

think:act CONTENT

Fresh thinking for decision makers

Intelligence instead
of fear | Innovation in
times of crisis | It is
time to set new
priorities, rethink
current practices and
tap unused potential
in the corporate
innovation process

DESPITE THE ECONOMIC CRISIS,
MANY INDUSTRY LEADERS ARE
STILL INVESTING IN RESEARCH
AND DEVELOPMENT:



14
EUR BN

Daimler plans to invest EUR 14 bn in R&D by 2010.



2,9
EUR BN

Pharmaceuticals giant Bayer is making drastic cuts in fixed costs, but has increased its R&D budget to EUR 2.9 bn.

Source: Roland Berger Research

WEATHERING TURBULENT TIMES

The instability of the international financial markets has led to an acute capital crunch in recent months. Companies around the world were forced to curb spending. The consequences for innovation management and R&D: companies have thought twice about investments, projects have been shelved, and market launches for new products postponed. We've seen these trends in many fields, including the automotive industry. But there are also examples of companies doing just the opposite: Microsoft CEO Steve Ballmer announced that the company would counter the recession with additional investments rather than cuts, and promptly raised the R&D budget to USD 8 billion. With this strategy, the software giant is using the turbulent times to prepare itself for the approaching upswing.

INNOVATION 2.0

Product development flops are routinely factored into the innovation process. While such a flop doesn't pose a problem in a strong economic climate, the same flop can be a company's undoing during a crisis.

Top managers must thus develop an instinct for recognizing promising R&D investments. How can companies conduct research profitably in turbulent economic times and still maintain a lean structure? Is the quickest possible product launch really more important than budget constraints? How can managers minimize poor business decisions and the risks they entail? Should a company position itself as a first mover or as a follower? How can it use globalization as a strategic advantage?

It's impossible to answer these questions independently of one another. If management decides that research and development should follow a new path, then all functional areas must be involved in the rethinking process. Companies can ensure long-term success by setting new priorities in their own innovation processes, pursuing a different approach than before and activating unused potential. The key concepts in this process are comprehensive, cross-functional and systematic. Corporate leadership's role here is to ask the critical questions – decisive questions that lead to new approaches and solutions.

UNDERSTANDING THE CRISIS AS A TIME FOR RETHINKING

Systematic innovation management that provides long-term stability must extend beyond short-term considerations during the financial crisis. Globalization and the growing competitive pressure from developing nations have drastically stepped up the pace of important decisions. Many companies are relocating R&D activities directly to target markets in order to accelerate product launches. Furthermore, the sheer numbers and diversity of new product features has increased exponentially. Product development is becoming increasingly complex due to shrinking development cycles and an ever-growing number of variations. Last but not least, laws are continually changing all over the world, forcing companies with global operations to constantly rethink their innovation strategy and react with flexibility.

But external pressure, whether from capital markets, the competitive environment or perhaps patent laws, doesn't have to be counterproductive. A challenging environment can accelerate decision-making and even produce innovative solutions, as the following examples prove. Through projects for a number of blue chip and SME clients, Roland Berger Strategy Consultants has identified eight keys to success for research and development management in the current climate.

EIGHT KEY LEVERS IN RESEARCH AND DEVELOPMENT

- 1 Customer-oriented development
- 2 Intelligent product architecture
- 3 Prioritization and portfolio management
- 4 Optimizing vertical integration in development
- 5 Global expansion of the R&D division
- 6 Efficient and effective product development processes
- 7 Effective management and control systems
- 8 Benchmarking

I. SETTING NEW PRIORITIES

"Setting priorities means choosing what can wait."

Helmut Nahr, German mathematician and economist

To set new priorities, companies must answer simple but fundamental questions without any bias: Who are our customers? What exactly do they want (and what don't they want)? Will our product range continue to meet customer requirements in the future? What does an intelligent product toolkit look like?

The following examples show how these questions can be answered.

→ LEVER 1: CUSTOMER-ORIENTED DEVELOPMENT

Customers' needs are becoming more individualized and short-lived. Companies would thus be well-advised to specialize in flexible, modular solutions for product development. And companies must focus firmly on customer benefits throughout the process – in other words, they should improve only those functions that customers are actually willing to pay for. For example, machines from German manufacturers commonly offer additional functionalities that a typical customer in a developing nation will utilize only 70% at most. From that customer's perspective, the machine is too expensive and not suited to his needs. Roland Berger's Value-Based Featuring methodology enables companies to rank customer needs by importance and to estimate their willingness to pay per additional product feature. These requirements can then be translated into technical solutions that offer added value to manufacturer and customer alike. In other words, the customer pays only for what he really needs, and not for what he considers useless extras. Called a "lean product" approach, this enables companies to abandon one-size-fits-all solutions in favor of more customized products and price models that are better suited to their clients. This approach requires clear segmentation of customer groups.

→ LEVER 2: INTELLIGENT PRODUCT ARCHITECTURE

A number of industries already employ platform and module structures that greatly reduce development and production costs while improving product quality. The automotive and mechanical engineering industries are leading this trend. The objective is to cut costs at any price – in these difficult times, even competitors are working together.

CRISES OFFER OPPORTUNITIES FOR INNOVATION



1970s

Apple and Microsoft are founded in the midst of a deep recession.



1990s

The collapse of the Soviet Union leads Nokia, a paper and rubber manufacturer, to rethink its business model. Within a few years, Nokia rises to become the world's leading producer of mobile phones.



2000s

Falling revenues cause Nintendo to send its developers back to the drawing board. The result is a revolutionary new game console: Wii.

Source: Roland Berger Research

3M IS A GLOBALIZATION LEADER



1 Local technical support
First, a local technical customer service unit is established to support local companies in the use of a product.



2 Localizing imported products
Next, imported products are customized to suit local needs and minimize costs and risks.



3 Local development division
Shortly afterwards, the company establishes a local development unit.



4 Realignment to suit local and global market conditions
3M's strategy enables it to successfully adjust to local market conditions and still meet the requirements of globalized markets.

Source: Roland Berger Research

Generally speaking, companies should focus on four options for collaboration on a modularization project:

- > Within a company by means of platforms within a brand
- > Within a corporate group across different brands, e.g. between VW, Audi, Skoda and SEAT
- > Across corporate boundaries to companies with no direct competitive relationship, e.g. VW Touareg/Porsche Cayenne (even when these were separate from each other) or the BMW Mini/Peugeot engine
- > Between direct competitors with brand-neutral modules and components, such as between Daimler and BMW

"Perfection is achieved, not when there is nothing left to add, but when there is nothing left to take away," according to a quote used by 3M CEO George Buckley in "Innovating at the Top – How Global CEOs Drive Innovation for Growth and Profit", the new book by Prof. Roland Berger and Prof. Soumitra Dutta of INSEAD. 3M's successful international expansion is due at least in part to Buckley's consistent emphasis on "cleanup." The result is a clear, lean product development architecture. 3M derives its product variations largely from existing module structures and manages the simultaneous development of centralized platforms, localized modules and local customer service. The elements of this structure build upon one another: imported products pave the way for entry into a new market, then a local development department is established as quickly as possible. This approach has proven highly successful.

➔ LEVER 3: PRIORITIZATION AND PORTFOLIO MANAGEMENT

To weather the crisis, companies may need to set new priorities and reallocate resources. Combining a product and technology roadmap has proven effective for this task.

A well-structured, detailed product roadmap creates transparency for upcoming product innovations. A thorough analysis can reveal possible blind spots as early as the planning phase, whether it affects planned models, potential markets or customers. What might have been overlooked? What does the competition do better? This approach also highlights overlaps in the project portfolio and reveals where brands from the same company directly compete with one another or cannibalize existing resources.

As a supplement to the product roadmap, a technology roadmap offers an overview of the technologies or innovations that will be utilized in new products. It provides a crucial prioritizing tool for ranking development projects and deciding which projects should be assigned R&D resources.

Together, these approaches are designed to ensure that funding and staff are consciously allocated to promising projects so that the company never invests in flops in the first place. However, it is nearly impossible to achieve such strategic goals without a highly qualified development team. In times of crisis, companies often start slashing budgets here too quickly. This type of instinctive reaction seldom yields the desired success: the costs they save now have to be invested in playing catch-up with competitors when better financial times roll around. First-rate staff is a key differentiating characteristic particularly in difficult times, offering companies precisely the future prospects they need.

II. COMBINING STRENGTHS IN NEW WAYS AND RECOGNIZING POTENTIAL

"An imaginative use of partners can be the key to industry revolution."

Gary Hamel, "Leading the Revolution"

When a company combines its strengths in new ways, this must impact both the type and the scope of value creation in the R&D division. In addition, the business should think about the organization of core competencies in the global location strategy in order to recognize new potential.

→ LEVER 4: OPTIMIZING VERTICAL INTEGRATION IN DEVELOPMENT

Efforts to improve vertical integration must emphasize a precise analysis of core competencies and opportunities for differentiation from competitors. A process can be considered successful if it incorporates not only all of a company's competencies, but also the competencies of a development service provider. Determining the scope of vertical integration requires adaptable in- and outsourcing as well as flexible R&D capacity management.

Knowledge is the decisive capital in a global economy driven by competition. By contrast, protectionism is, as a rule, not conducive to promoting innovative solutions. An intelligent selection of partnerships is far more promising for achieving the optimal value chain alignment. Transparency within the company and a continuous exchange of information ensure that suppliers, subsidiaries and the company headquarters work together seamlessly and know how to utilize internal and external expertise. Partnerships, joint ventures, open or exclusive networks – in times of crisis, cooperative partnerships are often the key to efficient innovation.

In addition to strategic exchange of knowledge, value chain management requires, above all else, financial transparency. It is often difficult to calculate in advance what percentage of a budget will be spent on technology and product development and how high the indirect costs actually are. Most CEOs are thus surprised when they learn how much of the R&D budget flows into activities that add no value.

→ LEVER 5: GLOBAL EXPANSION OF THE R&D DIVISION

The way a company manages its global R&D expansion is a key success factor. When businesses decide which countries they should move research activities to, market and technology access are often weighted heavily, while cost issues play a lesser role. In contrast, experience shows that cost plays a greater role when it comes to individual project decisions. In a recent study, we identified four globalization types: globalization leaders, global marketers, technology hunters and opportunistic players. All four pursue different strategies based on their respective corporate strategies. Yet certain industry-specific success patterns have emerged (see the graphs under "Lever 5: Types of global R&D expansion").

LEVER 5: TYPES OF GLOBAL R&D EXPANSION

GLOBALIZATION LEADERS consider access to markets and technologies equally important. They weave a net of centralized research and local development units.

→ GLOBALIZATION LEADER: 3M

FOR GLOBAL MARKETERS, market access is more important than access to technology. They generate basic innovation and product platforms in global research centers and develop localized products in local development centers.

→ GLOBAL MARKETER: GIVAUDAN

TECHNOLOGY HUNTERS consider technology access to be the most important driver for globalization. They bundle their R&D activities in specialized global research centers. Products are localized only to a limited extent.

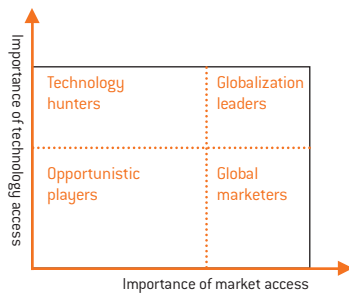
→ TECHNOLOGY HUNTER: NOVARTIS

OPPORTUNISTIC PLAYERS make decisions about globalization on an individual basis as required by business, product or client-related criteria. Their R&D activities are mainly concentrated in their home country.

→ OPPORTUNISTIC PLAYER: SARTORIUS

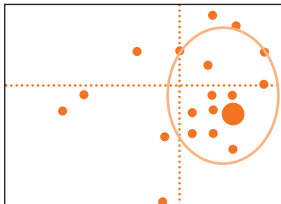
Source: Roland Berger Study "Globalization of R&D – Drivers and success factors"

LEVER 5: TYPES OF GLOBAL R&D EXPANSION

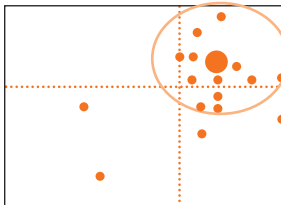


INDUSTRY-SPECIFIC SUCCESS PATTERNS

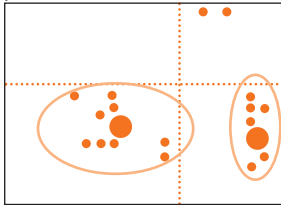
Automotive suppliers



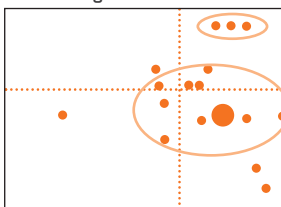
Chemicals



Mechanical engineering and plant construction



Consumer goods



III. INCORPORATING STRUCTURE AND STRATEGY INTO OPERATIONS

"A company's ability to adapt must always be greater than the speed of change in its environment."

Roland Berger, Chairman of Roland Berger Strategy Consultants

A reworking of the innovation strategy, the value chain and the resulting opportunities for cooperative partnerships is rounded out and enhanced by efficient processes and corresponding methods. A targeted look outside the box coupled with broad-based benchmarking can also be helpful in revealing new options.

➔ LEVER 6: EFFICIENT AND EFFECTIVE PRODUCT DEVELOPMENT PROCESSES

Within the development process, creating clear structures is essential. "We are extremely disciplined in our process management," states Patrick Cescau, Group CEO of Unilever. "We have standardized innovation mechanisms that we apply in all divisions of the company. These cover the initial ideas, their feasibility, the deployment of capacity and the final market launch. Projects are shepherded from one checkpoint to the next and individually evaluated. If it isn't given the green light at every point along the way, project development is abandoned. [...] We don't fire all our guns at once; we provide support where it's needed."

Effective and efficient product development processes require cross-functional, lean and transparent process descriptions that incorporate all the necessary functions, such as procurement, marketing and controlling, right from the start. Quality-gate systems are crucial for comprehensively structuring development projects and systematically evaluating individual functions (or all of them) at critical junctures for interim results. This is also done to ensure early recognition and management of potential time and resource bottlenecks along the critical path.

➔ LEVER 7: EFFECTIVE MANAGEMENT AND CONTROL SYSTEMS

Monitoring a process and the critical path relies heavily on an effective management and control system that records data quickly and efficiently and converts it into key performance indicators (KPIs). The available data must be useful, comparable and easy to understand. KPIs include critical indicators of time, budget and results for individual development projects, as well as for the entire project portfolio. An incentive system tied to KPIs can serve to motivate employees and ensure that activities are focused on overarching goals.

➔ LEVER 8: BENCHMARKING

Benchmark studies with a wide scope can support efficient product development. How competitors deal with similar situations and which best practices could be adopted are only one aspect. In their roles as innovation visionaries, CEOs should introduce a broader comparative approach that includes many sectors and industries. Establishing a benchmarking center within the company can be of enormous advantage here. It gives participants in a development project the opportunity to network among themselves, and incorporates external research institutions, suppliers and, if necessary, even competitors in an ongoing dialog.

Source: Roland Berger Study "Globalization of R&D – Drivers and success factors"

IV. CREATING AND MAINTAINING A CULTURE OF INNOVATION

"Creative people don't care about the time or the season or the state of the economy; they just go out and do their thing."

Howard Lieberman, founder of the Silicon Valley Innovation Institute

Leading a company through challenging economic times takes vision and courage. Restructuring and changing the mentality in a company clearly lie within the CEO's realm of responsibility. The CEO must forcefully implement the above described actions, or find the right manager for R&D who understands how to push the operational changes through even under difficult conditions. Company heads must also be willing to play the role of devil's advocate: ushering in a "philosophy of challenge" at every level can inspire new momentum.

However, portfolio management (see Lever 3) must always be the CEO's job. "I set the standard for performance at our company, as well as the contribution R&D should make," notes Patrick Cescau. Multi-project controlling enables managers to monitor processes and how they progress, as well as ensure that projects stay on budget.

Development managers also play a key role: They must implement the innovation strategy at all levels in the company, develop a transparent controlling system, and create a structure for an ongoing exchange of knowledge among employees working on the innovation process. In general, management should also include young employees in research projects, find ways to constantly nurture their creative potential, and create new – not necessarily financial – incentives to continue to encourage top performance. "In the end, engineers want to see their work put into real-world applications," states Jim Balsillie, co-CEO of BlackBerry manufacturer Research in Motion. "That's the real reward."

Companies don't necessarily have to invest more money to remain competitive and innovative in a tough economic climate and therefore prepare for the next upswing. The examples and approaches presented above reveal something else: The key is to formulate a clear vision, take calculable risks and be willing to ask and answer the critical questions. Only then will companies be able to forge ahead down sustainable, intelligent, promising paths in terms of innovation and product development – in any global economic situation.

REFERENCES

Roland Berger, Soumitra Dutta, Tobias Raffel, Geoffrey Samuels: *Innovating at the Top – How Global CEOs Drive Innovation for Growth and Profit* Palgrave Macmillan, 2008

Roland Schwientek, Axel Schmidt (Ed.): *Operations Excellence – Smart Solutions for Business Success* Palgrave Macmillan, 2008

Globalization of R&D – Drivers and success factors Study by Roland Berger Strategy Consultants, 2007

IF YOU HAVE FURTHER QUESTIONS, PLEASE FEEL FREE TO CONTACT US:

Jochen Gleisberg, Partner
+49 711 3275 7221
Jochen.Gleisberg@de.rolandberger.com

Dr. Michael Zollenkop, Senior Project Manager
+49 711 3275 7220
Michael.Zollenkop@de.rolandberger.com

Stefan Pätzl, Project Manager
+49 711 3275 7332
Stefan.Poetzl@de.rolandberger.com

think:act CONTENT

Publisher:

Prof. Dr. Burkhard Schwenker, António Bernardo

Overall responsibility: Torsten Oltmanns

Project management: Dr. Katherine Nölling

Roland Berger Strategy Consultants
Am Sandtorkai 41
20457 Hamburg
+49 40 37631-4421
news@rolandberger.com

