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BY BARRY JARUZELSKI, RICHARD HOLMAN,
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As part of Booz & Company's annual study of the innovation strategies of the world's highest-spending companies on R&D, the firm conducted a survey that asked senior innovation executives to vote for the world's most innovative company. (See "The Global Innovation 1000: How the Top Innovators Keep Winning," by Barry Jaruzelski and Kevin Dehoff, *s+b*, Winter 2010.) The third most frequently cited innovation leader was 3M, right behind Apple and Google. That came as no surprise, given 3M's track record of developing smart, successful new products.

3M's ability to keep churning out new innovations is very much dependent on the company's long-standing commitment to open innovation, both internal and external. We recently spoke with Fred J. Palensky, 3M's chief technology officer, who discussed the many ways his company creates and develops ideas through open innovation, and explained why its highly collaborative culture and innovation leadership are essential to the process.

S+B: Can you describe how 3M's open innovation processes are organized?

PALENSKY: The reason 3M is what it is today — a company that has developed organically across consumer, electronic, transportation, industrial, safety, security and

display, and electronic markets — is our shared, leveraged technology and innovation model. We assume that technologies and technological capabilities have no boundaries or barriers. Any product or manufacturing technology is available to any business in any industry in any geography around the world.

As the company's senior technology executive, I'm responsible for the corporate research laboratories. I represent the entire technical community at 3M, which includes about 10,000 R&D people in 73 labs around the world. About 15 to 20 percent of those people work in corporate research, which is responsible for developing, transmitting, and supporting technologies throughout the company. I also head up the corporate technical operations committee, or CTOC, which ensures the development, health, sustainability, and transmission of 3M's tech capabilities across all the businesses, geographies, and industries in which we operate.

We have 63 full-scale operating businesses in dozens of industries in more than 70 countries around the world. Each one of those businesses conducts its own research, while maintaining connections with all the other R&D operations throughout the company.

S+B: What enables the cross-pollination of ideas?

PALENSKY: We believe that no one business has every-

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thing it needs to conduct business in its marketplace without leveraging the rest of the company. So every single technical employee in the company has dual citizenship — they're part of a particular business, lab, or country, and part of the 3M global technical community. We don't restrict people from moving from one business to another, from one industry to another, or across country boundaries. Most of the people who run the businesses, the country offices, and the labs have been in five or six or 10 different parts of the company before. They've grown up inside the 3M culture. I myself have been at 3M for 34 years, and I've had 14 different jobs in five different industries and three different countries. I like to think of it as a movement of people and ideas that's not mandated but officially endorsed.

S+B: 3M also has an active external open innovation program. Can you describe it?

PALENSKY: Our corporate labs are continually bringing in new employees and technologies from universities and other sources. And we collaborate closely with customers. We have 30 customer technology centers around the world, where our technical and marketing employees meet with customers and expose them to the full range of 3M technology platforms. We ask them what their technical issues, problems, and opportunities

are, and whether any of 3M's many different technologies can help them. The constant technical interaction is critical in creating new innovations.

S+B: Can you discuss a specific product that arose out of 3M's open innovation process?

PALENSKY: Really, all of them. To take one example, we just introduced an entirely new kind of sandpaper — shaped, fine-grained, self-sharpening, structured abrasives. The mineral technology came from the abrasives division, some of the shape technology came from optical systems, coating technologies came from the tape division, and mathematical modeling and fracture analysis came from the corporate research center. Altogether, the abrasives division used seven different technologies to create the product, only two of which came from the division itself.

S+B: What role does culture play in sustaining open innovation at 3M?

PALENSKY: I think our success is driven much more by culture than it is by structure or organization. We've been practicing open innovation at 3M throughout our history. The company started out making sandpaper, and our salesmen sold our products to all kinds of people. When they visited auto-body shops, they watched

workers struggle to paint fine lines and borders. So the salesmen went back to the office and talked about the problem. That was the beginning of our masking tape business. That's the culture that has sustained us ever since.

But we also actively support that culture. All of our technical people at the corporate labs dedicate about 15 percent of their efforts toward programs, interactions, learning, and teaching in areas outside their particular responsibilities. In addition to the various programs we're developing at the corporate labs, we are working on more than 300 joint programs with various divisions and businesses. So, in addition to their corporate responsibilities, everyone is also a member of a team that is working alongside division members in either technology transfer or new product development projects.

All of this creates a community of collaboration, and it ensures that everybody has some skin in the innovation game. And because our senior leaders have grown up in this culture, they continue to nurture and protect this highly collaborative, enterprising environment. Cultures are unique and extraordinarily difficult to duplicate. And it takes a real effort to sustain them. +

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