



BY MAURY WRIGHT, EDITOR IN CHIEF

Kamen clobbers big-company management

As I promised in a previous column, I'll share some of Dean Kamen's thoughts on innovation, management, and leadership (**Reference 1**). Kamen is the founder of DEKA (Dean Kamen) Research and Development Corp (www.dekaresearch.com) and the inventor of the two-wheeled Segway human-transportation device. Kamen delivered an entertaining and enlightening keynote at last month's National Instruments Week conference in Austin, TX.

Early in his talk, Kamen discussed the typical project and inevitable dark times when success seems out of the question. He playfully suggested that when you plan a project that you "schedule a miracle." His message was about believing in and sticking with your idea. He quoted Winston Churchill, who said, "When you are going through hell, keep going."

Kamen presented a mythical project that a team plans over five years. After six months, the team is 10% into the project. "You'll never have an opportunity to know as much incremental new stuff as you did in the first six months because the denominator was zero," said Kamen. He contends that the 10% point is the best time to change the schedule or project. During those six months, the team may have figured out that the tasks are easier than expected or that bigger obstacles stand in the way. "At the end of six months, changing to four years or six years wouldn't be a big deal," he stated. He claimed that the impact is minor because the team is small; the burn rate is low; and the project hasn't incurred expenses for tooling, marketing, and other cost centers. He quipped, "I've never seen anybody do that. I've still got four years left to fix it; besides, it won't be my problem by then."

Kamen pointed out that a team more typically gets four and a half years into the project, when it's painfully clear that the project can't launch on time, and then changes the schedule. "It's the most expensive—the most painful time to do it," he said. The story drew laughs and applause from the crowd, who Kamen immediately challenged, asking, "You mean to tell me that any project that you've ever seen that finally was launched late, that you blew the whistle and made the changes as early as possible with the least risk cost? I don't think so—never works that way."

Although Kamen was advising better decision-making, he also suggested another way to prevent schedule slippage. He suggested: "Invent as a last resort." These days, especially with the Internet, someone else may have solved the individual problems that you face. Kamen also cautioned that you approach projects without preconceived bias. He related the story of a dialysis machine that DEKA redesigned. The earlier design used tubes that allowed fluid to flow "even when tied in a knot," and it also relied on compressing the tubes so that they worked as valves. Kamen related that the customer thought it wanted DEKA to solve its problem, but, in reality, the customer wanted him to fix its solution.

DEKA ultimately delivered a different design. "It's not what we don't know that inhibits innovation; it's what we do know that just ain't so," he said.

Regarding management and leadership and their effect on innovation, Kamen stated, "Projects in big companies do require management. But innovation requires leadership, and I think they're not only not the same, they are diametrically opposed. ... Management is a process by which we make sure everything comes out the same. ... Good management would be to give a machine gun to an ax murderer; it would make the process more efficient. ... Management is doing things right. Leadership is doing the right things. Innovation, which is hard to do, is particularly hard to lead."

Kamen encourages innovation despite the inherent difficulty, pointing out that innovation creates entire industries. But he also asked: When should you innovate? The answer is now. He pointed out that, in his 30 years of experience, no one has ever asked him to work on the next-generation product while the current product is selling well and cash flow is great. Instead, he hears, "We're going to be toast in six months unless we do something. We've got to have a radically new idea. It's got to be out there, we don't have a lot of time, we don't have a lot of money, and you better get it right."

Finally, Kamen champions risk takers. "You don't define success as the lack of failure," he said. Unfortunately, management is about not trying to fail. He pointed out that optimists such as the Wright brothers were willing to fail—without killing themselves—and the aviation industry was born. EDN

REFERENCE

■ Wright, Maury, "Sportslike competition drives science and technology education," *EDN*, Sept 1, 2006, pg 12, www.edn.com/article/CA6363908.

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