Defense News
February 6, 2012
Pg. 1

DoD Wants Innovation, Firms Want Less Risk

By Zachary Fryer-Biggs

As U.S. Defense Secretary Leon Panetta previewed upcoming budget cuts and force restructuring Jan. 26, he made one point clear: Innovation is at the heart of the Pentagon's future.

Yet with large U.S. defense contractors increasingly averse to taking risks, experts say they fear that independent and internal research and development (both known as IRAD), the linchpins of leap-ahead technology, are either underfunded or failing to focus on innovative technology.

Contractors are unwilling to take risks on ideas that may not have an immediate market, and the Department of Defense hasn't been clear about what it's interested in buying, said Peter Singer, a senior fellow at the Brookings Institution.

"Being risk-averse has gotten into their DNA," he said. "They've gotten used to a system where it's the customer who takes all the risk."

At the same time, DoD says creative technologies are crucial to helping the department in a squeezed budget environment.

"We're depending a great deal on being at the technological edge of the future," Panetta said. "I think we even have to leap forward. If we're going to deal with the kind of challenges we're going to face, we've got to be smart enough, innovative enough, creative enough to be able to leap forward.

"Can we do that? Can we develop the kind of technology we're going to need to confront the future? You know, I'm confident we can. But there are risks associated with that," the defense secretary said.

So what happens if big companies don't take risk? For one, prime contractors face an uphill battle to retain market share, as small and non-U.S. contractors look to pilfer contracts with new ideas. And if DoD can't find innovation elsewhere while other nations continue increasing investment in their forces, the U.S. military's dominance could wane.

Two Types of IRAD

IRAD refers to two very different pools of investment funds: independent R&D, which DoD pays for as part of contractor overhead; and internal R&D, which contractors pay for themselves using their own revenue.

Independent revenue represents roughly $4 billion in annual expenditures by DoD. Internal R&D typically accounts for 2 percent to 3 percent of revenue for U.S. companies, according to analysts.

These two types of investments have historically served as seed money for technologies DoD didn't necessarily know it needed. Neither type of funding is tied to existing programs but instead can be spent developing any idea. They typically serve as the backing for many of the more radical, potentially significant technological innovations, such as stealth technology.

But these investments are risky, because payoff can't be guaranteed.

U.S. companies are no longer investing IRAD in early development, the initial stage in which an idea moves from concept to product, said David Berteau, an analyst at the Center for Strategic and International Studies.

"To us, the pure research part of IRAD is going away," he said.

Company executives said privately that shareholders are not interested in R&D risk. That is especially true with internal R&D, the executives said, as pressure to improve profit margins trumps other company concerns.

The Pentagon has made investment a more difficult sell because it doesn't give companies enough direction as to what kinds of technology are important to the department, the executives said.

"Unless you're pretty sure as a company that there's a market for it, you're going to be less inclined to spend that IRAD money," Berteau said. "This is in contrast to the commercial model of IRAD, where you don't invest solely based on the guarantee of a subsequent market. You have to invest or you won't have a market at all."

Response of Shareholders

Spokesmen for several top defense companies said the companies continue to value internal R&D, and their individual innovation units have produced new technologies that have been useful to DoD.

"They all have really neat innovation labs, and they just have to prioritize them," Singer said.

The spokesmen also confirmed plans to maintain the current level of investment for the immediate future.

But increasing the level of investment will be critical to national security, and the concern over shareholder backlash is overblown, said Heidi Wood, a Morgan Stanley market analyst.

"It's a misconception to say that shareholders do not pay for innovation," she said. "Apple is now the most valuable company in the world, and they're valuable because they're highly

innovative. We'd pay more for defense if we saw greater innovation and with it, more attractive returns. As we stand today, the defense industrial base looks more and more like a sexy utility."

Wall Street analysts said top company executives are paid like risk takers, without the risk.

"While the compensation packages of defense CEOs compares their pay to Google, Apple and other high-flying tech companies, they don't actually take real risk like commercial executives do, who live and breathe on potential success or failure," one analyst said. "And when asked about the lack of risk taking, they act like they're waitresses who can only take orders from the customer. But they certainly don't pay themselves like that."

Consequences

If U.S. defense companies do not invest in the innovation that will drive the defense market in the future, other companies will, Berteau said.

"There's a lot of innovative technology being developed today out of the global commercial market that has importance for defense, but because it's not being developed by defense companies, the defense establishment has difficulty finding such innovation and taking advantage of it," he said.

The fact that the U.S. military serves as the sole customer for many defense contractors means that greater communication and guidance is needed, said Loren Thompson, chief operating officer of the Lexington Institute.

"When there's only one customer, mainly the government, contractors need some guidance as to where research investments will be fruitful," he said.

European defense companies also tend to invest more heavily in R&D, with giants BAE Systems and Finmeccanica routinely spending more than 10 percent of revenue on research. The accounting standards in Europe, however, differ from U.S. standards, with some externally contracted research included in the European numbers.

Smaller companies also may have greater opportunity to present new technologies, but the inherent complications of the U.S. acquisition system makes it difficult for non-primes, experts said.

If the Pentagon continues to demand innovation, prime contractors face two choices: take the risk and invest in early-stage R&D, potentially with the help of greater guidance from DoD, or face the prospect of diminished market share as small and non-U.S. contractors move in with new ideas.

The possibility remains that the Pentagon's latest strategy buzz won't last, and innovation will gain no greater prominence than it has in the past. But if Panetta's predictions hold true, without innovation, a smaller force will not be able to fulfill the full range of missions the DoD is expected to complete.

Analysts said that given the current budget climate, that change is likely.

Industry Communication

Kurjanowicz said industry would be willing to invest in higher-risk efforts if the department were more clear about areas of interest.

“Companies will take risk if the department is serious in our communication,” he said.

Senior DoD officials are sending that message now, Kurjanowicz said.

“They’re getting the message out to industry, and I think you’ll hear this more and more, pushing them to take risk, and go ahead and invest in areas where we identify we need new capabilities to help us with the updated strategic guidance,” he said.

DoD proposed a rule in March 2011 that mandates reporting on independent R&D spending, information that Kurjanowicz said will be used to help improve communication and direct investment. To that end, DoD has launched a website, www.defense innovationmarketplace.mil, which will have information on areas of interest to the agency, among other resources, he said.

Focus on innovation and on communication with industry, a key problem according to industry executives, is what it will take to encourage R&D investment, Singer said. “They really are saying the right things, and showing that they recognize the importance of innovation, but it remains to be seen.”