



This article was published
in the [automotivemanager 1/2009](#).

Get to know our Automotive Team.

Oliver Wyman's automotive experts have broad industry experience and a commanding track record of successful consulting projects for leading automotive OEMs and suppliers in Europe, America and Asia. We offer consulting services along the entire value chain of the auto industry: R&D, purchasing, manufacturing, sales and channel management, after sales and financial services. Oliver Wyman's global Automotive Practice supports clients with strategic topics like brand management, customer orientation, corporate and business strategies, market, competitive, and technology analyses, product development, innovation management, sales strategies and after sales programs. Operational optimization includes purchasing, production optimization, efficiency improvement programs, reengineering, turnaround management and restructuring. In addition, Oliver Wyman offers the whole range of mergers & acquisitions consulting services, from partner search to evaluation, transaction support, and post-merger integration.

© 2009 Oliver Wyman. All rights reserved.





› Customer › **R&D** › Procurement/Suppliers › Production › Sales › Services

Going on an R&D diet

Companies will need to significantly increase the performance of their research and development if they want to meet future innovation goals at reasonable costs despite the current market challenges. By doing more with less, the productivity of component and vehicle plants has been climbing for years. The strength of a company's R&D plays a similarly critical role in the competitiveness of manufacturers and suppliers. Oliver Wyman's »Lean R&D Agenda« shows how researchers and developers can reach their goals more quickly and more flexibly with less effort.

Christian Kleinhans,
Peter Bosch

The requirements being placed on future mobility have risen, and the German automotive industry is responding. In 2008, R&D spending totaled about 18.9 billion euros – 3.8 percent more than the previous year. Over the next ten years, the global automotive industry will invest about 800 billion euros in R&D. Today, manufacturers are already devoting four percent to eight percent of sales to R&D. The so-called »R&D rate« rises to more than ten percent at the most innovative suppliers. But today's sales-volume and earnings crisis is limiting the amount of mon-

ey available for this work. Falling new-car sales, plunging profits and the enormous cost pressures arising from these developments have caused companies to carefully scrutinize R&D activities.

Three paths of R&D performance

One constructive way to boost R&D performance is called lean. Lean means that internal and external customers become the focal point and that the company concentrates on value-creating processes. In production, lean has been a »best practice« for some time now,

including its application to increase »first time through quality« in vehicle assembly. Today, lean is considered to be a guiding principle for R&D as well. In R&D, the five lean principles are: eliminate waste, systematically focus on customer needs, empower employees, integrate procurement and suppliers as well as create standards. The five lean principles form the foundation for optimizing R&D on the operational level. Efficiency and effectiveness are the benchmarks.

The »Lean R&D Agenda« takes three paths: engineer less, engineer smarter and engineer cheaper. Despite this approach's mid- and long-range views, a focus is also placed on a short-term, effective contribution to higher efficiency and optimized cash flow.

capacities and skills. New processes related to »front loading« also significantly reduce spending. For testing hardware, these savings total about 30 percent.

Engineer cheaper

Savings can also be achieved in the provision of internal engineering by boosting productivity, or »engineering force effectiveness.« Unproductive activities – that is, those that are not strictly engineering activities – are reduced to gain productive engineering time. Less reporting, committee work, preparation for approvals, travel and component logistics are the objectives of this effort.

Through value sourcing, external engineering services can be acquired with greater

»Lean is making its way into R&D. Performance must rise – but spending should be done more efficiently and effectively. Lean is the key to success in this drive.«

Engineer less

Technology, vehicle and powertrain programs must be optimized more than ever. Are they efficient enough? Do they create brand distinction? Do they improve the opportunity and risk profile? Fundamentally valuable and profitable products, functions or technologies are given a high priority in the budget. Others are put off or dropped. As a result, driver assistance systems can be strengthened while the rollout of a hybridization is focused and given a longer timeframe.

Modular components and systems crossing model series and segments form the technical foundation for efficiency. As a result, developers can concentrate more than ever on components that offer real customer added value (»design to value«).

Engineer smarter

In a smart value model, the scope of engineering and design and the necessary core competencies for each module and function are defined from the ground up. In the process, a manufacturer's own R&D expertise and capacities are to be designed with an eye on brand and product differentiation. Expansion or focus? This question arises when considering future issues such as lightweight construction or battery systems, and also regarding traditional components such as transmissions, axles, seats and telematics.

Hybrid components in the United States, electronics in India, telematic applications in Japan, battery systems in Korea are all examples of the increased offshoring of companies' own R&D activities. A so-called »R&D footprint« of developers is required to tap the internationally available development

differentiation and at a lower cost. As a result, services such as calculations, which can be standardized, are subject to other procurement mechanisms than technology-based or product-differentiating services like software development for image processing. The costs of engineering, simulation and testing can be reduced by an additional 20 percent to 30 percent through offshoring into low-cost countries.

The five lean principles for R&D

1 Eliminate waste

Concentrate on output and necessary uses of resources – consider value-creating and radically simplified activities.

2 Focus on the internal customer

Internal synchronization of customer-supplier relations – flow orientation, takt timing, pull instead of push and a zero-defect culture.

3 Empower employees

Decisions made by employees on site – bottom-up management and the communication of relevant information.

4 Integrate procurement and suppliers

Lean design for the entire R&D value chain – incorporate procurement and suppliers across functional areas.

5 Standardize

Ensure commitment to lean design – process standards like norms, guidelines, work methods, processes and documents.
