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Can R&D Be Fixed?

Lessons from Biopharma Outliers

Peter Tollman, Yves Morieux, Jeanine Kelly Murphy, and Ulrik Schulze

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The debate about declining productivity in biopharma R&D often overlooks the remarkable variation in R&D performance across the industry. Although there are many reasons for this variation, evidence suggests that what most distinguishes the outliers from the rest is that they have been more successful in fighting the growing bureaucratization of biopharma R&D.

IDENTIFYING THE OUTLIERS
BCG’s analysis of R&D value creation at major biopharma companies identified some R&D operations that are significantly outperforming their peers.

R&D’S BUREAUCRACY PROBLEM
Our research also reveals that biopharma organizations are especially vulnerable to bureaucratization and its negative impacts.

WHAT THE OUTLIERS DO DIFFERENTLY
Outliers fight the trend toward bureaucratization by adopting three characteristics: leadership, cooperation, and engagement. By promoting more productive interactions, any biopharma company can improve the effectiveness of its R&D organization and create value by developing drugs that meet unmet medical needs.
R&D is the lifeblood of the biopharmaceutical industry, the ultimate source of the economic value that the industry creates. Little wonder, then, that the continuing evidence of a major decline in R&D productivity has generated a sense of crisis—not just in R&D circles but in the industry as a whole.

Consider some sobering numbers: from 2000 through 2010, the market value of the top 20 biopharma companies declined by more than 30 percent—a loss of an astounding $720 billion. This loss wasn’t the product of a decline in sales; in fact, the net income of these companies grew by 140 percent. Rather, it was due to the vertiginous drop in industry price-to-earnings multiples—a sign that investors had substantially reduced their expectations for the industry’s future prospects.

The powerful market and institutional forces that are driving the decline in R&D productivity are familiar: more complex science, higher hurdles on unmet need, tougher competition, pricing and access pressures, and tighter regulation. All these forces have increased the obstacles to success in R&D and led to a commensurate decrease in returns.

Industry experts have proposed a variety of solutions—ranging from frequent calls to reengineer the R&D value chain to the radical suggestion that big pharma companies get out of the R&D business altogether. We believe that neither of these solutions represents a realistic fix for the industry. Although decades of process improvement and the introduction of new, productivity-enhancing technologies such as high-throughput screening, genomics, and proteomics have greatly improved the productivity of discrete steps in R&D, outputs have consistently declined. According to one estimate, the inflation-adjusted R&D expenditure per molecule brought to market has risen one-hundredfold over the last 60 years. And while many biopharma companies have increased the in-licensing of new compounds, exiting R&D altogether would mean dismantling the very in-house expertise necessary to determine the most promising candidates, what they are worth, and how best to develop them—a key capability on which effective in-licensing depends.

In order to understand better the nature of the industry’s R&D problem, it pays to look more closely. Although, on average, the ability of biopharma R&D to create value has declined, there is in fact a remarkable variation in R&D performance across the industry. During the past year, The Boston Consulting Group has been studying these wide differences in performance. Our goal has been to identify the characteristics that differentiate those companies in which the R&D organization is making a positive contribution to value creation from those in which R&D is
Actually destroying value. We call the successful organizations outliers and believe that they offer fresh insights about the true nature of the problem facing biopharma R&D, as well as the outlines of a potential solution.

Identifying the Outliers

Our starting point was a quantitative analysis of R&D productivity and value creation at a cross-section of major biopharma companies. As a rough historical measure of R&D productivity, we analyzed the R&D expenditures of the leading 25 biopharma companies from 1998 through 2004 and then compared them with the number of successful new molecular entities (NMEs) that those companies generated four years later. We chose this four-year period because it is the approximate time frame during which the major expenditures of full clinical development occur in a product’s commercialization. To be deemed “successful,” an NME had to be on the market and already generating, or likely to generate, more than $600 million per year in peak sales; this amount reflects the minimum peak revenue needed to deliver a return higher than the cost of capital (based on assumptions about R&D success rates, costs, and phase lengths consistent with industry performance in the period from 1998 through 2004).

There was an exceptionally broad range of outcomes, with some companies generating a higher number of successful drugs at a given level of R&D expenditure than others. (See Exhibit 1.) Bristol-Myers Squibb, which spent about $15 billion on R&D during the period studied, stands out for having generated five new NMEs, the most of any company we analyzed (including many that spent considerably more).

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**Exhibit 1 | NME Output at a Given Level of R&D Expenditure Varies Widely**

Sources: EvaluatePharma 2010; BCG analysis.

Note: “Successful” new molecular entities (NMEs) are NMEs that have achieved or, according to EvaluatePharma projections, are likely to achieve more than $600 million per year in peak sales (assuming a 10 percent discount value).
But in terms of pure R&D productivity, the real outlier is Genentech. The company spent a little over $4 billion on R&D and introduced four new NMEs. Other companies matched this number but at multiples of Genentech’s costs.

That was the past. What about the future? To address that question, we analyzed R&D’s contribution to enterprise value (that is, a company’s equity value plus any outstanding debt) at ten pure-play biopharma companies that are traded on the public-equity markets. Using a methodology developed by the BCG ValueScience Center, we decomposed each company’s total enterprise value at the time of our study into the value of its late-stage new-product pipeline, the value of its early-stage new-product portfolio, and the value of all new-product R&D. (See Exhibit 2.)

When it comes to the value of new-product R&D as a percentage of total enterprise value, this analysis also shows a broad differentiation of outcomes, ranging from R&D adding about 25 percent to the value of Amgen to R&D reducing the total enterprise value of Eli Lilly by an equivalent 25 percent. At the time of the study, new-product R&D accounted for about $15 billion of Amgen’s market capitalization of approximately $58 billion. Eli Lilly’s market capitalization at the time was about $39 billion, meaning that its new-product R&D represented a loss of about $10 billion in potential market value.

New-product R&D was a net drag on enterprise value at four other companies in

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**Exhibit 2 | Investors Value New-Product R&D Differently Depending on the Company**

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**Sources:** EvaluatePharma 2010; BCG ValueScience Center; BCG analysis.

**Note:** A company’s equity value consists of the value of equity plus net debt. Calculations for equity value are average values from February 2010 through April 2010 for all companies except Genentech, for which the equity value is the March 2009 closing price at the completion of the Roche merger. Product data projections for Genentech are for the period from July 2009 through September 2009.
addition to Lilly: AstraZeneca, Merck, Pfizer, and GlaxoSmithKline. For three companies—Amgen, Gilead, and AstraZeneca—R&D expenditures on the late-stage pipeline created value but expenditures on early-stage products did not, a sign that investors doubted these companies could sustain their R&D output. And for a select few companies—Bristol-Myers Squibb, Celgene, and Genentech (before its March 2009 merger with Roche)—not only did the late-stage pipeline create value but investors also valued positively new-product R&D as a whole.

Of course, companies have been keenly aware of these differences, and a few have taken decisive action since the time of our study to address their R&D performance—so much so that were this analysis to be repeated today, the results for some of these companies would be substantially different. Understanding precisely what it takes to improve R&D’s capacity to create value, however, requires taking a more qualitative look at what lies behind the outliers’ success.

R&D’s Bureaucracy Problem

Having observed wide differences in R&D effectiveness among companies, our next step was to try to identify the key factors that might explain those differences. We conducted a survey of some 200 biopharma R&D executives, asking them to rate the key success factors for an R&D organization in five critical areas: strategy; governance; people, talent, and leadership; culture and engagement; and incentives. (See the sidebar “Does R&D Discourage Employee Engagement?”) We also interviewed leading industry executives as well as employees and former employees of a number of the outlier organizations. Finally, we drew on our own extensive consulting experience with leading biopharma companies around the world.

This research suggests that although there are many reasons why some organizations have done better than others and no guarantees that yesterday’s winners will continue to do better in the future, the primary observed difference between the outliers and the rest is organizational. Specifically, the outliers have been successful in fighting the widespread bureaucratization of biopharma R&D in a way that the other companies have not.

The term *bureaucracy* has become so pejorative, it is sometimes hard to remember that it was coined to describe a type of organization designed to ensure precision, reliability, and efficiency. The classic features of bureaucracy—a clear hierarchy of authority, roles assigned by talent and expertise, not personal connections, and explicit procedures and rules—were seen by early analysts of bureaucracy as the height of instrumental rationality and the model for the capitalist business corporation.

One of the most interesting themes in the organizational-sociology literature about bureaucracy, however, concerns the ways in which an organizational form designed to ensure precision, reliability, and efficiency can end up producing exactly the opposite result. These writings have emphasized the tendency of bureaucracies to transform adherence to the rules, initially conceived as a means to an end, into an end in itself—even to the point where “the primary concern with conformity to the rules interferes with the achievement of the purposes of the organization.”
In this respect, one can view a bureaucracy as an organization in which the activities of people and the use of resources are shaped primarily by internal goals and constraints at the expense of the company’s broader mission. This misalignment between people’s behavior and the company’s goals arises not because people in a bureaucracy are lazy, devious, or uncaring. Rather, they are responding rationally to the priorities and incentives of the bureaucratic system in which they operate.

Of course, all large organizations are bureaucratic to some degree, and wherever bureaucracy predominates, it tends to undermine productivity. But there are some distinguishing characteristics of the biopharma R&D task that make R&D organizations especially vulnerable to bureaucracy and its negative impacts. Three such characteristics are particularly important.

The disconnect between effort and outcomes. The industry’s long product-development cycle times make it virtually impossible to measure and therefore reward outcomes in any reasonable period of time. High failure rates make it difficult to know whether poor outcomes are the product of unavoidable scientific failure or addressable organizational factors. This radical uncertainty gives R&D organizations an unusual amount of power in biopharma companies. Because it is so difficult to determine the precise link between effort and outcomes, R&D has wide room for maneuver to organize around its own specific goals and constraints. Those goals and constraints may make perfect sense from the perspective of the R&D organization, but they can conflict with those of the company as a whole.

Take, for example, the way decisions are made to move compounds from one stage of the R&D value chain to the next. At one company, we analyzed the decisions affecting 100 compounds as they made their way through the R&D process. Preclinical screens had suggested that 20 of the compounds had the potential to become useful drugs. Those 20 compounds were sent on to proof-of-concept testing, where 10 of them succeeded and were passed on to full development—a success rate of 50 percent.

So far, so good. However, 40 of the remaining compounds that had failed the preclinical screens were also moved to proof-of-concept testing. The decision makers in R&D were extremely hesitant to pull the plug on the projects in the hope that at least some might still pay off. This practice is relatively common in the industry; stories abound about compounds that were nearly killed at earlier stages in the R&D process, only to be saved by some determined champion and then to go on to become blockbuster drugs.

Our analysis, however, contradicts that commonly held point of view. The vast majority of compounds in the second group failed at proof-of-concept testing. Although two did beat the odds (a success rate of only 5 percent), their success was nowhere near enough to outweigh the resources wasted on compounds that preclinical data had already indicated were unlikely to succeed. One can only wonder: if the company had stopped work on those compounds that failed the preclinical screens and devoted its resources elsewhere, how many new, more promising compounds would it have identified and progressed?
As part of our study, we conducted a survey of some 200 biopharma R&D executives about achieving R&D success. We asked them to rate the relative importance of 22 key success factors in five broad areas: strategy; governance; people, talent, and leadership; culture and engagement; and incentives. We also asked them to estimate the degree to which each success factor was implemented in their organization.

As one might expect, the respondents believed that nearly all the success factors were either “very important” or “critically important” and that the vast majority were “mostly implemented.” However, what is striking is that the biggest gaps between perceived importance and implementation were found not in the “hard” categories of strategy or governance but in the softer categories addressing people, talent, leadership, culture, and incentives.

The exhibit “The Biggest Implementation Gaps Involve People, Leadership, Culture, and Incentives” illustrates graphically where respondents saw the biggest gaps between importance and implementation (the darker the cell, the bigger the gap). Respondents saw the greatest gap in the success factor scientific talent, which we defined as “an organization that attracts, develops, and retains world-class scientific talent with breadth and depth across R&D functions and therapeutic areas.” But a closer look suggests that they were not talking just about raw scientific talent. Creative energy (“people will contribute their creative energy and do what it takes to make things happen”), for example, came in a close second—suggesting that the issue is as much garnering the engagement of a highly talented workforce as the degree of talent itself. And the third-biggest gap was in the category sanction lackluster effort (“just ‘going through the motions’ has clear negative consequences on career progression”). This is precisely the kind of bureaucratic behavior that we believe is a major obstacle at many biopharma R&D organizations.

This trend is especially apparent in the answers of the roughly 50 respondents to our survey who work in the discovery function. They were less worried about the raw scientific talent in their organizations and significantly more worried about the way people work together to achieve the company’s goals. For this subgroup, the biggest gap by far was in the sanction lackluster effort category, followed by creative energy.

And the third-biggest gap for this group was in the category sanction lack of collaborative effort (“lack of collaborative mindset has clear negative consequences on career progression”).

Finally, these organizational issues around employee engagement loomed especially large for those respondents who declared themselves to be pessimistic about the future of biopharma R&D. In addition to large gaps in the scientific talent and creative energy categories, they also highlighted the category early R&D incentives (“an incentive system in discovery and early development that supports
the R&D long-term strategy but does not hinder rapid wind-down of programs when appropriate”). A large gap in this category is another indicator of the persistence of bureaucratic decision-making and behavior that hinder employee engagement.

### The Biggest Implementation Gaps Involve People, Leadership, Culture, and Incentives

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**Gap score key**

- Small
- Large

**Source:** BCG analysis.

**Note:** The gap score measures the average difference between an attribute’s perceived importance and its implementation across all subgroup respondents.
The evolution of biomedical science. Growing scientific specialization has given birth to myriad new organizational units, reinforcing the dominance of specialized functions at the expense of cross-functional cooperation. In chemistry, traditional specialties such as medicinal chemistry have been joined by new subspecialties such as protein chemistry, combinatorial chemistry, and computational chemistry. In biology, traditional expertise in biochemistry has been supplemented by new types of expertise in biomarkers, in vivo models, and translational medicine.

Such specialization is inevitable, but it has side effects that contribute to increased bureaucratization. The proliferation of new specialties creates more and more groups within R&D that have a monopoly on a particular expertise—so much so that sometimes it can be difficult, or even impossible, for those not deeply grounded in the specialty to understand it. Such a monopoly encourages these groups to optimize their decisions according to their own priorities and makes it inherently difficult for other parts of the organization to challenge those decisions.

A typical example is the design of clinical trials. When a single unit is responsible for trial design, it has an automatic incentive to “overpower” the design (that is, to expand the size of trials in order to increase the statistical significance of the result). But designing trials to this single criterion means not taking into account important tradeoffs with other factors—specifically, the way adding more patients and additional sites to a trial can raise costs, add complexity to the trial process, and delay time to market. The result: unnecessarily large trials that drive up the cost of drug development and extend the time to registration.

In an attempt to improve communication and the flow of information across internal monopolies, organizations have created new “middleman” roles to “manage the interface” between units. But such roles only add to the complexity of the R&D organization, eroding further the agility and speed of decision making.

“Solutions” that make the problem worse. As the middleman example suggests, bureaucracy can become so pernicious that the very efforts companies make to address the decline in productivity—for example, creating more and more metrics, establishing new governance committees, and introducing new layers of checks and controls—have the unintended consequence of reinforcing bureaucracy and exacerbating its negative effects.

An excellent example of this phenomenon is the proliferation of explicit “key performance indicators” (KPIs) for motivating employees and evaluating their performance. KPIs are a well-meaning attempt to address the disconnect between effort and outcomes described earlier. But in fact, most KPIs are poor predictors of ultimate value and therefore unrealistic components of a truly effective incentive program.

Consider again the example of clinical trials. As the importance of cycle time to a drug’s ultimate economic performance has become well understood, there has been more and more emphasis in the industry on getting products to market faster. As a result, many organizations have put KPIs in place to measure progress at
various points in the clinical trial process—for example, “time to full protocol approved,” “first site initiated,” “first patient, first visit,” “last patient, last visit,” and “database lock.” Part of the reason these metrics are so attractive is that most trials take three or more years to complete, whereas individuals receive bonuses annually. Thus, it would seem to make sense to break down the trial process into more manageable goals.

The problem, however, is that as people respond to such incentives, there are often unintended consequences. We have observed situations, for instance, where teams would put enormous effort and considerable expense into meeting their “first patient, first visit” target—only to have several months pass before the second patient was enrolled. As a result, this particular KPI was not increasing the overall speed of getting products to market.

We find this disconnect at many companies between formal KPIs and actual value created. One R&D organization, for example, had set itself the target of introducing one NME per year. The research organization was rewarded for achieving numerical goals for various phase transitions—such as entry into Phase I and Phase II trials—on the theory that the more compounds that made it into these trials, the more likely the company would be to achieve its NME goal. About 60 percent of the bonus of the research leadership team was linked to the Phase I and Phase II entries, over a time frame of one and two years, respectively. After the new KPIs were introduced, the organization regularly met or exceeded them, resulting in bonus payouts greater than the target payout for five years in a row. But the organization’s “success” at passing compounds from Phase I to Phase II came at the price of halving Phase II success rates—from 40 percent to 20 percent. During the five-year period in which the company had been handing out above-average bonuses for Phase I and Phase II entries, it introduced exactly zero new NMEs—a significant failure relative to the R&D organization’s initial goal.

The cumulative effect of bureaucratic mechanisms such as these is not merely to slow down the R&D process and increase costs, but also to degrade the quality of strategic decision-making and to reduce collaboration. For example, an employee survey at one reasonably typical company revealed that fully two-thirds of the R&D workforce said that people put their departmental and personal interests ahead of those of the company as a whole. And seven out of ten said that they found the organization’s decision-making process ineffective.

In conclusion, the more a biopharma R&D organization functions as a bureaucratic system, the more individual goals and incentives, and personal motivation and behavior, become out of alignment with the mission of the enterprise as a whole. It is this misalignment, we believe, that drives a significant share of the poor productivity in the industry.

What the Outliers Do Differently

Faced with such problems, which appear to be built into the very nature of the R&D task, biopharma executives might well be tempted to throw up their hands and give up. But that is not what the experience of the outliers suggests. Interest-
tingly, the outliers seem to have been more successful than other organizations at fighting this industrywide trend toward bureaucratization. And central to their success have been three organizational characteristics: leadership, cooperation, and engagement.

Leadership and judgment trump rules and procedures. As we discussed earlier, bureaucracies are, by definition, rule-bound organizations—to the degree that rigid adherence to the rules often comes at the expense of commitment to the organization’s broader mission. The outliers avoid this outcome by using active leadership and seasoned judgment as a necessary complement to formal rules and procedures. Put simply, they counter the organizational inertia that leads R&D to impose its own goals and constraints on the rest of the organization by giving R&D managers the power and authority to lead—including the freedom to interpret the rules in service of the company’s mission. It may seem paradoxical that the most effective way to counterbalance the bureaucratic power of R&D is to grant more power to R&D managers, but the paradox is only apparent. In fact, it is the overreliance on rules and procedures that fuels bureaucracy, and management’s power is precisely about substituting judgment for rules.

Take, for example, the way many of the outliers approach the role of project manager—that is, those researchers whose task it is to guide a particular compound through the discovery and development process. At many companies, project managers are the weak link in the matrix, with little or no power over their budgets, the process for moving their compounds forward, or their teams’ performance. At many of the outliers, by contrast, the project manager role is designed to give project managers sufficient power to truly lead. They have a major say in the selection of team members so that they can recruit the best people, and a decisive influence in the assessment of their team members’ performance. They also have substantial freedom in how they spend their budget—including the option to go outside the company for key steps in the R&D process when it makes sense for reasons of cost or time.

At the same time, the outliers realize that power doesn’t have to be a zero-sum game. So even as they empower project managers, they also make sure that functional managers have the authority to make those decisions that will ensure the development of the company’s scientific expertise over time. And senior management works with both project teams and functions to help them navigate the hard tradeoffs between competing goals.

Cooperation is valued as highly as expertise. Bureaucracies are founded on the authority of expertise—but at the price of creating organizational units where specialists have a monopoly on information and authority. The outlier biopharma R&D organizations value scientific expertise highly, but they insist that it be combined with an organization-wide ethic of cooperation. For example, they establish shared accountabilities along the R&D value chain to force different functions and groups to manage the inevitable tradeoffs in the R&D process rather than optimize their behavior according to their own narrow goals. They also understand that successful cooperation sometimes requires healthy competition, so they are not afraid to go outside the company to license new compounds, outsource clinical
trials to contract research organizations, or make codevelopment agreements—in part, as an effective way to test their own in-house capabilities against an external benchmark and avoid the creation of internal monopolies.

Deep employee engagement causes researchers to “go the extra mile.” One of the products of active and inspirational leadership and strong cooperation is an R&D workforce that is unusually engaged in the company’s mission and willing to do whatever it takes to achieve it. Typically, employees at these companies know how their role fits into the R&D process as a whole. Instead of relying on rules and procedures to do the minimum, they are looking for any way to contribute to the company’s mission “above and beyond” their unit’s internal goals. This deep employee engagement contributes to the creation of a stimulating R&D culture that encourages objective data-based analysis and debate; a readiness to openly discuss flaws, problems, and mistakes; the expectation that everyone will put the company’s commercial mission ahead of their units’ priorities; and, finally, a willingness to make tough decisions about the future of projects on the basis of optimizing the value creation of the organization as a whole, not on privileging any single step of the R&D process.

These three characteristics define a faster, more strategically focused, and quite simply smarter R&D organization, able to navigate the growing complexity of the biopharma R&D environment while at the same time minimizing unwieldy bureaucracy.

Profile of an Outlier: Genentech

For an illustration of how leadership, cooperation, and engagement play themselves out in the R&D workplace, consider the example of the most unequivocal outlier to emerge from our study: Genentech. In addition to showing up on both our historical and forward-looking screens, the company was mentioned more than any other by survey respondents and interview subjects as having a highly functioning R&D organization.

For example, in our survey we asked respondents to name the companies that they thought were the best performers in the five key dimensions of R&D performance. Not only did Genentech receive the most mentions by far—approximately one-third more than the next-most-mentioned company. It also came in first in four of the five dimensions, and second in the incentives category. The company was also the most frequently mentioned in response to the question, Which company do you believe is most likely to succeed over the next five to ten years?

When respondents described why they chose Genentech, they didn’t refer to smarter people or better luck. Nor did they say that Genentech necessarily had a better strategy, better technology, or better processes. What they did highlight was Genentech’s high degree of organizational functioning and effectiveness along the three dimensions that we have described.

For example, in the survey as well as in subsequent interviews with current and former members of Genentech’s R&D organization, many people emphasized the...
key role of senior leadership in building the Genentech culture, in particular the
tone set by former CEO Arthur D. Levinson. They described a delicate blend of
openness and ease of interaction with tough-minded assessment and decision
making. “Art was always extremely casual and visible,” said one former Genentech
employee. “It was always easy to set up lunches with him and share ideas.”

“You are asked for your honest appraisal without fear of retribution,” said another.

“Directors are trusted, and people trust their decisions,” said a third. “Compounds
are screened out as soon as there is strong evidence to do so.”

Survey respondents and interview subjects also highlighted Genentech’s emphasis
on cooperation. They talked about the “open structure and open communication,”
“easy and natural collaboration,” and “enthusiastic sharing of ideas and knowledge
across R&D.”

“There are very few layers; it’s more like an academic environment or Apple and
Google,” said one. “People move between departments easily, almost like in a
teaching environment.”

“You can ask anyone for help learning something,” said another. “Everyone has
their hand on the target, and you’re invited to participate as your target of interest
moves up the chain.”

Finally, the survey respondents and interview subjects described Genentech as an
exciting and engaging environment for individual researchers. Some highlighted a
work environment where “all researchers are treated with respect.” Others empha-
sized fringe benefits such as the “unparalleled staff perks” or the fact that the
company encourages researchers to take personal time to explore their own re-
search interests. But it is clear that the high levels of engagement are just as much a
product of the organization’s strong sense of purpose. As one individual put it,
“There is a clear focus on product and purpose: ‘we are here for the patients.’”
Another said simply, “I’ve never seen a group so proud of its work.”

Of course, it remains to be seen whether Genentech will be able to maintain its
antibureaucratic atmosphere and practices now that it has become part of Roche, a
much larger corporation. The key question for the future: Will the Genentech
research culture influence Roche or will being part of a larger corporation create
new bureaucratic mechanisms that will erode the Genentech culture? We believe
that the answer to that question will in large part determine the organization’s
future success.

A Ray of Hope
Fighting bureaucracy in biopharma R&D is a tough challenge. But the experience of
outliers like Genentech suggests that it can be done. Indeed, even a few of the
companies that performed poorly in our study have taken steps since then to cut
back on bureaucratic obstacles to R&D productivity—with anticipated major
improvements in the capacity of their R&D organizations to create value.
Of course, creating an R&D organization that effectively counteracts the negative impacts of bureaucracy won’t solve all the problems facing biopharma R&D. The broad market and institutional forces complicating the R&D challenge are not going away anytime soon. But the capacity to minimize bureaucracy in favor of more productive interactions is the primary driver of the remarkable differences in performance between those R&D organizations that create value and those that do not.

We believe that any biopharma company can substantially improve the effectiveness of its R&D organization by following the outliers’ lead. To do so, however, senior R&D executives need to rethink how they lead; how their organizations work, both structurally and dynamically; how they can encourage employees to cooperate with one another and the outside world; and how they can enable researchers to engage wholeheartedly with the company’s primary mission—to create economic value by developing drugs that meet unmet medical needs.

NOTES
3. In particular, of the companies in Exhibit 2 for which new-product R&D destroyed value during the period we studied, GlaxoSmithKline has improved its position somewhat, and Pfizer has actually moved to the positive side of the ledger.
About the Authors

Peter Tollman is a senior partner and managing director in the Boston office of The Boston Consulting Group and the global leader of the biopharmaceutical sector in the Health Care practice. You may contact him by e-mail at tollman.peter@bcg.com.

Yves Morieux is a senior partner and managing director in the firm’s Paris office and the leader of the BCG Institute for Organization. You may contact him by e-mail at morieux.yves@bcg.com.

Jeanine Kelly Murphy, based in BCG’s Boston office, is the topic specialist for biopharma for the Health Care practice. You may contact her by e-mail at murphy.jeaninekelly@bcg.com.

Ulrik Schulze is a senior partner and managing director in BCG’s Zurich office and the global leader for biopharma R&D in the Health Care practice. You may contact him by e-mail at schulze.ulrik@bcg.com.

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For Further Contact

If you would like to discuss this report, please contact one of the authors.