

Q&A

Executive Viewpoint

A conversation with **Mike Madsen and Gregory Coleman**



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This conversation is adapted from a presentation at a Washington Technology event.

Lowering barriers to the defense marketplace

Madsen: Working with commercial technology providers is nothing new. The government used to be really good at it, and we need to get back to it. One of the reasons DIU was started was to lower some of the barriers to entry to the defense marketplace and the larger government marketplace to reinvigorate those partnerships.

We are excited to see the fast follower concept included in the 2023 National Defense Strategy. Being a fast follower means evaluating what the commercial world is doing and acting fast to adopt leading technologies. Then the Defense Department can focus on the things that it must focus on. Think hypersonic systems and directed energy weapons, for example.

Starting with what you traditionally think of as DIU — we call it Core DIU — we're looking for well-developed commercial technology with a consumer base already established so that we can do some minor customization to apply it to DOD problems and then field that technology as quickly as we can.

Upstream from that is National Security Innovation Capital, and further upstream is the National Security Innovation Network. That organization deals with national labs, university labs and accelerators to get early technology into the department and also as a pathway for talent to come into the department. Of course, underpinning all those efforts is growing the national security innovation base, which is a collection of academia, industry, government and non-traditional companies.

'A sophisticated partner to commercial companies'

DIU focuses on six tech areas: AI/ML, autonomy, cyber, energy, human systems and space. These are the ones that we see as

undergoing the greatest rate of change in the commercial world. They're also aligned with the defense mission set, whether it's kinetic or humanitarian assistance and disaster relief.

Everything starts with the DOD demand signal. We use a simply written problem statement that is rooted in the requirements document so that we can trace it back to a program or a production contract. We get rid of Pentagon jargon, get rid of acronyms and make it something that the commercial world understands. We put it out for about two weeks, and we look for something very simple from our commercial partners — a five-page white paper or a 15-page slide deck. Something you would submit to a venture capital company, for example.

Then we go through a down-select process until we've chosen one to five companies. Our target is to award a prototype contract in 60 to 90 days. We're running about 140 days right now but still light-years ahead of some traditional contracting.

From there we go through a prototyping process of 12 to 24 months — software tends to complete faster than hardware — and then field that technology. And while transition is the last step, it is the first thing we consider before we even take on a project. We have a deliberate process called a project decision board where we work with our DOD partner to understand what the contracting mechanism will be once the prototype is successful. It is not going to be a prototype that dies on the vine and nothing good comes from it for the end user or our vendors.

I mentioned that a project starts with the DOD demand signal. It also starts with funding from our DOD partner. We've found that if they have skin in the game, they are a much more robust participant as we go through that process.

Almost 400 companies have received about \$1.2 billion in prototype awards, 50 have received about \$5 billion in production awards after that prototyping, and then others have received about \$1.5 billion in additional non-DIU follow-on contracts. Our transition rate is about 50%. That means 50% of the projects we bring in transition to some sort of production program of record, a contract, a General Services Administration schedule, that kind of thing.

Our ultimate goal is to get technology into the hands of the men and women in uniform, but we also want to be a sophisticated partner to commercial companies and find a path to recurring revenue for those folks.

Investing in hardware to tackle the country's challenges

Coleman: National Security Innovation Capital [NSIC] is the newest DIU organization and has been up and running for about 30 months. We've been in a quasi-stealth mode for a little while, but now we're starting to let people know that we're here and we're open for business.

Over the past 25 years, venture capital investments have disproportionately gone to software. For investors who are looking to maximize returns, it makes sense. The startup costs for software are low, there are not a lot of capital expenditures, and you don't necessarily need a Ph.D. in some deep technology to be a great software developer. As a result, we have underinvested, if you will, in hardware.

Beyond thinking about DOD and national security, there are big challenges and problems that we as a society need to overcome. A lot of them will require hardware, and hardware at a pace that we probably have not seen since the Space Race and the Cold War, which was the birth of Silicon Valley. We got away from our roots a little bit by going so heavily into software, but now we're starting to think more about hardware.

Less than 30% of U.S. venture capital goes into hardware, and the lion's share goes to later-stage companies. And it's probably going to only a handful of companies. Less than 4% of those investments go into the earliest-stage, highest-risk companies.

That's why we exist. We fund between \$500,000 and \$3 million into U.S.-based hardware startups, and those products have to be dual use — commercial and government.

Providing capital when early-stage companies need it the most

By providing these funds, we're trying to change the ecosystem. First, we provide capital to early-stage companies when they need it the most. We help them achieve some technical milestones — get to a bench-scale prototype, get their production process figured out, maybe get to a pre-production prototype. By helping companies progress a little further, we eliminate some of the technical risks that venture capitalists are concerned about and make the companies a bit more investment-ready.

Second, we send a signal not just to venture capitalists, but to other potential customers and stakeholders that DOD is interested in seeing this technology exist. In other words, there's a large customer waiting once this technology is ready for prime time.

Third, our early investment helps companies avoid either knowingly or unknowingly taking adversarial capital, which is capital or funding sources with ulterior motives for the technology. By getting on the company's board and getting investor rights, those sources gain access to information and intellectual property and might give it to people that the founders don't know they're giving it to. We provide an alternative to that adversarial capital.

Although we have the ability to change them from year to year, NSIC has five focus areas that we think are most important from a hardware standpoint and where we can have the most impact. They are autonomy, sensors, communications, space and power. We've already funded 17 companies for a total of \$35 million with good distribution across those different topics.

Several companies have gone on to raise venture capital from some well-known investors. Three projects have come to completion and moved on to the next phase. Those companies are working with prime contractors and getting contracts with other government agencies. Everyone else is on track to do the same. ■