



# Innovation in the Automotive Industry: No More Experiments

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Autonomous driving, e-cars, digital services and mobility platforms: The auto industry has a history of innovation and plenty of turbulence, but it's never been quite like this. High product quality and brand reputation still matter but have lost their luster as selling points, while attributes like technological innovation and transparent cost of ownership rapidly move to the top of what customers want from a car.

To maintain a leadership position in the automotive market and survive for the long haul, companies will have to virtually reinvent themselves—and quickly. The next generation of leaders have started to embrace some common principles as they reinvent themselves in the face of cost pressures.

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**Addressing the big picture.** For years, many companies have underinvested in new technologies. The days of pilot projects and digital labs are over. Rather than dabbling on a small scale with mobility apps, for instance, the next-gen automakers are striving to become world leaders in electric drives and making similar investments to push their core businesses forward. It's an altogether new tack—push ahead or perish.

**Making the future the No. 1 priority.** The task of reinvention is not limited to R&D. Some management teams are urgently focused on redefining the core business of the future and deciding on strategies for their companies to stand out from the competition. Successfully implementing this approach requires managers to map out a development strategy for the entire company.

**Budgeting for growth.** It takes resources to drive the key strategic innovations forward. Next-gen leaders recognize it will be necessary to spend up to 30% of the total R&D budget on new technologies by 2020.

**Mincing no words.** Reconciling the urgent need for more innovation power with the pressures to reduce costs is really a false dilemma: Leading companies are solving it by defining clearly what is truly necessary to achieve differentiation in a market and by devising more efficient approaches to innovation.

**Making tough decisions.** Many companies still believe in developing the old along with the new. Leading companies are taking a different approach, clearly defining what to push and what to cross off the portfolio or to acquire from outside sources.

**Introducing new methods.** Many companies still struggle to tap into their full potential for efficient development. The leaders are building experience with new approaches, such as Agile development, to significantly improve the productivity of R&D. As these new methods catch on and become more consistent in their application, expect to see innovation and productivity accelerate.

**Working in partnerships.** As the industry rapidly transforms, no single company has the full set of skills in new technologies and methods. What the emerging leaders lack in know-how, they are filling in through acquisitions, networks and partnerships. They recognize that waiting for this know-how to grow organically falls short and takes too long.

**Making the most of positive momentum.** A compelling innovation strategy does much more than create value on a sustainable basis or boost a company's competitive strength. It also drives the necessary cultural shift in companies and attracts fresh talent from outside.

## A programmatic approach to making innovation succeed

It takes a programmatic approach to focus these principles on the primary challenge for automakers: resolving the dilemma of developing fundamentally new products and services for electrification and digitalization while faced with tight R&D budgets.

### 1. Commit to a transformation roadmap

For most automakers, the entire company needs to be radically realigned for transformation, which unleashes profound change across the business—from production, procurement and distribution to finance and personnel. Each function has a key part to play.

The leadership team locks arms to own the transformation roadmap, which defines the company's future mission and operating functions as well as its products and services portfolio. Critically, the transformation roadmap also defines the innovations necessary to deliver the transformation. With this vision, the business leaders also commit to specific operational, performance and business goals with deadlines. How many electric cars should be produced and sold by 2020? What's the time frame to increase productivity to the agreed target? Transformation requires the commitment of the entire leadership team.

Elevating the right executive to steer the renewal program in R&D is critical. The role is a blend of hard-nosed manager, savvy politician and catalyst for change. It requires a senior executive with a wide range of skills—most notably leadership ability—and strong credibility across the organization. He or she must be adept at identifying execution risk and equipped with the courage and tenacity to manage it forcefully. At the same time, this executive will help to sell the program to the broader organization, motivate a team, build key relationships and manage the inevitable conflict stirred up by rapid-fire change. Transformation is, by definition, disruptive. The lead's role is to keep the effort on course, minimize the upheaval and deliver lasting results.

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## 2. Define WHAT to develop

The next step is to ensure the R&D portfolio reflects the transformation roadmap and the company's strategic priorities. Because of the effort and expense involved in developing new technologies, leading companies focus early on defining the necessary vertical integration and subjecting make-or-buy decisions to rigorous scrutiny. Development projects with little new to offer get cut: There's no other way to concentrate the R&D resources on the important and unique innovations.

Managing complexity is a critical capability for next-gen automakers. R&D has a vital role to play in keeping variables to a minimum and constantly looking for the right opportunities to increase standard parts and subassemblies across products. But the emerging leaders have also elevated cross-functional coordination with distribution, product management and production to a companywide management imperative, to ensure support for the R&D team. Many leadership teams recognize that this degree of coordination across functions is no longer optional in the push for greater innovation—it's necessary to manage complexity and the associated development costs that accrue to production or material purchasing, for example.

## 3. Define HOW to develop

Automakers cannot achieve their innovation goals using conventional waterfall methods for R&D. The challenge ahead requires companies to embrace Agile methods and iterative, test-and-learn processes, particularly for the development of digital features.

This also raises the game for selecting the right team members for the right R&D projects. Where talent is scarce, such as engineers involved in the development of electric drive systems, those people need to be thoughtfully assigned to the right projects so that no one specialist is overburdened. Otherwise, the absence of a top engineer could put the entire project at risk.

Not every function needs to be organized into Agile teams; indeed, Agile methods aren't well suited to some activities. Once you begin launching dozens or hundreds of Agile teams, however, you can't just leave the other parts of the business alone. If your Agile units are constantly frustrated by bureaucratic procedures or a lack of collaboration between operations and innovation teams, sparks will fly from the organizational friction, leading to meltdowns and

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poor results. Changes are necessary to ensure that the functions that don't operate as Agile teams support the ones that do.

The leading automakers address this partly by establishing direct lines of communication and coordination between individual R&D project teams and their counterparts in the operating business, such as production, procurement or product management. That helps to eliminate hierarchical distractions.

The right tools also make a difference, along with standardized approaches and efficient knowledge management—all of which reinforce best practice methods and enormously boost the efficiency of the R&D department.

### **4. Steer and manage the change**

Clear tasks, appropriate processes and the right infrastructure are crucial to securing the success of R&D projects. But in the end, no innovation program can succeed without intelligent steering. To gauge the performance of product development teams, next-gen automakers reach beyond standard input factors such as the number of hours worked or budget metrics. Results are what really matter, and the best way to assess how far a project has come is by examining its progress toward maturity.

Before commencing a project, R&D teams can draft a maturity timeline with clear milestones based on scheduled deadlines for all groups involved. Assuming it typically takes three and a half years to develop a new vehicle, a mature concept for the car must exist within 12 months. Another 20 months are needed to develop and freeze all details and drawings of the car's modules, then 10 months to prepare the assembly lines for production of the new model. By checking progress regularly against the maturity timeline, and gauging whether all groups involved are able to meet their deadline requirements, leading innovation teams can detect problems in good time and minimize the need to apply notorious "firefighting" measures to deal with development delays. Early detection also enables managers to quickly apply countermeasures—for example, by outsourcing tasks where necessary.

### **Conclusion: A systematic approach to successful innovation**

There's no doubt that electromobility and digitalization pose enormous challenges for carmakers and suppliers. Nevertheless, companies with vision and commitment can trade their conventional concepts and methods in R&D for the necessary innovative strength to transform themselves.

A leadership team that sets the direction by defining a clear transformation roadmap and a systematic innovation program will enable the company to reinvent itself. The future of the industry demands nothing less.

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