

Far-flung teams can be remarkably productive, even outperforming groups whose members work side by side. But to make these teams succeed, you have to follow new rules about how to manage them.

# Can Absence Make a Team Grow Stronger?

by Ann Majchrzak, Arvind Malhotra, Jeffrey Stamps, and Jessica Lipnack

**T**HE COLD WAR had been good to Rocketdyne, Boeing's propulsion and power division. Starting in 1958, when the United States launched its first orbiting satellite, all the way through the 1980s, Rocketdyne was the dominant producer of liquid-fuel rocket engines. But after the breakup of the Soviet Union, makers of communications and weather satellites started favoring the cheaper engines coming out of a newly independent Russia.

In response, Bob Carman, a program manager at Rocketdyne, envisioned an engine that was radically simpler and cheaper than anything in its catalog. But to design it, Carman needed people with a depth of expertise that didn't exist within Rocketdyne's two offices in Canoga Park, California. He needed the best simulation-software stress analysts, who knew how to test alternative designs on the computer so the company

wouldn't have to build expensive prototypes, and he needed engineers who knew how to manufacture extremely precise parts in low volumes. The top simulation analysts worked at MSC Software, 100 miles away in Santa Ana, California, and the manufacturing engineers worked at Texas Instruments in Dallas. Remarkably, both groups had experience not only in modifying others' product designs for their own purposes but in originating them, a task more commonly the province of design engineers.

Going outside for expertise, specifically by forming partnerships with companies that had never produced a rocket engine, was viewed by Rocketdyne executives as "blasphemous," Carman recalls. Yet the eight-person group he assembled, about one-tenth the normal size, managed to design a reusable rocket engine, called SLICE, in only one-tenth the time span it took to develop its prede-

cessors—and 1% of the actual number of hours. Featuring a thrust chamber and turbopumps with only a few parts each instead of hundreds, it cost millions of dollars less to manufacture. The team was able to do all this even though the only physical meeting held included just five of its members, and the group as a whole spent only about 15% of each workweek over ten months on the project. The very first sample unit it produced passed what is known as cold-flow testing, a simulation stage in rocket development that few designs ever reach.

How did Carman pull off this amazing feat? By using modern communications technology to fashion a virtual, far-flung team of diverse talents that no face-to-face team could match, even if its members uprooted themselves to come work together, or commuted between their home offices and the team's site, for the project's entire length.

Carman then managed it so that the team's range of functions, disciplines, and temperaments didn't produce disarray.

In studying the Rocketdyne team, we noticed it had some unusual characteristics. Team members got to know one another well, though they spent absolutely no time together in person after the project began. They became remarkably attentive to one another's responses, though shifts in body language or facial expression were mostly invisible. They were working in areas outside their expertise but benefited greatly from being able to stay in familiar surroundings, continue working in their own organizations, and consult their local colleagues and extensive paper files.

We began to wonder whether other teams like SLICE existed. In 2002, we conducted a benchmarking study of successful virtual teams. (See the sidebar "Learning the Secrets of Far-Flung Teams.") Some were global, others regional. Half had members from more than one company. Half were long-term, and half had been set up just for a sin-

gle project. All of them convinced us that when a project requires a diversity of competencies and perspectives and the work can be done by means of electronic documents and tools, it's better to opt for a far-flung team than for one that works face-to-face. Such teams not only have a wider variety of communication channels at their command but also are free of many of the psychological and practical obstacles to full and effective participation that hobble their traditional counterparts.

For instance, several team members mentioned that they contributed much more during virtual meetings than they would have in face-to-face settings. They said they felt compelled to articulate their views more precisely than if they had depended on visual cues. Although many did affirm the value, in theory, of meeting together in the same room, few in practice found it essential. On the contrary, they asserted, holding such traditional meetings would have harmed the teams' work processes. Decisions in a complex project have to be made con-

tinually. Postponing them until everyone assembles slows everything down—way, way down. If such a meeting is in the offing, everyone expects it to be where the real work will take place and avoids doing anything of value until the meeting occurs. Our far-flung leaders dealt with that problem by never holding one. As one team leader said, "There's nothing we don't discuss virtually."

Indeed, much of the value of virtual teams derived from members' ability to be in two places at once. Remaining tightly linked to their local organizations allowed them to keep their teammates current on developments there. Long or frequent absences would have made that difficult, in addition to diminishing team members' value to their home units.

But, clearly, far-flung virtual teams establish a sense of connectedness and immediacy differently from the way local teams do. The virtual solution: Blur the distinction between time spent at meetings and time spent away from them through the use of always open, online team rooms—and ensure that the meetings that do occur really count.

The proof of the method was in the results. One team in our study went beyond its charge and designed a manufacturing process that saved its employer millions of dollars. Another team delivered virtual training to 80% of its company's employees at one-eighth the traditional cost. Yet another group was able to merge the IT infrastructures of two billion-dollar firms without suffering a single mishap on day one.

In this article, we set out three principles that guided most of our teams. The first deals with how these teams were composed; the second with how they used technology to coordinate their efforts; and the third with how team leaders induced a collection of strangers with little in common to function as a mutually supportive group.

### Rule 1: Exploit Diversity

With the assistance of his corporate partners, Bob Carman chose people for the SLICE team on the strength of their differences. They all may have spoken

## Learning the Secrets of Far-Flung Teams

To obtain data for our sample, we asked a handful of executives in companies known to conduct their work virtually whether they would give us access to both their successful and unsuccessful teams. They balked. No one wanted to talk about failures.

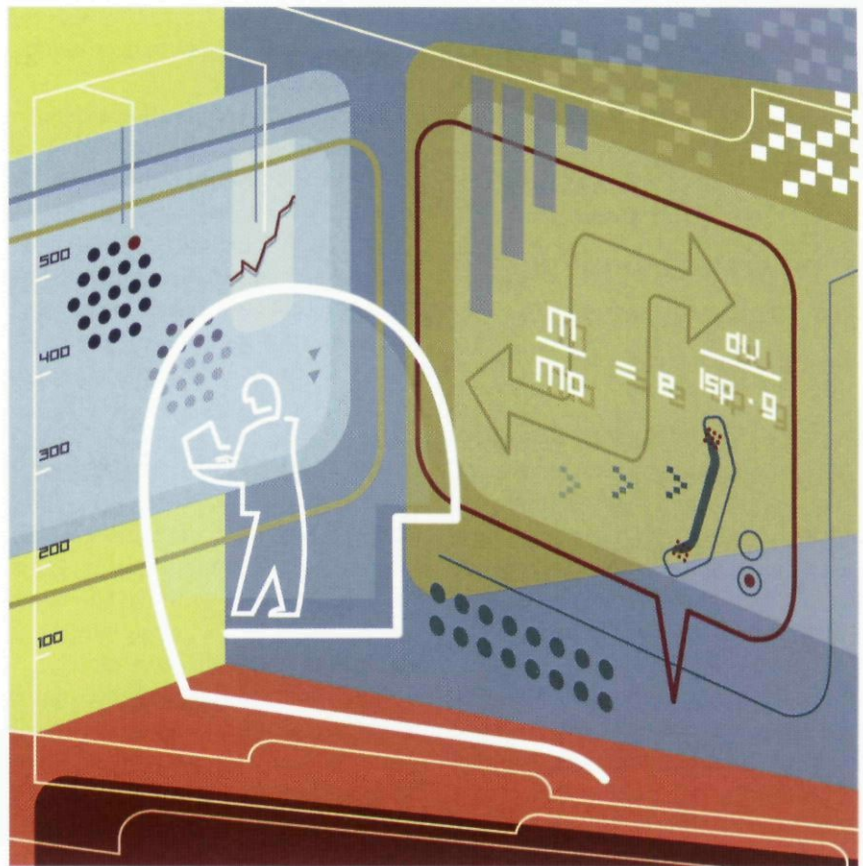
So we asked several hundred senior executives to nominate only teams they regarded as successful. This time, we got a good response. We asked about ones that did most of their work virtually yet interdependently, with few, if any, face-to-face meetings. We heard from 54 such teams in 26 companies representing a wide variety of industries—not only high-tech, telecom, financial services, and consulting firms but also heavy manufacturing, automotive, and consumer product companies. Among them were such brand names as EDS, IBM, Emery, Kraft, Motorola, and Shell Chemicals.

Fewer than 4% of the 293 participants in our survey reported ever meeting with all of their fellow team members face-to-face, and less than 17% reported ever meeting with any other member in person. Almost two-thirds of the teams included people from at least three time zones; slightly more than three-quarters had members from more than one country. The members of 57% of the teams performed different functions, and members of 48% of them came from more than one company.

To participate, team members had to complete a 25-minute Web-based survey; the team leader had to agree to a half-hour telephone interview; and an executive familiar with the team had to rate it according to nine common dimensions of success, including quality of innovation, collective output, and adherence to budget.

English, but the languages of their various disciplines were so dissimilar that, for a while, the engineers, analysts, and rocket scientists couldn't understand one another. Each subgroup also had a different style of working and a different approach to solving problems. One of the engineers from Texas Instruments, for instance, didn't believe in going to the trouble of constructing elaborate models to test how an increase in material thickness might affect ease of manufacturing. In the early stages of the design process, he was comfortable relying on his own judgment and experience. Rocketdyne's more cautious propulsion experts felt otherwise. Each team member had areas of competence that were uniquely his or her own, and, inevitably,

**Much of the value of virtual teams derived from members' ability to be in two places at once.**



disagreements arose over matters within one person's area of expertise that had repercussions for other team members. But the clash of perspectives produced solutions instead of acrimony. The propulsion engineers, for example, decided to thicken the edge of a casting part they had rounded to smooth the fuel's flow because the simulation engineers said the rounding diminished the part's ability to handle stress.

How were other teams able to take advantage of their diversity? Consider the example of a research and development team at Unilever Latin America that was asked to redesign a deodorant

for the Colombian and Venezuelan markets. The packaging for the roll-on, stick, and cream formats were to be manufactured in Brazil; the engineer who was to develop the cream packaging was situated in Argentina. The roll-on formula itself was going to be made in Mexico and Brazil, the stick in Chile, and the cream in Colombia. But because the packaging and formula for the Colombian and Venezuelan markets differed from those the factories were already making for the rest of Latin America, the company needed the existing suppliers and manufacturing engineers, who were spread across five countries, to par-

ticipate in the redesign of the new product. The kind of collaboration called for was best suited to a virtual team.

Much of the work of generating solutions happened in conference calls, which were carefully orchestrated by the team leader. "I didn't know the team members very well, didn't know how they thought and worked," the leader, who was based in Argentina, recalls, "so I couldn't always go directly to the point on an issue. Instead, I encouraged a lot of conversation, trying to reach a common view that included all of their points. We discussed different alternatives, always asking everyone, 'What do you think about this?'"

"If we had ignored even one country," the leader continues, "we would have run the risk of creating a product that could not be rolled out according to schedule. But by surfacing our differences early, we didn't ignore anyone's needs, and we rolled out the product without problems on time."

This level of attention paid to soliciting and discussing everyone's opinions

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makes for a far more detailed conversation than the sort teams have when they meet in person, where they can be led astray by excessive politeness. After all, not every nod means assent. Most of the

## It turned out that e-mail was a poor way for teams as a whole to collaborate.

leaders we studied worked hard to move conversations beyond tacit agreement. Typically, the teams' charters from management were broad, not prescriptive, requiring searching discussions by the entire group, not half-baked suggestions "phoned in" to the leader by people working on their own.

Leaders planned their weekly or bi-weekly conference calls as orchestrated events that team members wouldn't want to miss. To ensure that everyone communicated in the same way, some of the leaders asked those working at the same location to call in from their own desks, rather than from a conference room. Wallflowers were drawn out in the meetings and mentored between them. If they still declined to participate, they were sometimes cut.

Leaders typically started their teleconferences with an unexpected query or bit of news, then introduced a topic they knew would generate some heat. Every person was given a minute or so to respond. The call closed with what one team member called "a self-propelling ending"—that is, one that set the agenda for the next meeting.

To help overcome differences in communication styles, at the outset of a project several teams administered an online version of the Myers-Briggs Type Indicator (MBTI), the widely accepted assessment tool that places people in one of four personality "dimensions." In early teleconferences, team members agreed to remind everyone of their own MBTI styles when they spoke. "As you know, I think out loud," said one with a high extroversion score. In another team, a particularly young member

often prefaced his comments with the reminder that he "hadn't been around the block yet."

These kinds of inclusive conversations proved to be indispensable for many of the teams. Although in the beginning their discussions took a lot of time, results more than made up for that. As the leader of the Unilever team says, "We got to a shared view much more quickly than any of us anticipated." Of course, teleconferencing was not the whole story.

### Rule 2: Use Technology to Simulate Reality

Today, a host of technologies exist for processing and communicating information. Which of them did the teams we studied use? Our more interesting discovery was the ones they didn't.

Many in our study found e-mail a poor way for teams as a whole to collaborate. They reported what others have noticed as well: Trying to do the main work of the team through one-to-one exchanges between members can cause those not included to feel left out, diminishing trust in the group and leading ultimately to dysfunction.

To avoid this expensive mistake, some teams initially adopted the practice of copying everyone else on every e-mail exchange. They soon were drowning in messages. To cope, members resorted to deleting e-mail without reading it. Over time, it became harder to maintain control over the circulation of documents. People regularly found themselves working from different versions of the same one. They also complained about e-mail's poor documentation and storage features, which made it hard to find information quickly.

They didn't think much of videoconferencing either. Only one-third of our sample used it. The majority offered such objections as the distracting time delay of most systems and the difficulty of returning to the videoconferencing facility after normal business hours, particularly if the team members were in different hemispheres. But participating in a teleconference from home at nine or ten o'clock at night was less problem-

atic. What's more, these teams felt that the visual cues most systems provided were too fuzzy to enhance the collaboration experience. In fact, those equipped with desktop videoconferencing found it almost impossible to watch their teammates and work collaboratively on their documents at the same time. Yet leaving the desktop and moving to a videoconferencing site was no answer either.

And while they made regular use of conference calls, team members did not report on the status of assignments during them. Instead, most (83%) relied on virtual work spaces. Here they posted their work in progress electronically and examined their colleagues' postings, well in advance of teleconferences. They tended to use the conference calls themselves to discuss disagreements, which they said were more effectively handled in conversation than in writing.

These work spaces were more than networked drives with shared files. Accessible to everyone at any time, the work space was where the group was reminded of its decisions, rationales, and commitments. A particularly good example of a team room is one that was set up at Shell Chemicals by assistant treasurer Tom Kunz, who led a project begun in February 2001 to develop a companywide, cash-focused approach to financial management. Essentially a Web site accessed on an intranet, it prominently displayed the project's mission statement on its home page, where no one could ignore it, as well as the photographs and names of team members, in a clocklike arrangement. During teleconferences, members adopted the practice of identifying themselves by their position on the clock: "This is Kate at ten o'clock," the member in Singapore would say. (See the exhibit, "Shell Chemicals' Virtual Work Space.")

The home page also had links to the other "walls," each of which was devoted to a particular aspect of the project. On the wall labeled "people," for instance, were kept not only individuals' contact information but also extensive profiles that included accomplishments, areas of expertise, and interests, as well as in-

formation about other stakeholders. On a wall labeled "purpose" was a hierarchical listing of the mission statement, the goals, and the tasks involved in meeting the goals, indicating how close each task was to completion. On the "meeting center" wall could be seen all the information needed to manage the teleconferences – notices of when they were being held, who was supposed to come, agendas, and minutes. Yet another wall displayed the team's responsibility chart, and one more contained the team's entire work product, organized into clearly numbered versions, so that people would not inadvertently work on the wrong one. Comprising seven walls in total, the team room kept information current, organized, and easily accessible.

Leaders used such online team rooms to hold virtual conversations, through threaded discussions. Here's how they worked in one of the teams we studied. During a conference call, the team took up the topic of quality assurance. Instead of devoting limited meeting time

to exchanging information, one member volunteered to start a thread in the online discussion area of the team room. A second person followed the opening comment by introducing research that summarized his related experience in another industry. A third team member responded to the first topic, while a fourth person responded to the second. In the meantime, someone began discussing scheduling conflicts, setting another series of remarks in motion. Organizing online conversations by topic made it easy for all those participating to follow each thread.

Team leaders tended to be the ones managing these threads, though that was not always the case. In a number of instances, a team member volunteered to serve as thread facilitator, taking responsibility for conducting the conversations the way teleconferences were run: a bit of news, a provocative question, and a self-propelling ending. To encourage participation in the online conversations, leaders posted links to documents relating to topics on the

agenda of upcoming meetings and then encouraged discussion before the meetings. They also encouraged those responsible for crafting draft documents (slides, drawings, analyses, and the like) to kick off new discussion threads with requests for comments.

Members were supposed to adhere to previously agreed-upon protocols, such as how quickly to respond – typically within a week. At the end of the designated time period, there were usually enough contributions to warrant summarizing what had been said. When a topic generated a great deal of discussion, summaries would appear more frequently. The person who initiated a thread would be responsible for the summary, which highlighted areas of both agreement and disagreement. The team then took up the areas of disagreement at the next teleconference. Between teleconferences, team members continued their online threaded discussions.

Everything of substance that the team generated was always available, neatly categorized and easily retrievable, in the virtual team room. The structure of the space itself encouraged good virtual-team hygiene, since it called for similar kinds of information to be stored in corresponding spaces.

Nearly half the teams used instant messaging (IM), even when their companies barred it, which surprised us somewhat. People said that they particularly liked being able to share their "Eureka!" and "Oh, no!" moments with others logged in at the same time. Since the majority of companies had no standards for its use, most of our teams adopted IM ad hoc. In some cases, a team found itself using more than one IM program, which created IM cliques isolated by the information they alone shared. Some teams found IM sessions difficult to store and retrieve for future use. Others resented IM's power to interrupt whatever they were doing at the moment. Aware of the burgeoning of IM use and its harmful side effects, some team leaders worked with their IT organizations to develop standards and improve security.

## Shell Chemicals' Virtual Work Space

How different are virtual work spaces from shared files? Here's the home page of the virtual work space for a project set up to create a new cash-based approach to financial management for the energy-company subsidiary.

### Rule 3: Hold the Team Together

The hazards that commonly threaten to splinter face-to-face teams – mistrust, cliques, uninformed managers, and the allure of other interesting but unrelated work—can be even more pronounced on a virtual team. Ours were notably adept at welding techniques that instead drew them together.

Team leaders rarely let a day go by when members did not communicate with one another. Frequent phone conversations between the team leader and individual members – even with those who did communicate regularly in teleconferences, in the work space, and in e-mails – were not unusual. One team leader reported being on the phone with his team for ten to 15 hours a week. (See the sidebar “Whipping Up a Key Ingredient.”)

Early in the life of a team, the leader would push it to adopt a common language – usually English, but not always. The members of the Unilever team adopted what they called “Portuñol,” a hybrid of Spanish and Portuguese. Even on an unusually homogeneous team, where everyone shared a background in computer programming and spoke English, it was still necessary to compile a glossary, mostly of technical terms but also of figures of speech such as “home run” and “go for broke.” A team comprising mainly Americans along with some Japanese members hit upon the idea of hiring as translators local engineering interns fluent in both Japanese and English.

Leaders also needed to create coherence when they were trying to blend the work processes of the members’ home organizations. At one telecommunications company, some of the employees of a newly formed call center came from its northern operation, others from its southern. The southerners had been trained to solve customers’ problems no matter how long it took or how disruptive doing so might be to the linemen’s standing priorities. By contrast, the northerners were accustomed to spending a more or less standard amount of time with each cus-

### Whipping Up a Key Ingredient

A project in the life of a person we’ll call Paula Hans, a veteran technology manager at Carruthers Corporation, the pseudonym for a chemical processor, demonstrates how in one virtual team an especially coherent identity was forged. A few days into her vacation, Hans received an emergency call from her boss, who reported that the sole supplier of a key ingredient, one that met the company’s stringent environmental standards, was leaving the market in three months. He asked Hans to lead a team that would work with another supplier to develop the same ingredient.

“I needed chemists from research; people who knew supply chain; an expert in sourcing; someone who knew our manufacturing processes; someone who knew the product line; someone who knew the quality system, in case a change in formula required requalification [by OSHA, EPA, or other federal agencies]; and, finally, someone who knew marketing, in case we changed the product,” Hans says. “These people also needed to represent our plants here in Idaho and in Europe, as well as our research labs in the U.S., Europe, and Asia. I made a point of having people from all over the world. That way, we’d have people everywhere to represent, defend, and sell the project.”

But this degree of diversity generated forces that could have pulled the team apart. The chemists, for example, saw nothing in the team’s charter to prohibit the group from trying a new manufacturing process. The quality control person, however, didn’t want to change the existing process because the cost of requalifying any resulting product would be too high.

How did Hans build a coherent identity among the 40 people? She did it by communicating intensively. “We had a kickoff meeting on the phone using our online team room, which everyone visited daily. We followed up with weekly teleconferences. Between meetings, I talked to everyone individually, either on the phone or face-to-face. I also led meetings from two other locations. I was concerned that headquarters would be perceived as the in-group and the plants and the European and Japanese operations as the out-groups, so I talked to them a lot. I kept our virtual work space updated, and I moderated online discussion threads.

“In the beginning, I took minutes on a pad of paper and sent them out later, but no one ever commented on anything. So I switched to taking minutes during the meeting so that everyone could see them on their screens. People would comment and correct things as we went along, which meant the minutes that I posted in the team room immediately after the meeting were accurate reflections of what we’d decided. Then I put everything in the virtual work space and bugged people to keep up.”

The team met virtually, in different configurations, whenever it needed to. “We had lots of smaller brainstorming sessions. Since things never go as you like, we brainstormed about what might go wrong.” With the exception of one session in which the seven chemists met face-to-face, all the brainstorming was done virtually and outside the formal meeting schedule.

All this communication paid off. Early on, a research chemist developed a cheaper substitute ingredient that did not require the product’s manufacturing process to be requalified, netting the company more than \$2 million a year. “The rest of the team was able to integrate the new ingredient into the rest of the project, then show how we could apply it to other projects and products worldwide,” Hans attested.

At the end of the project, Hans put together a celebratory conference call. Every site was presented with a cake. The Europeans got alcohol served with theirs; the Americans, soft drinks.

tomer and documenting what they'd done. After much discussion, the two sides decided that neither approach was wrong and therefore each should adopt elements of the other.

Another technique used to glue teams together was having members work in ad hoc pairs for a week or two. These subteams allowed members to get to know one another better and discouraged the formation of cliques. At one chemical products company, for instance, the leader of a strategic accounts team named subteams to flesh out the details of the account plans. The subteam members then came together to edit one another's work.

To keep the team members' home offices from trying to pull them away, team leaders negotiated in advance the extent of the team's claim on a member's time, made clear how the home office and the individual member stood to gain, and kept the home office abreast of the team's and the member's progress. Some team leaders separately negotiated a financial reward for every team member with his or her respective HR person. Needless to say, these were time-consuming commitments. While team membership was always part-time, team leadership was often more than full-time.

Even though diversity was, in some sense, a virtual team's reason for being, leaders recognized that identifying commonalities would strengthen loyalties to the group. The leader of one team, a retired military officer, started his conference calls by asking each person to spend 30 seconds describing "where the member is at." During a conference call in 2002, when snipers were terrorizing the Washington, DC, area, a team member living there said she didn't feel so alone after she heard her fears echoed by another member in the Philippines, where insurgents were shooting people on their way to and from work.


### The Power of the Small Group

If far-flung teams can be so effective, why aren't they used more? Organizational inertia rather than direct opposition often stands in the way. For in-

stance, in today's military, commanders are not necessarily located with their troops; they may not even be on the same continent. But U.S. Army doctrine still holds that the "commander's intent" must be conveyed face-to-face whenever possible, even though commanding officers may be able to make more informed decisions when they are removed from the fray. Policies that keep managers, executives, or even commanders in perpetual motion hark back to the days when the jet plane, not the integration of telecommunications and computers, was the new technology.

There's another reason organizations have been slow to cotton to what our teams have discovered. The computer revolution missed a step. When companies went from enterprise computing to individual computing, they jumped over the small-group level, where the preponderance of work takes place. The first computers, typified by the IBM 360 behemoths of the 1960s, supported companywide operations. The genera-

tion of computers that followed supported department-level organizations, eventually morphing into today's servers. In the 1980s, personal computers boosted individuals' productivity. Then in the 1990s, the Internet and the Web connected these previously isolated individuals informally, boosting their productivity even more.

In this decade, the forgotten step, the small group, is suddenly the focus of advances in collaboration technology—shared online work spaces, on-demand teleconferencing, real-time application sharing, and instant messaging—which the massive investment in infrastructure of the late 1990s is now available to support. When small groups adopt the kinds of practices our teams have demonstrated, they can work faster, smarter, more creatively, and more flexibly than dispersed individuals or the enterprise as a whole. 

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*"Frank, stop with the anxiety again. Let's just hire a consultant and move on."*

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