



share the same language, culture, and norms, enabling flexibility and iterative learning as the project unfolds.

When a project spans multiple locations, many of those natural benefits—often taken for granted—are lost. Part of the challenge of dispersed innovation thus becomes how to replicate the positive aspects of colocation while harnessing the unique benefits of a global initiative. To explore this challenge, we spent more than a decade doing field research at 47 companies around the world, including Citibank, HP, Hitachi, Infosys, Intel, LG Electronics, Novartis, Philips, Samsung, Siemens, Vodafone, and Xerox. In 2004 we teamed up with Booz & Company to conduct a global survey that was completed by 186 companies from 19 countries and 17 sectors, with a combined innovation spend of more than US\$78 billion. We draw on that work to present a set of guidelines for successfully managing global innovation projects.

Start Small

1 One of the chief enablers of dispersed innovation is the experience of the participating sites in working on global projects. No matter how strong technical capabilities or customer knowledge may be at a particular site, employees will struggle to make a contribution to a global project commensurate with their skills if they have had experience only in collocated development. That's because on single location projects, team members benefit from collective tacit knowledge and a shared context, both of which support rich communication and help build trust and confidence among co-workers. Projects that span multiple sites and time zones are often hobbled by differences in workplace practices, communication patterns, and cultural norms. In the absence of everyday interactions and encounters, people struggle to signal trustworthiness and demonstrate competencies. Making matters worse, many teams are used to competing for resources with teams at other sites, and this creates yet another barrier to trust and collaboration between sites.

To be effective, dispersed teams have to develop a new set of collaboration competencies and establish a collaborative mind-set. This can be done by running small, dispersed projects involving just two or three sites before a project launch. Schneider

hmmmm

Managers must anticipate the possible toxic side effects of organizational change and shelter their global teams as much as possible.

Electric and Toshiba, two global electronics manufacturers, took this approach when they formed a joint venture, STI, to develop electrical drives and inverters. Although management was enthusiastic about the new partnership, engineers at the two companies were not. To build trust between sites, STI organized a series of small, noncritical joint projects under the close scrutiny of senior managers. By the end of the first project, the teams had already begun to feel comfortable collaborating with colleagues at other sites. They quickly established consensus on working practices and protocols, reinforcing trust and providing a good foundation for the more complex global initiatives to come.

Provide a Stable Organizational Context

S During periods of major organizational change, such as restructurings or acquisitions integration, the complexity of dispersed innovation escalates. Top managers are likely to be focused elsewhere within the organization, leaving their global projects orphaned. Critical decisions are frequently left hanging, and problems often go unaddressed. In a climate of organizational uncertainty, turf battles can flare up, and project team members may become concerned about job security and lose focus.

Consider a global electronics firm we'll call Elecompt. It launched a global innovation project at a time when new acquisitions were being integrated and a major reorganization of R&D was under way. Although the project was of strategic importance, management focus was understandably elsewhere. Problems came to a head when, prompted by fear of job losses, large numbers of highly skilled engineers at one site left the company, causing significant delays.

Of course, it's not possible to undertake global innovation projects only in times of sustained stability, so managers need to anticipate the possible toxic side effects of reorganization on global innovation and shelter teams as much as possible from disruptions. They should focus on creating an atmosphere of stability and bolster employees' sense of self-worth and loyalty to the firm. This will be particularly important for firms that are expanding R&D in China, where competition for talent is so intense that loyalty to employers rarely has time to develop.

Idea in Brief

Many firms struggle to exploit the innovation potential of their global networks. That's partly because they manage global projects like traditional ones. But single-location projects draw on a reservoir of shared tacit knowledge and trust that global projects lack. To get the most from dispersed innovation, managers need a different playbook.

Enabling conditions. Global teams need collaboration competencies. These can be developed by running projects with just two or three sites before a project launch. Firms also must foster a climate of organizational stability and keep disruptions to a minimum.

Management structures. Senior executives must have

an explicit oversight role in global projects, and one site should be designated as the lead, to avoid time-consuming negotiations.

Resourcing. Companies should invest resources upfront in defining the project, and must fight the urge to allocate resources on the basis of availability rather than skills and capabilities. Some knowl-

edge overlap among sites is desirable. Firms should limit the number of external partners, as they add complexity.

Communication. The success of a global project remains dependent upon communication channels that mimic the richness of colocation.



Assign Oversight And Support Responsibility to a Senior Manager

When the knowledge base underlying a project is fragmented and project teams are scattered over multiple locations, miscommunication, conflict, and stalemates over crucial decision making are much more likely. Project teams often struggle to handle these problems constructively over a distance, especially when disagreements become personal, and so senior managers have to take on a formal role as arbiter, risk manager, support provider, and ultimate decision maker.

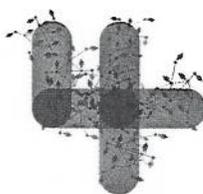
Contrast this with the more familiar world of single location projects, where senior managers can give the go-ahead to an innovation project and then step back and let the team get on with it. This hands-off approach works because on-site executives can rely on informal communication and feedback mechanisms to maintain oversight. Being on the spot, they're more likely to become aware of difficulties early on and can intervene when necessary to resolve them.

Companies that are smart about global innovation create an explicit role for senior executives in their projects. For example, at Essilor, a global corrective lens manufacturer, an executive team member is assigned to head up every international project. He or she monitors project progress and is responsible for making key decisions and ensuring that the project meets the firm's strategic objectives.

Essilor undertook a project to develop photochromic lenses with partners PPG and Transitions Optical. The project involved more than 20 sites around the world. To ensure first mover advantage, the schedule was extremely aggressive. Once the project was under way, it became clear that to hit the

launch date, the production ramp-up phase would have to be reduced. This could be achieved only by taking shortcuts in the production validation and evaluation processes. None of the managers of the 18 production facilities were comfortable with that kind of risk.

With loose executive oversight and unclear decision rights, the project might have stalled or derailed before the issue came to the attention of senior management. But the executive responsible for the project saw the dilemma immediately and took it to the executive committee. Because time to market was critical, the committee agreed to the shortcuts and made it clear that the risk belonged to the project, not to the production sites. The problem was resolved without any disruption to the work flow, and the product was launched on schedule.



Use Rigorous Project Management and Seasoned Project Leaders

In addition to a fully engaged senior manager, a global innovation project requires a strong project management team to drive the project on a day-to-day basis and strong team leaders supported by robust tools and processes. These are necessary to impose discipline, structure, and a shared sense of purpose across the locations.

Firms can approach these challenges in a number of ways. Some adopt rigorous quality programs to provide formal project management for global projects. Siemens uses Design for Six Sigma to define common analytical tools, provide coaching, and set targets and timetables for feedback meetings. Those processes are then adopted across all sites.

Alternatively, firms can build a corporate project-management capability. Essilor, the lens manufac-

turer, has a corporate unit that runs global projects. The unit includes staff members from all functions and geographies—many of whom spend several years as project managers of global innovation efforts before returning to their area of specialty. These positions are desirable ones: Project managers value the opportunity to work closely with the senior executives assigned to their projects. And because the roles involve extensive travel and exposure to different parts of the firm, project managers leave the unit having built strong cross-cultural skills and robust relationships and networks all over the world.

It's important to note that global innovation projects are so complex that standard tools and processes don't always work well. At the joint venture STI, a project manager realized that misunderstandings resulting from e-mail communication between teams were causing the schedule to slip. With senior management support, he successfully introduced a protocol requiring that all initial communication on a topic be voice-to-voice. At the software firm Synopsys, the global development of a new product ran in parallel to the incremental development of an existing product, a traditional approach at many firms. Concerned that this would lead to an "us versus them" culture, the project manager organized work spaces to mix up the two teams.

Appoint a Lead Site

Each site involved in global innovation will see the project through the prism of its own contribution and context, rather than putting the bigger picture first. That's why all sites can't carry equal weight, even if their experience and expertise are equivalent; one has to be designated the lead. That site takes responsibility for delivering the project on time and on budget.

Let's compare the approaches taken by Elecompt on its global project and by Schneider on its STI joint venture with Toshiba. Each site involved in the STI project was a global leader in its field. However, the French site, which had been heavily involved in defining the new product requirements, was given responsibility for the project: coordinating the project management team, integrating the work of the other sites, and making final decisions. Having a clear lead site ensured prompt decision making and a project successfully delivered on time and on budget.

At Elecompt, each site had equal weight in making decisions and managing the project. That meant that every decision and aspect of cooperation had to be negotiated among multiple sites, at best a slow and cumbersome process. With each site defending its own corner, stalemates were common. One engineer noted that "there was an escalation of problems without corresponding solutions." Two years into the project and with renewed senior management focus, the necessary management structures were finally put in place to enable the project to progress.

Invest Time Defining The Innovation



Anyone who has worked on a single location project knows that the product or service delivered isn't always what was anticipated

at the outset. This is actually one of the great benefits of collocation innovation. Because everyone involved is under the same roof and in frequent communication, continuous learning and adaptation can take place, allowing the design of the product or service to improve over the course of the project.

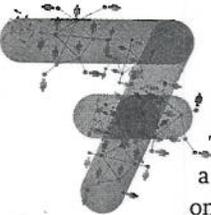
When a project is split over time zones, cultures, and languages, there is very little latitude for iterative learning. Instead, everything must be defined up front: the product or service architecture, the functionality of individual modules, and the interdependencies and interfaces between modules. In addition, process flows, timelines, and knowledge requirements need to be thoroughly understood so that everyone working on the project has the same understanding of the goals and their individual contributions to them.

Although there is a natural temptation to dive into development as soon as possible, studies show a positive correlation between investment in defining goals and technical specifications and the successful outcome of projects. In the case of Essilor's photochromic lens, despite having less than two years to deliver the new product, the project team invested nine months in defining the modules and multiple interfaces that would be handled by specialist teams from around the world, thereby building a solid foundation for success.

During the definition process, representatives from each project team were colocated for short periods of time. In addition, the constantly globe-

If teams are selected merely because they are available rather than for their distinct capabilities, the project will take on a lot of risk for little benefit.

trotting project managers held frequent on-site meetings and spent time conferring face-to-face with team members. We believe that a global project can't be effectively defined without some degree of colocation between the different functions and sites involved. Colocation builds relationships and trust up front and supports the sharing of complex ideas and concepts.



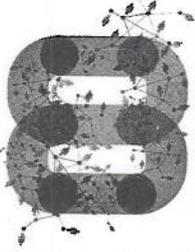
Allocate Resources On the Basis of Capability, Not Availability

The question of how best to staff a project rarely arises when only one location is involved: That location has presumably been chosen because the teams there have the requisite skills and experience. The effective staffing of a global project, however, requires a great deal of attention in order to select and integrate the best possible knowledge and capabilities.

But all too often, firms see global projects as an opportunity to make the most efficient use of human resources. Teams are selected not because they are the best qualified but because they are available at the time. The consequences of this approach can be seen in the Elecompt project. One of the sites, a U.S. team, was asked to develop a critical piece of software because it had the most staff availability, even though it lacked the required experience, and it struggled as a result. Eventually, when resources became available elsewhere, this module was moved to a team that had the necessary capabilities—but by then, morale had been dented, time wasted, and costs increased.

This availability approach to staffing projects completely undermines the basic rationale for global innovation—to bring together distinctive and differentiated knowledge and capabilities from around

the world to create unique innovations. If teams are selected merely because they aren't doing anything else at the time rather than for their distinct capabilities, the project will take on a lot of risk for little benefit.



Build Enough Knowledge Overlap for Collaboration

Although sites involved in a project should be selected on the basis of the unique capabilities and knowledge they can bring, there also has to be a small degree of knowledge overlap between sites. Without this, critical interdependencies between modules may not be apparent until the integration phase, when problems are costly to rectify. This doesn't mean replicating the other sites' knowledge, but understanding enough of what they do to anticipate potential interdependencies and interfaces in the development process.

At Siemens, virtual cross-functional teams provide knowledge overlaps to help avoid such problems. Each module is developed by a specialist team and overseen by a virtual team comprising representatives from each of the other modules. This allows potential problems to be flagged and resolved as they arise.



Limit the Number of Subcontractors and Partners

In most innovation projects today, part of the work is outsourced or undertaken by development partners in order to access specific competencies, reduce development time, or cut costs. The final consideration in staffing global projects is selecting these external collaborators.

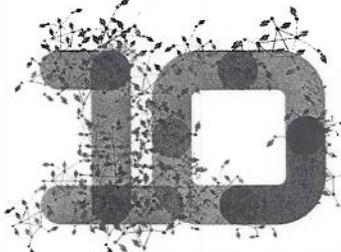
Managing relationships with external parties takes time and energy. So it makes sense in global projects to limit the additional complexity and management burden by keeping the number of subcontractors or partners to a minimum. And just as it's essential to use internal sites that have experience working together, it's easier and less risky to turn to external firms that are trusted and familiar. Choosing partners or subcontractors located close to one of the internal project sites will

Projects should include generous travel budgets for face-to-face site visits, team meetings, and temporary transfers for key team members.

likewise reduce the potential for cross-cultural misunderstandings and will support face-to-face communication.

An example of the problems that can be caused by involving too many distant external partners in an innovation project can be clearly seen in Boeing's 787 Dreamliner project. This ambitious effort aimed to develop a new plane with significantly reduced operating costs by using innovative composite materials. The project involved over 50 main partners across the U.S., Europe, and East Asia, each charged with developing different subsections.

Coordinating that many partners was difficult, and Boeing had little insight into what was happening at each site. Integration proved extremely complex and constant modifications were required—for example, the new materials initially made it impossible to attach the wings to the fuselage. To get the project back on track, Boeing resorted to colocating its partners for six months. Although the final product was a success, it was delivered almost three years late, during which time Boeing lost orders to the Airbus A350.



Don't Rely Solely on Technology for Communication

In the end, the successful execution of a global project remains dependent upon communication channels that go as far as possible to replicate the richness of colocated communication. In single locations, a shared context—cultural, organizational, functional, and technological—makes it easier to discuss complex ideas and resolve problems informally. Because communication in this environment is second nature, managers tend to underestimate the challenge of scaling communication globally.

Information and communications technologies, or ICTs, including e-mail, web meetings, social media platforms, online forums, and video conferencing certainly have a role to play, but those tools shouldn't be overrelied on, because they tend to mask differences between locations, leading to

misunderstandings and tension. In addition to ICTs, the communication armory for a global innovation project should include a generous travel budget for face-to-face site visits, project team meetings, and temporary transfers for key people. Also, to encourage team members to feel an allegiance and sense of belonging to a global project rather than their local site, a web of cross-site reporting lines can be put in place. This has the added advantage of forcing communication and knowledge sharing.

Successful globally integrated firms understand the importance of an extensive communications approach. Tata Communications, for example, has a highly dispersed structure that enables it to access the best competencies and market knowledge around the world. Even its top management team is dispersed across the globe. The company has invested in a raft of ICTs to support everyday collaboration, but this is in addition to hefty travel budgets for vital, regular face-to-face communication to drive projects forward, share knowledge, and reinforce trust.

TOGETHER, THE 10 STEPS we have outlined represent the foundation for successful global innovation projects. Adopting only one or two may result in fleeting success in some projects but will not produce a stream of positive outcomes. These best practices all need to be put in place and honed over time. It's not easy to build a global innovation capability, but for companies that don't have the skills and processes in place to manage global innovation projects, the future offers a stark choice: Continue with only colocated projects, in the hope that they will fill the innovation pipeline for a few more years until global competition intensifies and makes local innovation a niche activity. Or begin building a capability in global innovation now to take advantage of lower development costs, faster time to market, and, most important, the ability to leverage dispersed knowledge to gain competitive advantage.  HBR Reprint R1210F

 **Keeley Wilson** is a senior research fellow at Insead in Fontainebleau, France. **Yves L. Doz** is the Solvay Chaired Professor of Technological Innovation at Insead. They are the authors of *Managing Global Innovation* (HBR Press, forthcoming), from which this article has been adapted.

Building a Global Innovative Capability