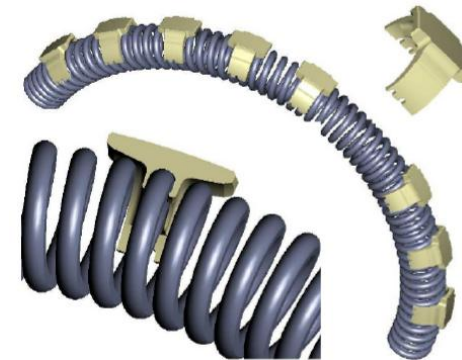
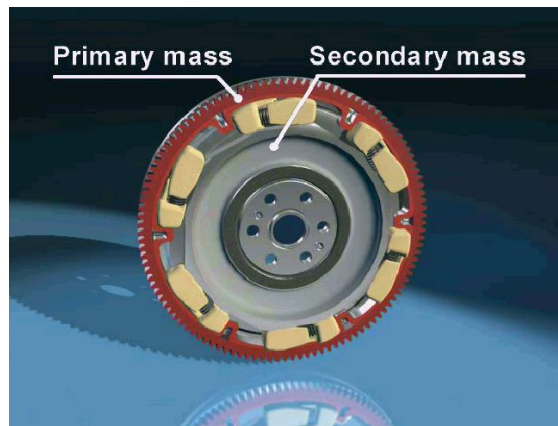
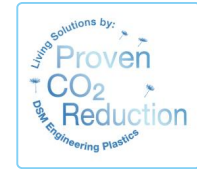
Source: DSM



Astonishing Stanyl®

Dual Mass Flywheel
Chain Timing System
Belt Drive (FEAD + Belt Timing)
Bearing Cages
Air Inter Cooler endcap
Powertrian Gears system

Dual Mass Flywheel ← Dual Clutch Transmission (DCT)



More Sustainability & Innovations from DSM for Automotive

Chain Timing System

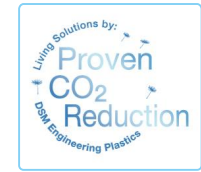


More Sustainability & Innovations from DSM for Automotive

Bearing Cages



More Sustainability & Innovations from DSM for Automotive



Air Inter Cooler endcap





Powertrian Gears system

Starter motor gears



Electric Throttle Control gears



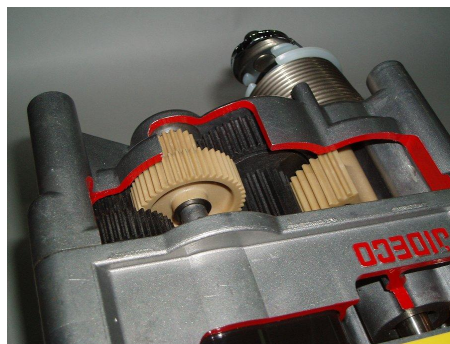
EPS gears



Oil Pump gears



Turbo Actuator gears



Driving Innovation

Innovation is a key determining factor for DSM's success, and is often focused on sustainability. In many of the market segments our customers serve, consumers expect continuous product innovation that improves functionality and performance.

In other segments, innovation is driven by the need to reduce costs or improve efficacy. By increasing the speed to market and success rate of our innovation process, we continue to deliver value to our customers.

Partnering for success

DSM actively supports the full chain of automotive manufacturing from Original Equipment Manufacturers (OEMs) through tier one, two and three customers. Our established automotive presence includes global OEM account management and research and technology support in all of the regions.

We operate manufacturing facilities on three continents, offering guaranteed supply of our materials across the globe. Finally, we back all of our material sales with a collaborative partnership that harnesses the power of our bright minds and bright science to lead the future innovations of the automotive industry.



DSM in Automotive: smarter, lighter, greener, brighter.

Overview applications in Automotive

Sustainability is one of our key pillars for success. Manufacturers increasingly seek out high performance materials to reduce the carbon footprint of vehicles over the course of their life cycle.

DSM offers Eco+ solutions that reduce weight and friction to reduce CO₂ emissions, as well as bio-based and recycle-based materials. We also offer a full range of halogen-free flame retardant solutions that maintain high safety performance.

DSM's product portfolio:

Akulon® PA6/PA66
Amilte® TPC
Amilte® PET an PBT
Amilte® Eco
EcoPaXX™ PA410
Novamid® PA6/PA66
Stanyl® PA46
Stanyl® ForTII™ PA4T

Chassis and Structural Parts

- Structural reinforcements
- Front end module carrier
- Body plugs
- Structural parts

Powertrain

- Timing systems
- Oil sump and CHC
- Bearing cages
- FEAD systems
- MTD & DMF
- Crankshaft covers

Air and Fuel

- Air Inlet manifolds
- Turbo resonators
- Clean air ducts
- Charge air cooler end caps
- Hot & cold charge air ducts
- Turbo compressor housing

Safety

- Airbag containers
- Airbag covers
- Airbag inflators and igniters
- Brake booster valve bodies
- Brake tubes

Lighting

- AFL & DBL frames
- Bulb & sockets
- LED components
- Reflectors

Electrical and Electronics

- Coils and E-Motors
- Connectors
- Fuseboxes
- Sensors
- Wire & cable

Interior

- Air vanes
- Door handle systems
- Seat components
- Pedal systems
- Door handles
- Gear shift console

Exterior

- Outdoor rearview mirrors
- Roof racks

Drivetrain

- CV boots
- EPS components



Thank You

BRIGHT SCIENCE. BRIGHTER LIVING.™

Further More Details about us
www.dsmep.com