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**EETIMES** ONLINEEE Times:

Global teams rock around the clock

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The new flagship mouse that Logitech will announce this fall is truly an international beast. The mechanical engineering and design took place in Ireland; electrical engineering in Switzerland; corporate marketing, software engineering and quality assurance at the company's Fremont, Calif., headquarters; tooling in Taiwan; and manufacturing in China.

The far-flung design team is as good a representative as any of the "follow the sun" model of collaborative engineering now taking hold in the electronics industry, as a shortage of good local talent drives companies to create geographically distributed project teams with members strategically located in regions that begin their days when others' end. To shorten time-to-market for their employers' products, these groups share the burden of a 24-hour work cycle.

While around-the-clock collaborative engineering may seem an ideal way to cut costs and speed product rollouts, it is far from perfect. Unless solid working relationships are established at the start of a project, miscommunication can gum up the works. Some managers cannot adjust to supervising people they do not see in person. Cultural differences cause complications. And the workday never ends.

But for Peter Sheehan, creative director at Design Partners (Bray, Ireland), Logitech's external design team, the group working on the Logitech mouse was a "dream team." Communication problems were rare, he said, because the team met in person at the beginning of the project and once a month thereafter.

Although the team experienced the inevitable cultural differences, the more palpable divisions related to profession. "My colleagues are fond of saying that in most design reviews, everybody follows their script," Sheehan said. "Engineers are trained to follow one script, which is to be logical, rational and relatively conservative in how they innovate. The designers are there to inspire and capture the essence of an idea as well as to make it into a rational, finished product. And the marketing people read from their script, which is to push everyone to create a compelling story for the consumer." Country of origin notwithstanding, he said, "everyone plays their script."

The Logitech-Design Partners collaborators put in an atypical amount of face time, but its value cannot be overstated, Sheehan said. "It's a recharging of the batteries of the relationships. There's very little that can replace it when it comes to the details of the design process, in terms of the interaction between disciplines."

Tall order

Distributed engineering may have worked for Logitech, but some collaboration pundits believe most organizations are not equipped to handle its challenges. "Most managers haven't figured out how to manage the knowledge workers who work for them," and now they are being charged with managing people they won't even see, noted Jonathan B. Spira, CEO and chief analyst at Basex Inc. (New York) and author of *Managing the Knowledge Workforce*. "That is not necessarily in their comfort zone."

But that problem will disappear as the baton is passed to the next generation, predicts David Coleman, managing director of technology analysis firm Collaborative Strategies (San Francisco). "People who are graduating now have been on the Internet all their lives and are much more willing to deal with each other at a distance than baby boomers are," he said.

James Ware and Charles Grantham, co-founders of the Future of Work program (www.thefutureofwork.net), are tracking evidence of a trend among Americans in their 30s to settle in smaller, outlying communities and then look for ways to work remotely. Consequently, companies are following the talent, they said.

"Distributed work is becoming more and more a reality," Ware said. "If you're working out of a home office or a neighborhood environment, as opposed to working downtown, you can take quick side trips, jump out of work into family business and jump back into work fairly quickly and easily."

So how do you measure the productivity of distributed workers? "In the industrial age, we measured productivity based on how many widgets went flying out the factory door. With the shift to the knowledge economy, we can't really apply that sort of productivity measure anymore," said Spira of Basex.

Grantham argues that when people spend less time commuting and have more flexibility, they work as many hours a day as employees at an office, if not more. "They're up at 7 a.m., and instead of jumping into the car for two hours, they're on the computer answering e-mail or communicating with someone in another country. They do give more back," he said.

Still, "people are still very afraid of this, as evidenced by HP's telework policy change," said Spira. In June, Hewlett-Packard Co. announced it would require tele-commuters in its IT department to report to the office. But "I can tell you that 40 percent of IBMers don't show up at an office with an IBM logo on it," Spira said.

Like Logitech, IBM Corp.'s chip design business uses the follow-the-sun model to achieve 24-hour turns in design projects. "We send a lot of physical designs to India," said Mike Gruver, engineering and technology services program manager at the IBM Systems & Technology Group. "Then we work on design changes in North America during the day and send those to India late in the day, and they work on them the next day before the next turn."

Before calling an offshore-based collaborator, Gruver sends an e-mail to avoid confusion. "It's hard to tell in some cases how well they speak English or how well they understand. Americans tend to talk fairly fast, and it's really difficult for people who speak 'pure' [British] English to understand when we start slinging the slang," he said. "We make a point of asking the other geographies to ask us to restate something if they don't understand it. That takes a little doing, because it's not a comfortable thing for people to do. But once we get the teams operational, they're pretty good about saying 'What did you mean when you said we needed to hit a home run?' "

Gruver said he encourages team members to mesh on an interpersonal level so that the team works more efficiently. Team conversations always open with nonwork topics. "We have a team working in Israel right now, and there's a lot of political tension there. So, we spend time talking about that. It makes for a closer environment when you know what's going on in people's lives," Gruver said.

Kathleen Gillam, who manages Intel Corp.'s enterprise application services Web development team for human resource solutions, identifies the ups and downs of the follow-the-sun model. "You virtually have a never-ending business day--you're never not working," she said. "One of biggest challenges is very early-morning and late-night meetings. But there's no way to avoid it." On the upside, said Gillam, "our stakeholders are quite pleased that we've shortened the time-to-market and delivered early."

Scheduling challenges

While it would seem that working this way would cut costs, Gillam said the scheduling and coordination challenges can make it an expensive proposition. "There are the simple things, like different working days," she said. For example, "our Israeli partners work on Sunday but don't work on Friday. Some holidays take a week in some parts of Asia but only take one day in the United States."

With all the challenges, can the value proposition of collaborative engineering and a distributed work force be communicated to a team just beginning this type of initiative? Yes, said Coleman of Collaborative Strategies.

He recommends embedding collaborative technology within a critical process. "Then it's usually clear to the people involved how this can make the process better, shorter or less painful," he said. "The value of collaboration itself is hard to explain, but if it's in context in a process that people are involved with, it becomes clear right away."

Coleman uses the metaphor of a black hole to explain the idea to his clients. Because black holes absorb light, astronomers cannot look for them directly. "The way they find a black hole is to look for the effect it has on astronomical bodies around it," Coleman said. "It's the same way with collaboration; because it's indirect and intangible, you have to look for how it affects things you can see and measure." n

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Five best practices for distributed engineering

1. A vision on the part of marketing
2. Buy-in from the key disciplines, which are sometimes skeptical by nature

3. Effective management of the process without it being overly controlled
4. Great people: Get the right people in the different disciplines and let them do their thing.
5. Passion (and lots of strong coffee)

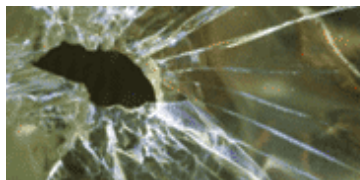
Source: *Peter Sheehan, Design Partners*

Big mistakes in distributed engineering

1. Assuming from an e-mail or an instant message that you are on the same page with your colleague in a time zone 12 hours different from yours
2. Failure to take advantage of the myriad collaborative tools available
3. Managers who don't trust that their remote employees are actually working
4. Failure to take advantage of the best skilled workers because they are in a vastly different time zone
5. Intruding on team members with too-frequent IMs

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