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Innovation without borders: Meeting the promise of globalized R&D

Eighty percent of executives in our survey think their organizations are behind the curve when it comes to R&D globalization. Five crucial steps help in getting up to speed.

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by Elia Berteletti, Anna Herlt, and Thomas Morel

As companies began to distribute their operations across the world during the late 20th century, most kept their R&D activities at home. At the time, that decision seemed to make sense. An organization's product-development capabilities are core to its value proposition, so surely they should be located close to the core of its activities?

In recent decades, that mind-set has changed. While it's still true that R&D benefits from proximity to customers, suppliers, and manufacturing operations, those people and activities are increasingly spread around the world. There are other good reasons to look further afield for R&D capacity, too. Capturing cost advantages is one, as is gaining access to scarce talent.

Are you ready for the future of R&D?

Technology, globalization, and competitive pressures are transforming the way companies develop not only new products, but also the related service offerings and the business models supporting them. To assess companies' readiness for these changes, we surveyed 200 executives, managers, and experts from top R&D organizations around the world in six industries.

Specifically, we asked respondents to say how effectively their own organizations were addressing the challenges and opportunities presented by six major forces that are already reshaping R&D:

1. Digital product development
2. Globalized R&D footprints
3. The intersection of Big Data, the Internet of Things (IoT), and advanced analytics
4. Adaptation of product development to advanced materials and new manufacturing techniques
5. Excellence in software development
6. Transparency and accountability on R&D performance

In this series of articles, we will share what we learned about companies' current level of readiness in each of these areas. We'll also describe best practice approaches that emerged from the survey, and discuss how companies can overcome the most significant roadblocks identified by respondents.

Starting around the turn of the millennium, companies become more willing to shift parts of their R&D activities to offshore locations. For example, between 1995 and 2004, the share of R&D spending made by European multinationals outside their home country increased to 44 percent from 26 percent. At the same time, R&D outsourcing has grown

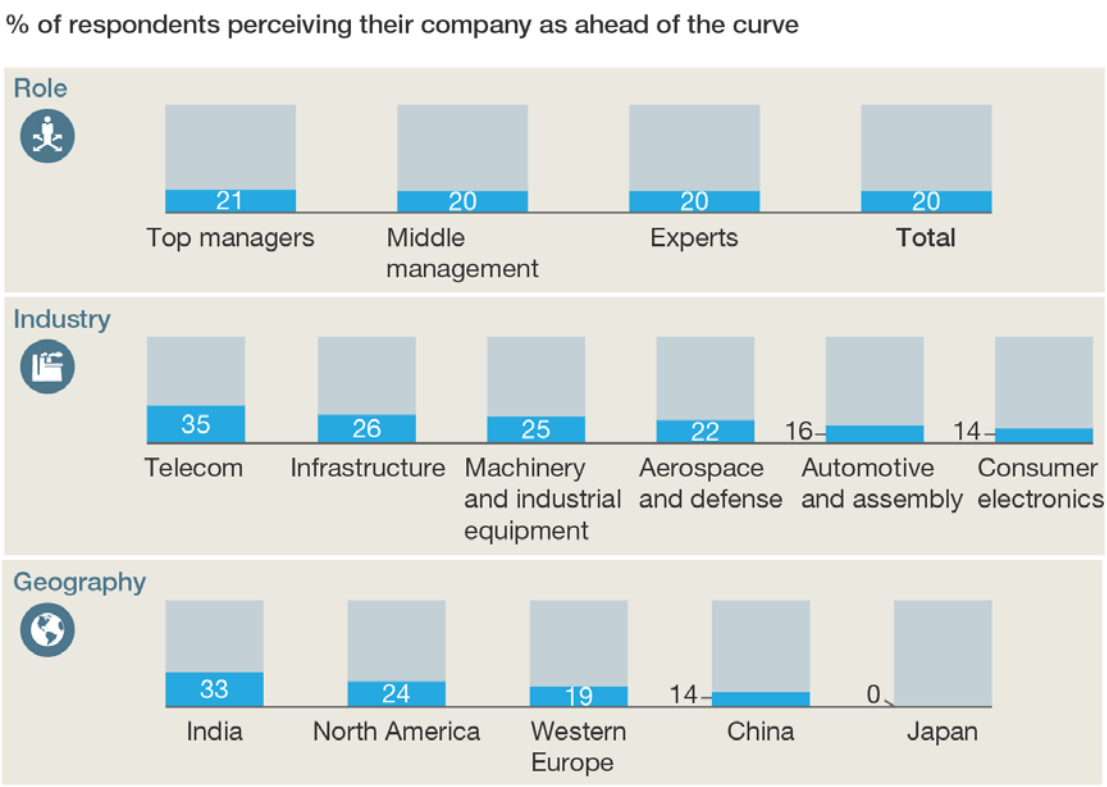
significantly, with companies handing responsibility for more and more R&D activities to specialist external providers, either at home or abroad.

Not yet comfortable

Yet despite this history, few respondents to our survey felt their organizations had mastered R&D globalization—even though most saw it as an important and inevitable trend. Overall, around 80 percent of respondents described their organizations as "behind the curve" in this area. Responses did vary by industry, with telecommunications companies the most confident about their globalization strategies while automotive and consumer-electronics companies brought up the rear. Geography made a difference too. Companies based in India and North America were significantly more comfortable with their approach than their counterparts in China and Western Europe. And no Japanese respondents felt that their companies had cracked the R&D globalization code (Exhibit 1).

Exhibit 1

Only 20 percent of respondents say they feel ready for globalized R&D.



McKinsey&Company | Source: R&D of the future global survey, 2016

When we asked respondents about the degree to which their companies had already adopted R&D globalization strategies, their responses matched their level of confidence. Sixty-five percent of self-reported high performers say they already spend more than 30 percent of their R&D budgets in offshore locations, and half of them outsource more than 30 percent of total budget external to outside R&D service

providers. The corresponding figures for other respondents were much lower: only 38 percent achieve the same level of offshore spend, and 30 percent of them outsource to the same degree.

Getting R&D globalization right

Companies can gain a competitive advantage through a well-thought-out global R&D footprint. To succeed, we believe companies should apply five basic principles in the R&D globalization efforts. First, they define clear objectives for offshoring and outsourcing efforts. Second, they differentiate explicitly between “core” R&D activities that differentiate them from their competitors and “non-core” activities that don’t. Third, they take a portfolio-wide perspective, centralizing global products and technologies and shifting the development of local variants closer to their target markets. Fourth, they manage the costs as well as the benefits of global R&D by concentrating projects at the minimum number of sites and managing interfaces carefully. Finally, they take a long-term approach, establishing an R&D operating model that can evolve and adapt as markets and technologies change.

1. Define clear objectives

While cost optimization is commonly cited as a driver for R&D globalization, the most successful companies capture other potential benefits, including access to market information or talent and the optimization of interfaces inside their organizations.

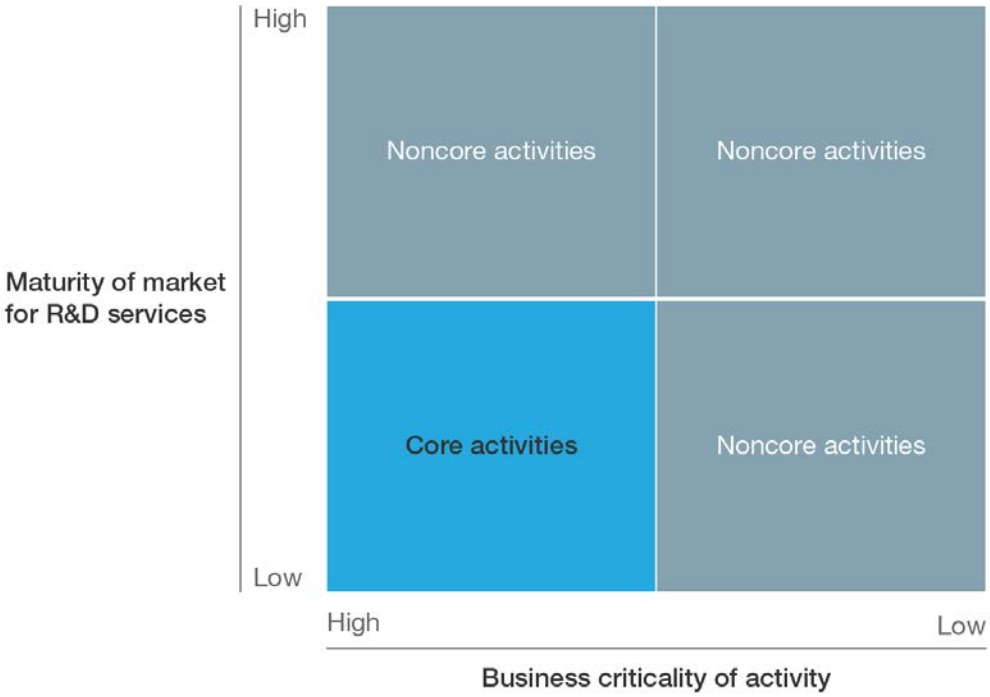
Korean consumer electronics company LG uses its Indian R&D presences to tailor products for the local market, helping to boost it is market share in the region. GE has used its own global R&D hubs to deliver breakthrough innovations for their local markets, and has been able transfer those ideas across its global operations. MicroPort, a medical-device manufacturer headquartered in Shanghai, acquired an operation in Memphis, Tennessee that is now the company’s global center for innovation in orthopedic products. In recent years, major automotive players worldwide have established R&D centers in Silicon Valley, to facilitate access to the software and hardware technologies that are becoming increasingly critical their products.

2. Clearly separate core and non-core activities

Leading companies have a clear understanding of the R&D activities that are critical in delivering their products and differentiating them from their competitors. Separating these core elements from other R&D activities helps them make better decisions about outsourcing and partnership arrangements, allowing them to gain the benefits of external expertise where they can, while maintaining control of the capabilities and intellectual property they need for long term success (Exhibit 2).

Exhibit 2

In determining which R&D activities to outsource, clearly separate core from noncore.



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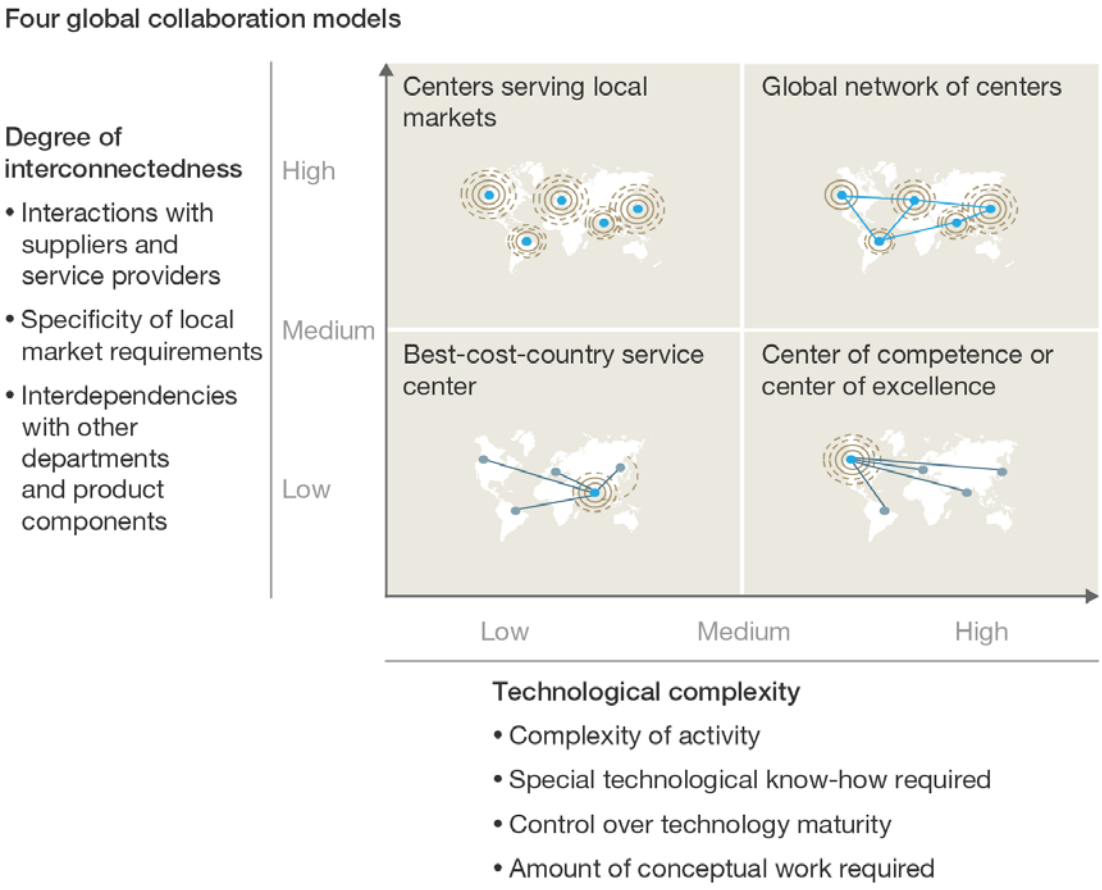
3. Develop global for global and local for local

Companies need a nuanced view of their global R&D networks. That means centralizing certain activities where it makes sense to do so, and localizing others. Typical candidates for the central approach include complex activities requiring a high degree of technical knowhow, or the development of technologies, platforms, or architectures that will be used around the world. Localization makes more sense where development requires intense interaction with local customers, suppliers, regulators, or business units. The balance between these characteristics will vary from company to company, driving the development of alternative network models (Exhibit 3).

Exhibit 3

Tailor the collaboration model to the development challenge.



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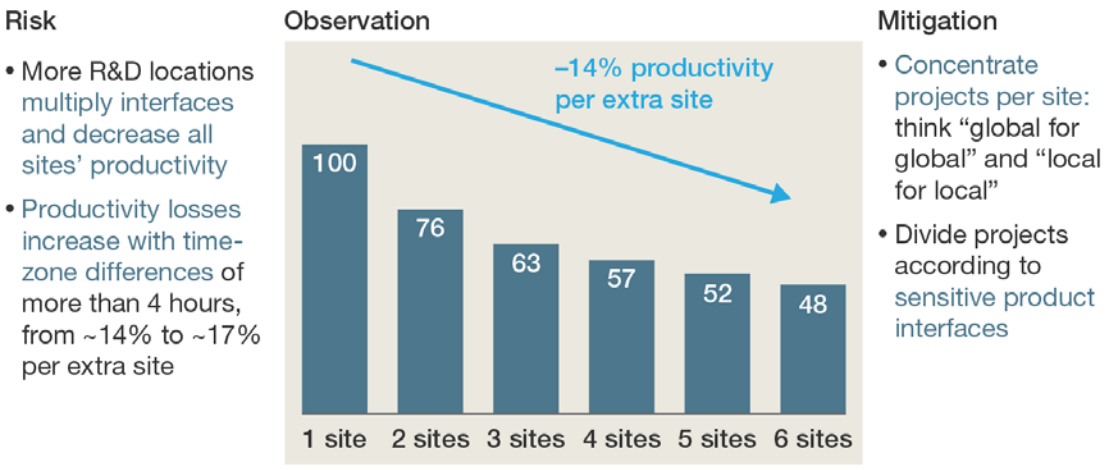
4. Minimize interfaces and optimize critical mass

Too often, the hidden downside of R&D globalization is lower productivity and increased management complexity. Research has shown that R&D productivity falls by an average of 14 percent every time staff from a new site are added to a project. That's due to the extra work required to coordinate the activities of people working in different offices, regions, or time zones. Leading companies understand this penalty, and work hard to control it: by allocating projects to single sites wherever possible, and by ensuring that each R&D site is large enough to achieve its objectives without drawing unnecessarily on resources from elsewhere (Exhibit 4).

Exhibit 4

Avoid productivity losses by minimizing the total number of R&D centers and allocating complete projects to single centers where possible.



Source: Donald Reinertsen and Preston Smith, *Developing Products in Half the Time*; Kim Clark and Steven Wheelwright, *Revolutionizing Product Development*; Numetrics (a McKinsey Solution)

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5. Set up a long-term strategy and R&D operating model

R&D globalization is an ongoing process requiring continual evolution and active management. The best companies establish a long-term globalization strategy, and design an R&D operating model to ensure all their sites operate with the same approach, processes, and standards.

A company's globalization strategy should include a plan for where R&D facilities will be located and where future product generations will be developed. That plan should inform not just internal investment plans, but also M&A decisions. Because requirements will change over time, the strategy must also define which elements in the network can be changed, and which parts of the R&D structure must be preserved to maintain the organization's capabilities. The strategy should also consider how synergies between sites can be achieved, for example with the adoption of a global system for talent acquisition and retention.

A global R&D operating model allows different parts of the network to work together effectively, and simplifies network changes and the reallocation of projects and resources. That model should include core product-development processes, such as stage gates and reviews. It should also define how decisions are made and issues escalated. And it should establish standards for terminology and tools used across the organization.

□ □ □

As markets and production footprints become ever more global, product development activities must follow. Done right, global R&D brings companies closer to customers and suppliers, and unlocks new sources

of knowledge and talent. But the globalization of R&D carries costs and risks alongside those benefits. To succeed, companies must recognize the trade-offs inherent in such efforts, and take explicit steps to manage them■

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