

## PRODUCT DEVELOPMENT

# Learning to Innovate

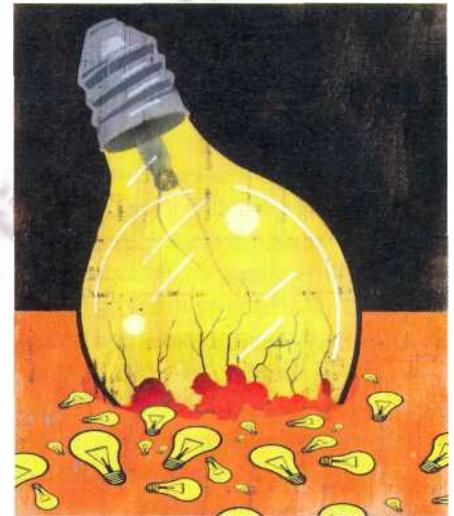
Several factors — including constructive conflict — enhance a company's ability to learn how to serve new markets.

Turning technical innovations into great products for an existing customer base should be a valuable skill that a company can apply to multiple technologies and market segments. However, new research suggests that successfully developing new technologies and entering new markets also requires an entirely different skill: the ability to learn.

Erwin Danneels, associate professor in Worcester Polytechnic Institute's Department of Management, has written two papers that describe his research on a company's ability to learn how to serve new markets with new technologies. Danneels surveyed top managers from 145 publicly traded manufacturing companies in 2000, tracked their profitability over three years and resurveyed 77 of those companies in 2004. The sample was restricted to companies that manufactured their own products and that did most of their business in a single business segment.

A November 2007 paper, *Second-Order Competences and Schumpeterian Rents*, describes two types of competences: customer competence, which is "the ability of the firm to serve a particular group of customers," and technological competence, or "the ability to use a particular technology to produce output." These "first-order competences," as Danneels calls them, are needed to keep a company's current business humming.

Danneels posits, however, that there are also what he calls "second-order competences" in both technology and marketing. These second-order competences consist, in effect, of the abilities to add new technological or customer competences. Thus, second-order competences affect the company's ability to renew itself beyond its current business. "A company may be good at serving a particular market, but that



doesn't make it skilled at learning how to serve new markets," says Danneels. "Similarly, it may know a technology really well, but that does not make it skilled at learning and using new technologies." So the success of Apple Inc.'s iPod music-player franchise might be seen as an outgrowth not only of the first-order consumer electronics design skills that have refreshed Apple's Macintosh computers over the years, but also of the company's second-order ability to learn about a different set of customer needs and build the technologies to serve them.

Second-order competences are a valuable corporate capability. Danneels found in his research that companies with a second-order marketing competence experienced a short-term boost to profits, as measured by return on assets, especially when competitive conditions were volatile. The effect of a second-order technological competence was more complex: It paid off in less than a year when competition was less intense, but the payoff took several years when competitive pressures increased.

In a second paper, *Organizational Antecedents of Second-Order Competences*,

which is forthcoming in *Strategic Management Journal*, Danneels explores how companies can learn how to learn. In particular, he looked at how respondents rated their organizations in terms of five variables: willingness to cannibalize, constructive conflict, tolerance for failure, environmental scanning and slack resources. Respondents reported differing levels of second-order competences in 2000 and 2004, suggesting that these dynamic capabilities are themselves fluid and changing. But there was a strong positive relationship between the competences and four of the variables.

"The most important variable is constructive conflict: the climate of open debate, the honest and frank exchange of ideas," says Danneels. "That is something that can be affected a lot by top management: by setting the right example, by rewarding people for sharing honest opinions and by listening to what people say and doing something with it. ... The same

is true with willingness to cannibalize [a second variable], though it is not as strong a lever." Thus, companies that are willing to sacrifice some of their current business to develop longer-term initiatives tend to have stronger second-order competences.

Not surprisingly, the existence of slack resources — in other words, having the time and money to explore future-oriented projects with uncertain returns — also helps to build second-order competences. Companies might keep in mind that allocating resources toward such longer-term projects can pay off, even if it reduces margins temporarily. "Larger companies often try to drive out slack, because it is considered inefficiency," says Danneels. "That might actually be hurting [them], even in the short term."

Environmental scanning — the extent to which the company keeps its eye on technology and market trends through outside sources — also has a significant effect on a company's second-order competences. Management can allocate resources toward

external activities such as trade shows, association memberships, trade publication subscriptions, university connections and networking events to encourage employees to tap into new opportunities and develop the resources to address them.

What about tolerance for failure? "Failure is overrated," says Danneels. Tolerance for failure actually had a negative effect on technological competence in the study, debunking the folk wisdom that values failures as learning experiences. "Supporting failure may create a lax attitude and lack of accountability," Danneels points out. "If a venture should fail, it's good to learn from the experience. But it's better to succeed in the first place."

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— Larry Yu

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