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REPORT

Measuring Innovation 2007

A BCG Senior Management Survey



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Note to the Reader

In conjunction with its latest annual global survey on innovation—the results of which are described in our companion report, *Innovation 2007*—The Boston Consulting Group invited senior executives to complete a separate survey on innovation metrics and measurement practices. This report highlights that survey's results.

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Executive Summary

Companies spend billions of dollars a year on innovation. Yet a critical part of the equation is often missing: proper measurement. Few companies measure their innovation efforts as carefully as they measure other aspects of their business; some companies barely attempt to measure innovation at all. The potential cost of this shortcoming is sizable.

Our survey asked 377 executives a range of questions about their innovation-measurement practices. Among the survey's key findings:

- Most companies recognize the importance of measurement, but few believe they are doing it as well as they should. Only 37 percent of survey respondents said they were satisfied with their company's measurement practices.
- The majority of companies use a small number of metrics to measure their innovation activities. Sixty percent of survey respondents said that their company uses a total of five or fewer.
- The most widely tracked components of innovation are profitability (82 percent of respondents said their company tracks it), time to market (62 percent), and idea generation and selection (61 percent).
- The single most widely used innovation metric is total funds invested in growth projects, which 71

percent of respondents said that their company employs.

- Few companies consistently tie employee incentives to their innovation metrics. Only 28 percent of respondents said that their company links the two consistently; 24 percent said their company doesn't link them at all.

Measuring Innovation

The State of Play

Innovation is a top strategic priority—and a target of ever-increasing investment—for the majority of companies, as our companion report, *Innovation 2007*, confirmed. Yet most companies are failing to keep pace in a critical part of the equation: metrics and measurement. Few companies rigorously track their innovation efforts from start to finish, despite the fact that the majority recognize the importance of doing so. And among companies that do attempt to measure innovation carefully and comprehensively, few are confident they're doing it as well as they need to.

Companies would do well to make measurement a higher priority. Poor measurement practices translate into bad or incomplete information, wasted spending, and, ultimately, a lower return on investment in innovation—and the majority of companies are already less than satisfied with that return, as *Innovation 2007* revealed. (See Exhibit 1.)

Below we look at the current state of play of innovation measurement—the parts of the innovation-to-cash process (from idea generation through prod-

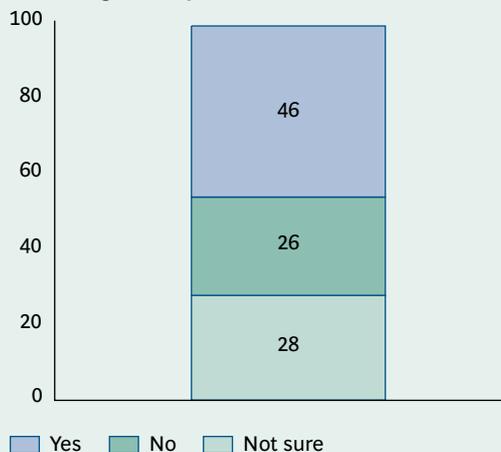
uct launch and postlaunch support) that companies are measuring, how they're doing it, and why. We also provide some ideas from our experience and research on how companies can improve their measurement practices.

How Rigorously Are Companies Measuring Innovation?

Exhibit 1. Less Than Half of Respondents Are Satisfied with Their Return on Innovation Spending

Are you satisfied with the financial return on your investments in innovation?

Percentage of respondents



Source: BCG 2007 Senior Executive Innovation Survey.

Innovation has many components that need to be measured. They can be grouped into three categories: *inputs*, or resources, such as people and money; *processes*, which act on and transform the inputs; and *outputs*, or end results, which include both cash returns (and, ultimately, returns for shareholders) and indirect benefits, such as a stronger brand and acquired knowledge that can be applied to other offerings and purposes. The key components in all three categories can and should be measured regularly and thoroughly.

But that's not what most companies do. Indeed, although nearly three in four respondents to our survey said they believe that in-

novation should be tracked every bit as rigorously as their company's core operations, less than half said that their company does so. (See Exhibit 2.) This is evidenced most clearly in the small number of metrics most companies use. (See Exhibit 3.) Fully 60 percent of respondents said that their company uses five or fewer metrics to track the sum total of their innovation efforts—well short of the number necessary to do a comprehensive job. (The notable exception to this rule is companies in the pharmaceutical, biotechnology, and health care industries, nearly a third of which, according to our respondents, use between six and ten metrics.)

This widespread laxity with regard to measurement is striking given that few executives—only 37 percent of respondents—are satisfied with their company's measurement practices. (See Exhibit 4.) This is especially the case among financial services executives—only 29 percent of respondents

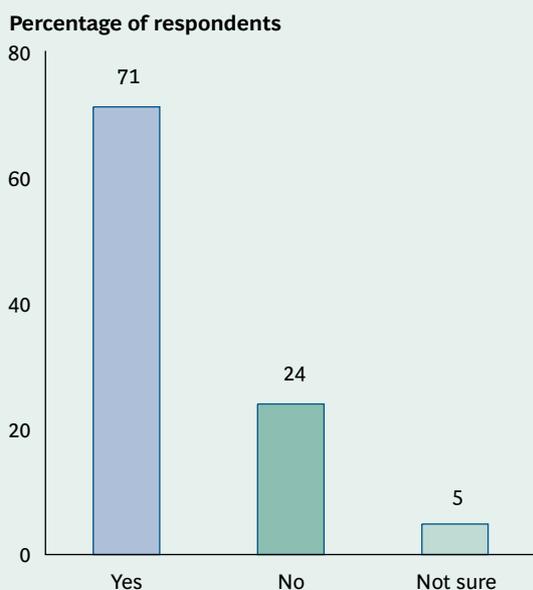
from that industry said they were satisfied. And it's not that executives believe that measuring more rigorously might somehow be counterproductive—only 34 percent of respondents said they felt that increasing the number of metrics might stifle innovation. (See Exhibit 5.) Clearly something isn't adding up.

What Gets Measured Most?

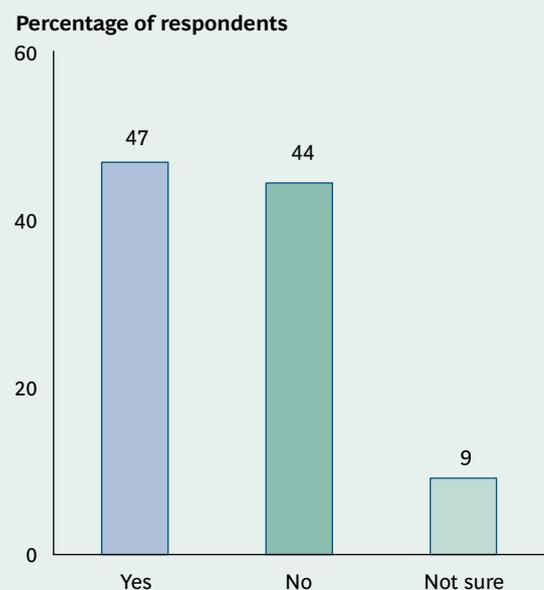
When companies do measure, what are they measuring? By category, outputs receive the most attention; nearly 80 percent of respondents said that they track outputs regularly. Inputs and processes are measured less universally but still by a majority of companies—71 percent of respondents said they track the former, and 61 percent said they follow the latter. (See Exhibit 6.)

Exhibit 2. Most Executives Believe That Innovation Should Be Measured Rigorously, but Less Than Half of Companies Do So

Should innovation initiatives be held to the same standard of measurement rigor as your company's core businesses?



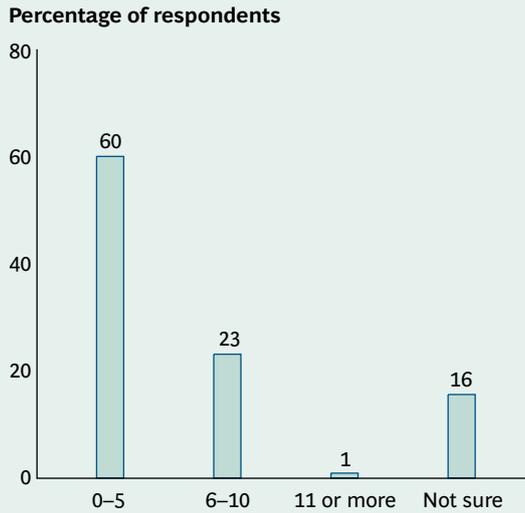
Are innovation initiatives held to the same standard of measurement rigor as your company's core businesses?



Source: BCG 2007 Senior Executive Innovation Metrics Survey.

Exhibit 3. The Majority of Companies Use Five or Fewer Metrics to Measure Innovation

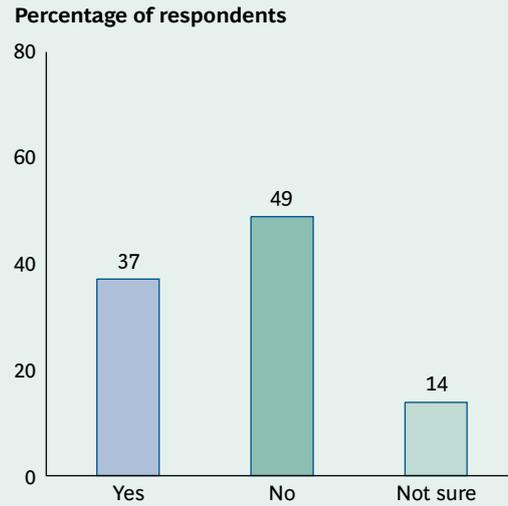
Approximately how many innovation metrics does your company regularly use?



Source: BCG 2007 Senior Executive Innovation Metrics Survey.

Exhibit 4. Few Companies Are Satisfied with Their Innovation-Measurement Practices

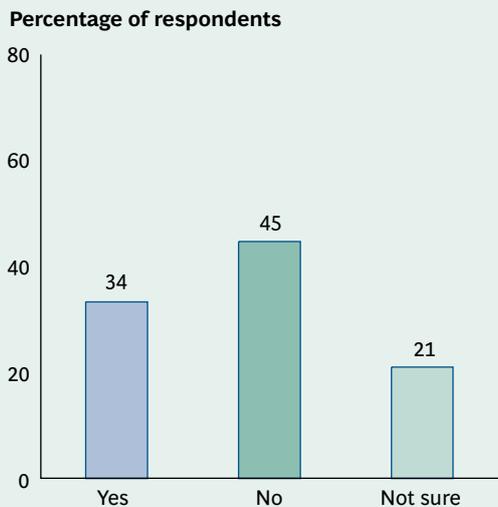
Are you satisfied with your company's innovation-measurement practices?



Source: BCG 2007 Senior Executive Innovation Metrics Survey.

Exhibit 5. Only One in Three Executives Believes That More Rigorous Measurement Could Stifle Innovation

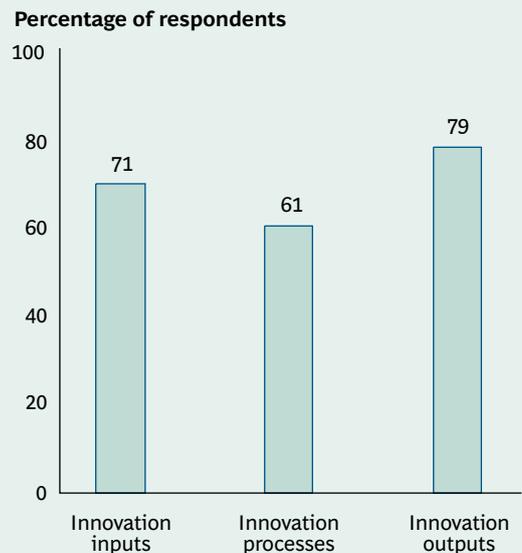
Do you feel that by increasing the number of innovation metrics, a company risks stifling breakthrough innovation?



Source: BCG 2007 Senior Executive Innovation Metrics Survey.

Exhibit 6. Companies Concentrate Most of Their Measurement Efforts on Innovation Outputs

My company uses metrics to assess these components of innovation



Source: BCG 2007 Senior Executive Innovation Metrics Survey.

The single most widely tracked component of innovation, among the seven we asked respondents to consider, is profitability: 82 percent of respondents said that their company carefully tracks the profitability of innovation. The second most closely watched component is time to market (62 percent of respondents), followed by idea generation and selection (61 percent) and the overall health of the innovation portfolio (56 percent). (See Exhibit 7.) Surprisingly, the effectiveness and efficiency of the R&D process is tracked by only half of companies. However, 83 percent of respondents from pharmaceutical, biotechnology, and health care companies said that their company tracks this component of innovation.

mon response was total funds invested in growth projects (71 percent of respondents).¹ Other measures that respondents said their companies regularly employ are projected versus actual performance, average development time per project, revenue realized from offerings launched in the past three years, allocation of investments across projects, and the number of projects that meet planned targets. Perhaps more interesting is the metrics that *aren't* commonly used, such as the extent to which new offerings cannibalize existing products (consumer companies were the exception, with nearly 60 percent of respondents saying their companies employ this metric), the percentage of ideas funded, and the number of projects killed or tabled at each milestone. (See Exhibit 8.)

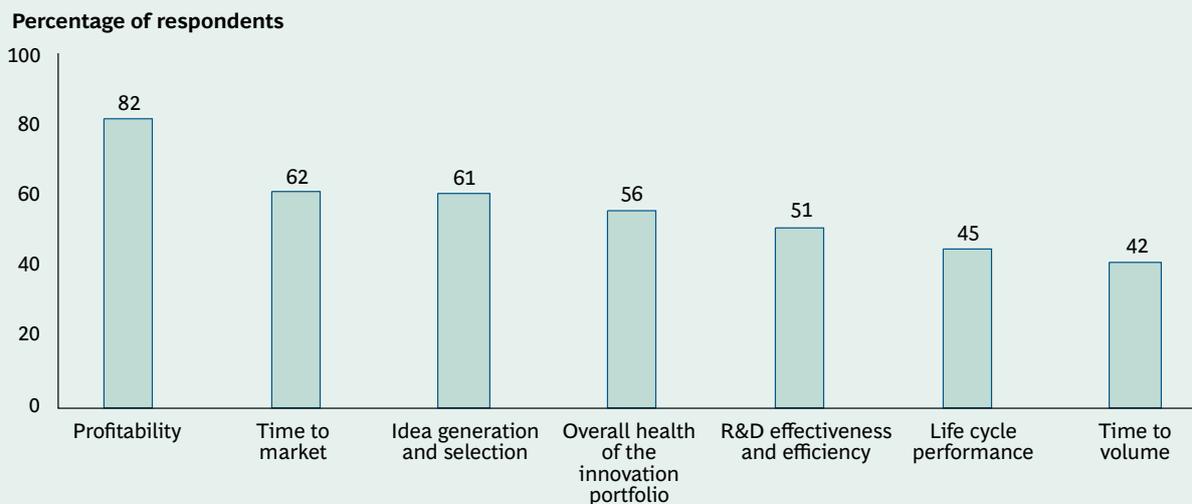
Which Metrics Are Most Commonly Used?

When we asked executives to choose the metrics that their company regularly uses, the most com-

1. We asked a group of 2,468 executives a similar question (“How does your company measure its success with innovation?”), and gave them a somewhat different list of metrics to choose from, in our 2007 Senior Executive Innovation Survey. The three most popular choices were customer satisfaction, overall revenue growth, and the percentage of sales from new products or services. (See *Innovation 2007: A BCG Senior Management Survey*, BCG report, 2007.)

Exhibit 7. Profitability, Time to Market, and Idea Generation and Selection Are the Most Widely Tracked Components of Innovation

My company uses metrics to assess these specific components of innovation or innovation returns



Source: BCG 2007 Senior Executive Innovation Metrics Survey.

Which metrics do companies view as indispensable? When we asked respondents to pick the ones they'd use if they were limited to a total of three and to justify their choices, we received a wide range of responses. The most common choice was revenue realized from offerings launched in the past three years. Also popular were projected versus actual performance, total funds invested in growth projects, and allocation of investments across projects. (See Exhibit 9, page 12.) The following quotations from respondents exemplify the reasons given for their choices.

Revenue realized from offerings launched in the past three years

“Allows us to compare different projects within the company and determine the required capital for similar future projects.”

“A good feedback mechanism for gauging whether our business efforts are balanced between today’s revenue earners and tomorrow’s bread earners.”

“Revenue is a great measure of whether we’re choosing high-impact ideas.”

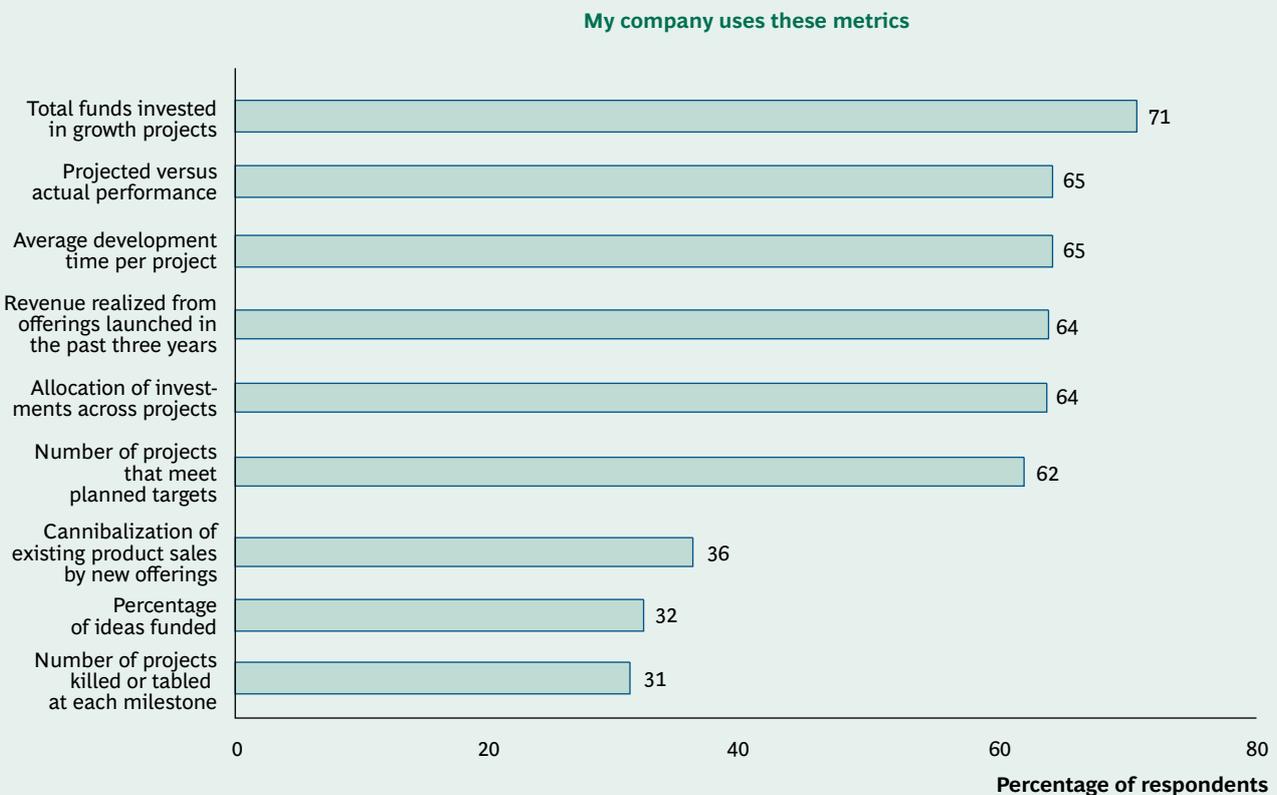
“Ultimately, innovation is about creating growth and market share, so the top line matters.”

“Three years is a reasonable time frame in which to start judging the performance of an innovation initiative.”

Projected versus actual performance

“Return versus plan is key for shareholder communication and for internal-performance measurement.”

Exhibit 8. Total Funds Invested Is the Most Widely Used Metric



Source: BCG 2007 Senior Executive Innovation Metrics Survey.

“The loftiness of the initial thought is quickly tempered through this measure.”

“Forecast accuracy is an important driver of revenue and profit from operationalized innovations.”

“A good discipline for holding the team accountable for delivering the projected results.”

“A good metric for demonstrating the necessity and value of innovation to senior management.”

Total funds invested in growth projects

“A key measure of senior leadership’s commitment to innovation and growth.”

“We are a large company and continuously analyze and benchmark our R&D spending versus that of our competitors.”

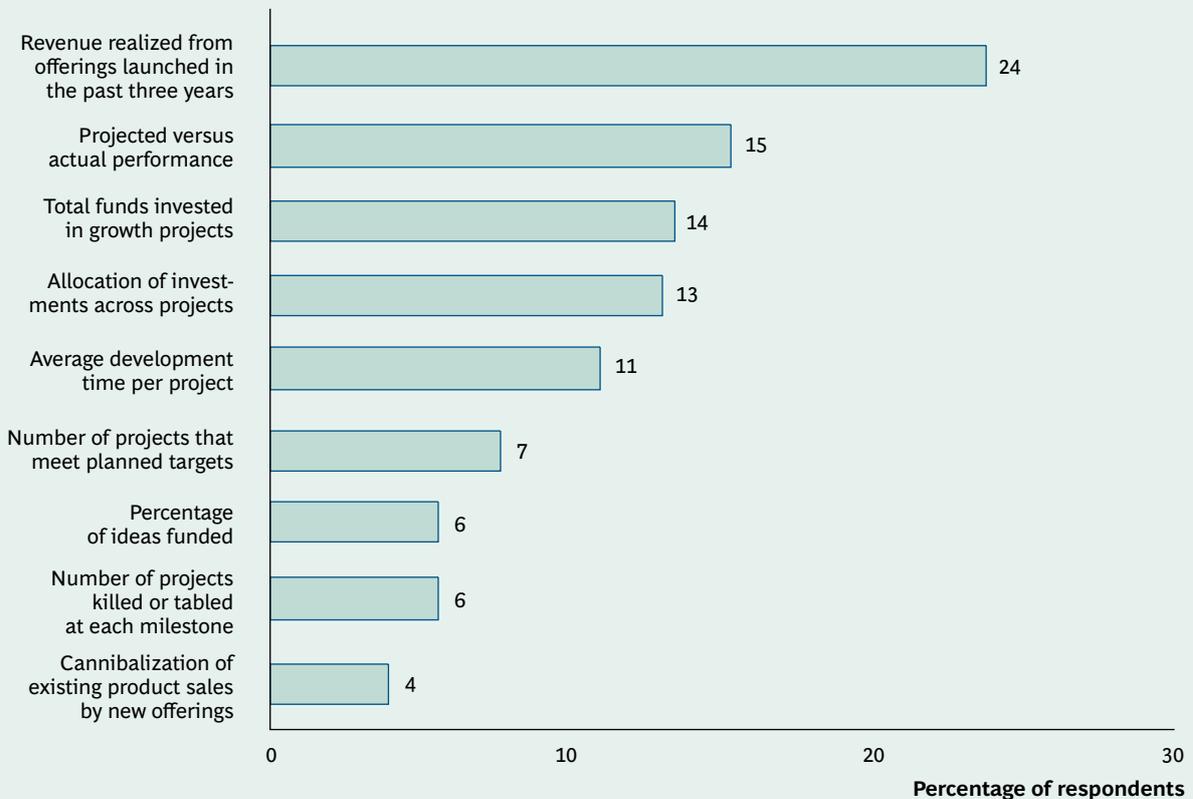
“It forces you to actually keep track of the project portfolio geared toward growth and hence brings management attention to the projects.”

“We believe we have an efficient and effective product-development capability. Thus, measuring funds gives us a strong leading indicator of the business outcome.”

“The long-term survival of our company is based on our ability to identify and fund future growth projects.”

Exhibit 9. Executives Consider Revenue from New Offerings to Be the Most Indispensable Metric

If your company could use only three metrics to measure its innovation performance, which would they be?



Source: BCG 2007 Senior Executive Innovation Metrics Survey.

Allocation of investments across projects

“Ensures that we are consciously balancing our investment dollars—rather than just letting it happen.”

“Given the size of my company, we need to have sustainable growth in both traditional and innovative products. A strategic balance is healthy.”

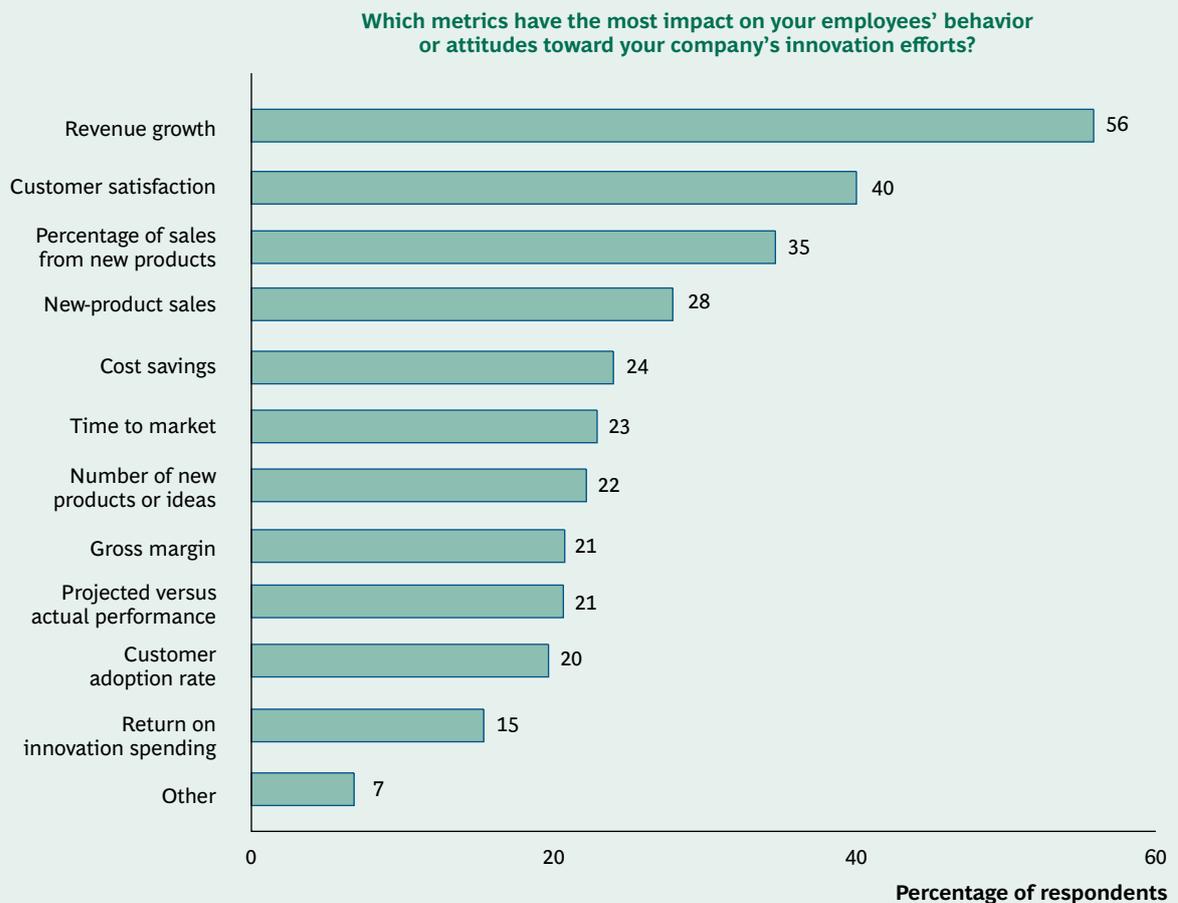
“Clearly demonstrates how much money we are investing in the future versus the present.”

“We need to keep our eye on the big picture—and make sure we aren’t shortchanging growth or efficiency.”

Which Metrics Have the Most Influence Internally?

Given the priority of revenue in companies’ measurement practices, it’s not surprising that revenue-focused metrics have the most impact on employees. (See Exhibit 10.) Indeed, three of the top four most influential metrics—revenue growth (identified by 56 percent of respondents), the percentage of sales from new products (35 percent), and new-product sales (28 percent)—are top-line related. The return on innovation spending, by contrast, has very limited impact, with only 15 percent of respondents saying it swayed opinions or changed behaviors.

Exhibit 10. Revenue Growth Has the Greatest Influence on the Thinking and Behavior of Employees



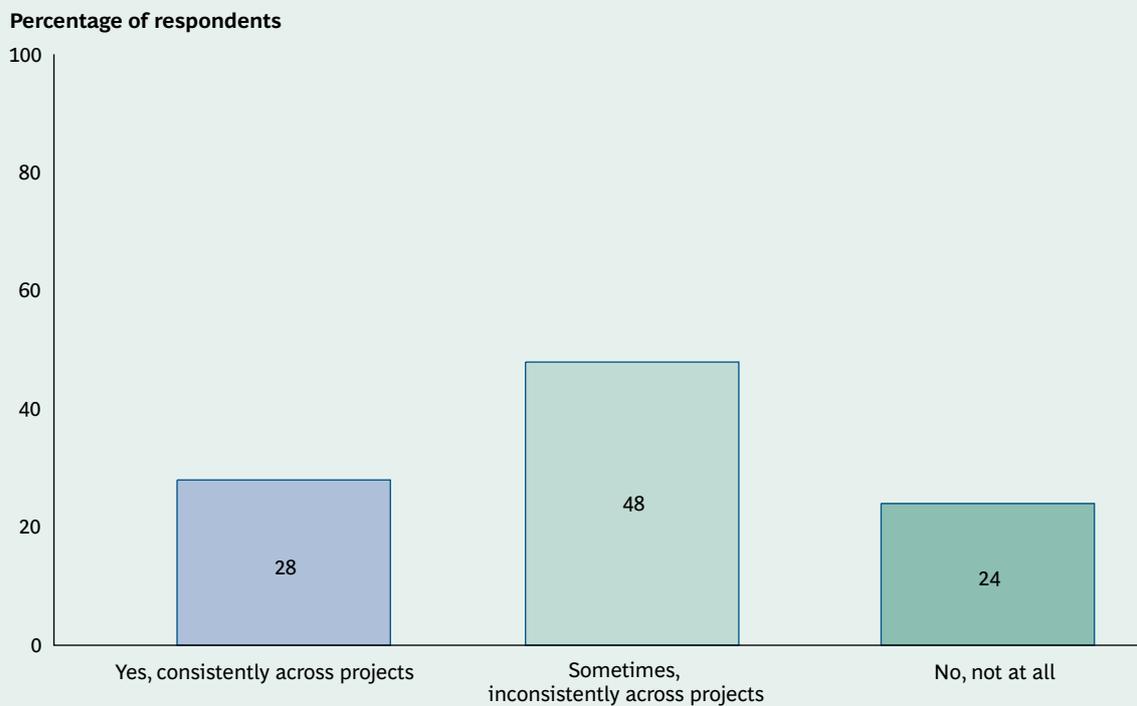
Source: BCG 2007 Senior Executive Innovation Metrics Survey.

Although most companies seem aware of the potential impact of measurement on employee thinking and behavior, few make a concerted effort to leverage it aggressively by tying incentives and rewards to metrics. (See Exhibit 11.) Only 28 percent

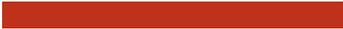
of respondents said that their company links the two consistently; 48 percent said their company sometimes links them; 24 percent said their company doesn't link them at all.

Exhibit 11. Few Companies Consistently Tie Incentives and Rewards to Innovation Metrics

Does your company tie incentives and rewards (formal and informal, monetary and nonmonetary) to its innovation metrics?



Source: BCG 2007 Senior Executive Innovation Metrics Survey.



Recommendations

Better measurement practices will yield more, better, and more timely information, which can translate into a significantly higher return on innovation spending. A key part of moving your company's measurement program in the right direction, and the one we'll touch on here, is making sure that you measure what needs to be measured.

Note that you don't need to track every single aspect of innovation at your organization. Doing so would be both impractical and expensive. And you don't need to track every aspect with equal rigor—some will clearly be more important than others, depending on your company's particular innovation objectives and strategy.

One of the best ways to think about what does and doesn't need to be measured is through the lens of the *cash curve*. (See Exhibit 12, page 16.) The cash curve is a depiction of the cumulative cash investments and returns (both expected and actual) for an innovation over time, from idea generation through to the point when the product or service is removed from the market.² The curve makes explicit four factors that affect the success of an innovation and its ability to generate a return. Those factors are *start-up costs*, or prelaunch investment; *speed*, or time to market; *scale*, or time to volume; and *support costs*, or postlaunch investment. A proper measurement program will cover all four factors to the degree dictated by your company's

particular strategy and operational agenda, as well as capture key aspects of risk. The following are some sample metrics for each factor.

Start-up costs

- The number of full-time staff involved
- Operating expenses
- Capital expenditures

Speed

- Actual time to market
- Time to key checkpoints
- Actual versus planned full-time-employee hours

Scale

- Actual versus planned volume produced
- Actual versus planned product availability
- Actual versus planned first-year sales (by channel, segment, and region)

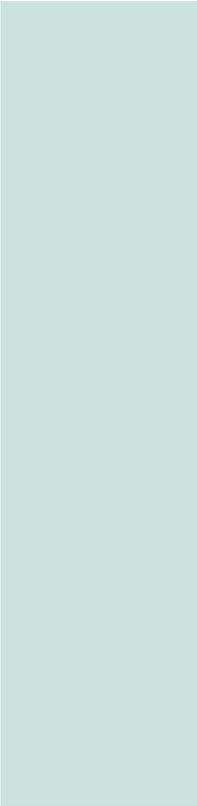
2. For a fuller discussion of the value and application of the cash curve, see our companion report, *Innovation 2007*. See also James P. Andrew and Harold L. Sirkin, *Payback: Reaping the Rewards of Innovation* (Boston: Harvard Business School Press, 2007).

- Actual versus planned distribution
- Actual versus planned timing of ad campaigns

Support costs

- Cannibalization of existing products in the portfolio
- Marketing and promotional activities
- Pricing actions
- Key staff devoted to the project
- Product maintenance and service costs

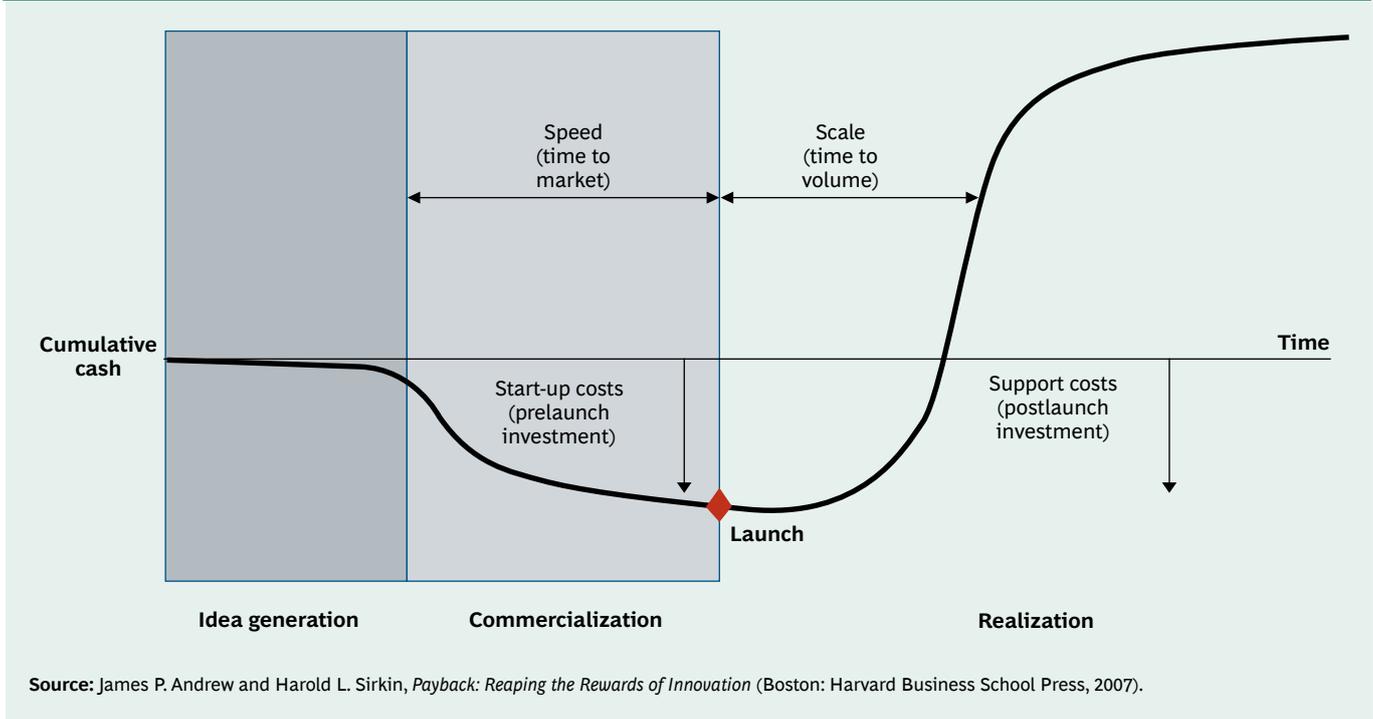
Viewing your measurement efforts through the lens of the cash curve, in combination with the framework of inputs, processes, and outputs touched on earlier, will enable your company to develop measurement systems that capture the data executives need in order to manage the innovation process more profitably. (See Exhibit 13.)



Finding the right number of metrics to use is critical. Companies that use too few are unable to adequately monitor their innovation efforts. But using too many is not advisable either, since time, effort, and resources go into the tracking of each one, and not all metrics will prove worthwhile on a cost-benefit analysis. Our experience suggests that the ideal number, across all the elements of innovation, is somewhere between 8 and 12. Which ones you choose is, of course, up to you. There is no one-size-fits-all formula; the aim is to strike a balance among the different metrics that suits the unique strategy, objectives, and needs of your company and gives you all the information you need in order to make informed decisions.

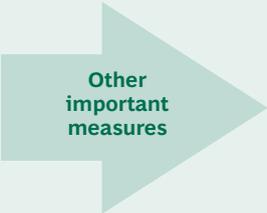
The key is to *start* to more actively measure your company’s innovation efforts. Think it through, pick what seems to be the right suite of metrics, put them in place, and begin to track them over time. Only by measuring and managing your efforts will you reap the rewards of innovation.

Exhibit 12. The Cash Curve Provides a Visual Framework for Thinking About Measurement



Source: James P. Andrew and Harold L. Sirkin, *Payback: Reaping the Rewards of Innovation* (Boston: Harvard Business School Press, 2007).

Exhibit 13. A Carefully Chosen Suite of Metrics Will Cover All the Key Aspects of Innovation

	Inputs	Processes	Outputs
 <p>Cash curve-related metrics</p>	<ul style="list-style-type: none"> • Financial resources • People committed (how many and how they are utilized) • Number of ideas generated • Operating expenses • Capital expenditures 	<ul style="list-style-type: none"> • Resource efficiency (average and over time) • Actual versus planned time to market • Cycle times for different stages of the process • Kill rates by stage • Actual versus expected process performance • Milestone compliance 	<ul style="list-style-type: none"> • Number of new products or services launched • Actual versus projected incremental revenues and profits • Return on innovation spending • Market share growth • New-product success rates • Number of new customers • Rate of customer adoption • New-product attrition rates • Percentage of targeted market reached • Product quality • Payback period • Cannibalization of existing product sales by new products
 <p>Other important measures</p>	<ul style="list-style-type: none"> • Key capabilities (such as IT, manufacturing, and tooling) and how they are utilized 	<ul style="list-style-type: none"> • Number of suppliers and partners involved 	<ul style="list-style-type: none"> • Number of patents filed • Number of publications written by staff • Brand strength (third-party rankings) • Employee satisfaction (based on surveys) • Ecosystem strength (based on interviews)

Source: BCG case experience.



Survey Methodology

The BCG 2007 senior management survey on innovation metrics and measurement, a follow-on to our broader 2007 survey on innovation, was completed by 377 executives and managers. Participation was voluntary and anonymous. The responses by industry and position broke down as shown below.

Industry

Technology and telecommunications	79
Industrial goods and manufacturing	59
Financial services	32
Pharmaceuticals, biotechnology, and health care	27
Consumer products	24
Entertainment and media	10
Energy	8
Travel, tourism, and hospitality	6
Automotive and motor vehicles	4
Retail	1
Other	80
No response	47
Total	377

Position

C level

Chief executive officer	23
Chief innovation officer	19
President	19
Chief technology officer	15
Chairman	7
Chief operating officer	6
Chief financial officer	4
Chief information officer	3

Subtotal

Subtotal	96
Director of strategy	29
Vice president of R&D	25
Vice president of strategy	17
Director of marketing	14
Manager of marketing	13
Manager of R&D	13
Director of R&D	12
Other	111
No response	47
Total	377



For Further Reading

This report is a product of BCG's extensive work and research on innovation and the innovation-to-cash process. A sample of related publications includes the following:

Innovation 2007: A BCG Senior Management Survey

A report by The Boston Consulting Group,
July 2007

Payback: Reaping the Rewards of Innovation

James P. Andrew and Harold L. Sirkin
(Boston: Harvard Business School Press,
2007)

Measuring Innovation 2006

A BCG Senior Management Survey,
July 2006

"Spurring Innovation Productivity"

Opportunities for Action in Industrial
Goods, November 2005

"Innovating for Cash"

James P. Andrew and Harold L. Sirkin
Harvard Business Review, September 2003

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