

Opportunities for Action in Industrial Goods

Spurring Innovation Productivity

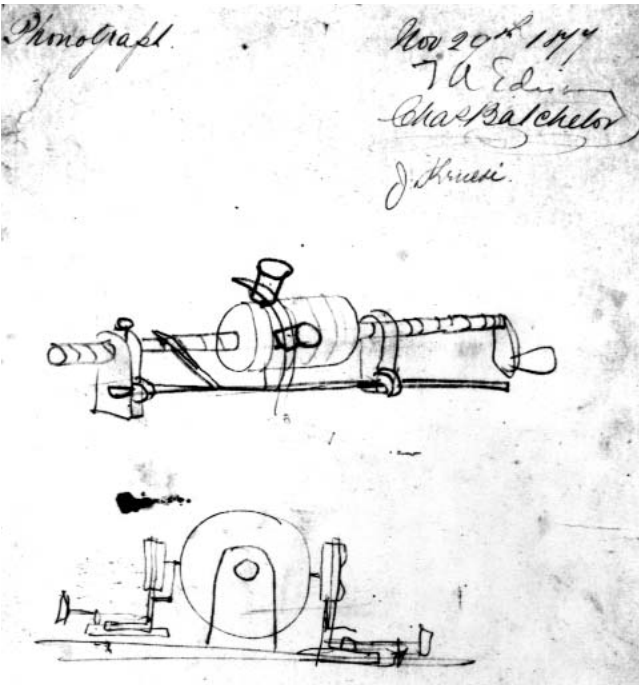
THE BOSTON CONSULTING GROUP



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In 1877, Thomas Edison handed a crude sketch to his machinist, John Kreusi, with the command “Make this.” Within days, Kreusi delivered a prototype of the phonograph. Upon hearing his first recorded sentence, Edison reportedly was “never so taken aback.” He dreamed about dozens of applications and commercial success.

Following that breakthrough, however, were 21 years of stalled product development, patent struggles, and



Thomas Edison’s sketch for the first phonograph, signed by Edison and his research assistant, Charles Batchelor, and machinist, John Kreusi. Courtesy of the U.S. Department of the Interior, National Park Service, Edison National Historic Site.

failed attempts at commercialization. Mistargeted as a parlor novelty or a complex dictation machine, the phonograph languished until the right market and consumer proposition were found. The invention needed to be easy to use, with a clear application, affordable hardware, and available software.

Good ideas—even breakthrough insights—often prove disappointing. Today the course that managers must run to make ideas profitable would test even the indefatigable Edison. The average cost of taking new products to market has more than doubled in the past decade. Failure rates for some kinds of products track between 60 and 85 percent. Many CEOs have scaled back internal new-product development, reasoning that acquisitions offer an easier road to growth. Judging from our research, the average R&D project has a negative net present value (NPV).

Yet in the face of the accelerating globalization of trade and intensifying competition, innovation is more critically important than ever before. A recent global survey by The Boston Consulting Group found that 74 percent of the executives surveyed were planning to increase their spending on innovation, up from 64 percent in 2004. And almost 90 percent of those surveyed said that generating organic growth through innovation had become essential for success in their industries. However, fewer than half of those surveyed were satisfied with the financial returns on their investments in innovation.¹

And therein lies the rub. How to do innovation well, and how to make it pay?

1. For a copy of our report on this survey, *Innovation 2005*, please contact bcg-info@bcg.com. To participate in the current survey on innovation planning for 2006, please contact the authors listed at the end of this article.

Some companies are on the right track. Through both benchmarking and work with client companies, BCG has identified practices that lead to accelerated, innovation-led growth. By adopting these practices in the context of a disciplined approach to innovation, companies can increase R&D returns dramatically.

To boost innovation NPV, managers have three broad options: increasing the potency of ideas, lowering the cost of commercialization, and improving the success ratio. Mathematically, each percentage-point improvement in a success ratio will have a much greater impact on NPV than a proportional improvement in controllable costs. Further, few of our benchmark clients suffer from a scarcity of potent ideas. Many, however, lack the discipline to filter, focus, and follow through on them. The greatest gain, then, comes to companies that concentrate on improving their innovation success rates. That means isolating the very best ideas and driving them exclusively and emphatically to market.

Data-Driven Diagnosis

Before reworking your innovation process, you will need to determine your current status and performance. In our experience, very few companies have a solid grasp of the quality or mix of the projects in their portfolios. Also, any number of factors, both internal and external, can conspire to thwart management's hopes for even the most attractive set of opportunities. Difficulties can arise in design, production, and sales; issues can also stem from shifts in the company's objectives, shifts in markets, activities by competitors, and changes in customers' preferences and

demands. In many companies, the commercialization processes are riddled with problems. Often, the criteria for approving projects at each stage of development are superficial, inconsistent, or politically subverted. In many cases, doomed, “walking dead” projects linger on, draining resources from more promising efforts. And fatal flaws (so obvious post-launch) pass through successive screens undetected.

Where, then, should you begin? We like to start by creating a database that lays bare the strengths and weaknesses of a client’s new-idea machinery, as well as its inputs and outputs. The database consists of a straightforward catalog of innovation projects undertaken over the past three to five years, identifying for each project

- the source of the idea (external, marketing, or R&D)
- the type of innovation (maintenance, extension, or breakthrough)
- the budgeted and actual investment, in terms of both money and allocated personnel
- the termination date or time to market launch
- the incremental sales and contribution realized or planned, and the implied returns

The value of such information is immense. Companies that have taken the trouble to assemble it have found two broad benefits. First, it provides a retrospective picture of actual performance that many companies don’t have the ability to see in one place. Certain indicators—such as stubbornly low hit rates,

low percentages of sales from new products, and low representation of breakthrough products compared with the rest of the industry—can provide a wake-up call and a rationale for change. Second, the data offer diagnostic insights into root causes and opportunities for improvement. Here are a few typical findings from our client work:

Investment dollars and project mix tend to be skewed toward small-increment product extensions rather than breakthroughs. Most launches represent only minor variations on existing products. In one industry we studied, seven of ten launches were modest brand extensions, unlikely to win new customers or increase underlying demand.

Areas of heavy investment are often the least productive. One client was startled to find that an area that had consumed 70 percent of a five-year investment delivered less than 20 percent of launch output and only 15 percent of new-product sales.

External sources for ideas deliver higher returns. Although there has been much discussion of the benefits of collaborating with suppliers, few companies fully realize the potential of such relationships. Universities, independent research labs, and entrepreneur/inventors can also offer important insights and refreshingly new kinds of products. And information about competitors can provide invaluable “new” product concepts.

Termination rates are too low. At most companies, fewer than 10 percent of projects active at the beginning of the year are killed by the end of the year. Many projects linger in limbo, burning dollars and precious technical resources. Most companies either

have no rules in place for discontinuing projects or fail to observe the rules they do have.

Unfocused budgeting criteria can lengthen payback times. When companies set R&D budgets largely on the basis of concrete project proposals, they achieve shorter payback times. Conversely, the longest return times are found in companies that don't have disciplined processes in place up front to ensure that less attractive projects don't get funded.

Actual prioritization of projects is sporadic. Companies that establish clear priorities among product development projects report three to four times higher returns on their programs, with far fewer projects behind plan, than companies that do not prioritize. Yet many companies do not prioritize their projects at all, and many others allow their priorities to shift frequently because of factors such as project fragmentation and long cycle times. Worse, in one study, we found that even companies that do prioritize their efforts actually allocate resources on the basis of those priorities in only half the cases.

Delivering Higher Success Rates

Any plan designed to boost innovation output must include both clearly delineated processes and targeted investment allocations. Our experience suggests that the following six actions can contribute significantly to accelerating innovation-led growth:

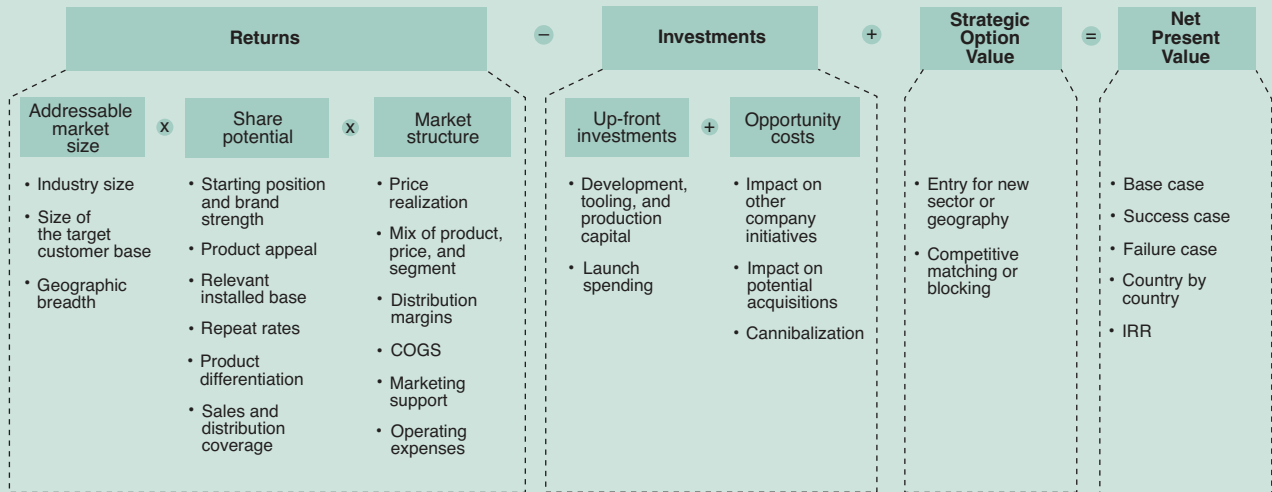
- Implement a proprietary innovation process, aligned with your innovation strategy and structured with standardized milestones and go/no-go criteria, to provide oversight of the innovation portfolio.

- Ensure that your innovation strategy includes clear priorities among the projects in your portfolio and that you are disciplined about allocating resources according to those priorities.
- Assign full-time teams from across functions to new-category product launches, and systematically track the time invested in each project.
- Create a multiyear launch-support model to encourage early adoption and continuing purchases.
- Align compensation and rewards with project goals. Also, be sure to include initiative and creativity in your evaluation system, and use innovation awards to motivate people.

- Seek outside alliances to achieve world-class capability across disciplines.

To improve your success rates significantly, you will need to pay special attention to project evaluation criteria. Naturally, the specific criteria in your company's innovation-screening methodology will have to be tailored to your business. Moreover, the need for precise data will increase as a project proceeds. But a robust methodology will allow you to dismiss an inadequate idea partway through the process, without having to assess it against all possible criteria. And an effective screen will provide the confidence you need to redirect your investments to fewer, bigger, better, and more successful ideas. (See the exhibit below.) Following the right process will also help your organi-

Product Launches Must Clear a Common, Rigorous Business-Case Screen



SOURCE: BCG analysis.

zation avoid several of the traps we have observed in our work.

The Denominator Trap. When screening for a product's potential, marketing teams focus intently on projecting market share. But sizing of the target market denominator is often less rigorous, yielding share estimates that seem conservative but in fact may be grossly optimistic. For example, in our experience, many companies greatly overestimate their ability to access and switch out a competitor's installed base, and they therefore include that entire base in their estimates of market size.

The Sustainability Trap. Among product innovations, there are the duds, the flashes in the pan, and the eternal flames. To be successful, a product must build volume rapidly to maintain the attention of the sales force, the distribution channel, and customer organizations. It must also show repeat-purchase strength to provide a stable annuity throughout its life cycle. Keep an eye on repeat-purchase characteristics: Do patterns of repeat purchasing emerge when you test your product's concept and use? Have you looked at the performance of analogous launches in the industry over several years? Does the launch budget include a multiyear plan for sustaining growth? In our experience, companies often fail to include in their launch plans the costs of sustained support, multiyear promotion, and desired pricing moves. When a new product comes up for a second year of support, it is often the first budget line to be cut.

The Substitution Trap. Because innovations can succeed at the expense of existing products, screens must estimate cannibalization as objectively as possible. Companies rarely do this systematically; generally,

they make such estimates only as an afterthought, if at all. One company we looked at was planning to introduce three new products, ranging from highly to moderately innovative, into a market in which it already held the leading share. Unfortunately, the company had no real understanding of where the new products' volume would be sourced from. A quick analysis of likely industry and segment growth, competitors' activities, and previous analogous launches demonstrated that for two of the products a disproportionately high volume was likely to come at the expense of current offerings. That insight prompted the company to make substantial changes in both the new products and their launch timetables.

The Uniformity Trap. No two new-product launches are identical. What worked last time probably won't work this time. Too much can change, even in a short period of time. This is especially the case when a company is entering adjacent or unfamiliar segments or business areas. Launch economics must take into account such factors as the likely inclinations of potential launch customers, probable levels of price realization over time, possible competitive responses, the availability of sales and distribution support, and sales and service costs—all of which vary across product categories, channels, and countries.

The Tactical Trap. Innovations must be assessed in their full strategic context. Less obvious credits and costs, though material, can easily escape inclusion in a company's analysis of launch economics. For example, credits might include first-mover advantage, the benefit of bringing a fuller line to distribution, or the option value of building a platform for further launches. (Although we don't advocate launching a product on option value alone, it does convey a posi-

tive benefit and can be an important factor when a company is choosing among products with similar NPVs.) Costs might include the opportunity cost of diverting resources from other initiatives, as well as the cost of competitive retaliation. For example, we assessed one client's innovative entry into a concentrated segment. Research showed that the concept had strong appeal. We then tested identical concepts, substituting another leading player's brand. The results were substantially higher, suggesting that our client should anticipate a heavy penalty from a fast-following competitor.

Taking Bold Action

Determining an ideal screening methodology is important but insufficient. You must reconcile the ideal with your company's reality. Even the most successful companies suffer from an accumulation of projects that are approved singly but unanticipated in the aggregate. Worse, the structures intended to control such proliferation can themselves proliferate. The result can be a byzantine, redundant, and inconsistent control process that delays time to market, encourages circumvention, or both, causing success rates to plummet.

Bold action is often needed to improve the flow of innovations. The system must be cleared of sclerosis before healthy project circulation can begin.

Here is a four-step plan:

Use insights from the data-driven diagnosis to set clear targets for innovation. They should include the percentage of sales derived from new-product volume, a

mix of targeted investments in breakthrough and maintenance projects, and a balance of short- and long-term development in the pipeline.

Establish two oversight mechanisms to increase success rates. One is a governance model of impartial review and intervention by an empowered oversight committee. The other is a project evaluation screen incorporating the items outlined in the exhibit above. The review must be central, senior, periodic, and decisive. Evaluation criteria must be comprehensive and applied with discipline and impartiality.

Deploy the oversight committee and the project evaluation screen in an inaugural project-portfolio review. Current inventory, as well as projects in the pipeline, should be evaluated on their own merits in the contexts of product mix and sustainability discussed above, and in the light of strategic goals.

Redeploy the resources freed up to accelerate the most attractive projects. Good projects can't get to market fast enough. Often, more resources, correctly deployed, will get them there sooner. Create value and momentum by immediately redeploying resources to the best projects in your portfolio. Avoid the temptation to bank the "savings." The goal is not merely another cost-cutting initiative but more innovation and growth.

* * *

Spurring your innovation productivity doesn't necessarily require substantial incremental investment or thousands of hours of analysis. It does require courage, hard work, the right processes, and a tolerance for risk. Bringing impartiality and rigor to the

process will transform your innovation from a random lottery to a more bankable investment. The spirit of Edison—dazzling insight and prolific output—can be matched with management, discipline, and speed to market.

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This article is adapted from “Boosting Innovation Productivity,” BCG Opportunities for Action, April 2003. Other BCG publications on innovation include:

“Don’t Be a Schwinn,” BCG Perspectives, February 2005

“Making Innovation Pay,” BCG Perspectives, May 2004

“Innovating for Cash: Lessons from the Handset Wars,” Opportunities for Action, January 2004

“Innovating for Cash,” BCG Perspectives, December 2003 (adapted from the authors’ article of the same title that appeared in the September 2003 issue of *Harvard Business Review*)

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