Leading the Defense Innovation Unit: A Conversation with Michael Brown, Director, Defense Innovation Unit, U.S. Department of Defense

By Michael J. Keegan

DEFENSE INNOVATION UNIT

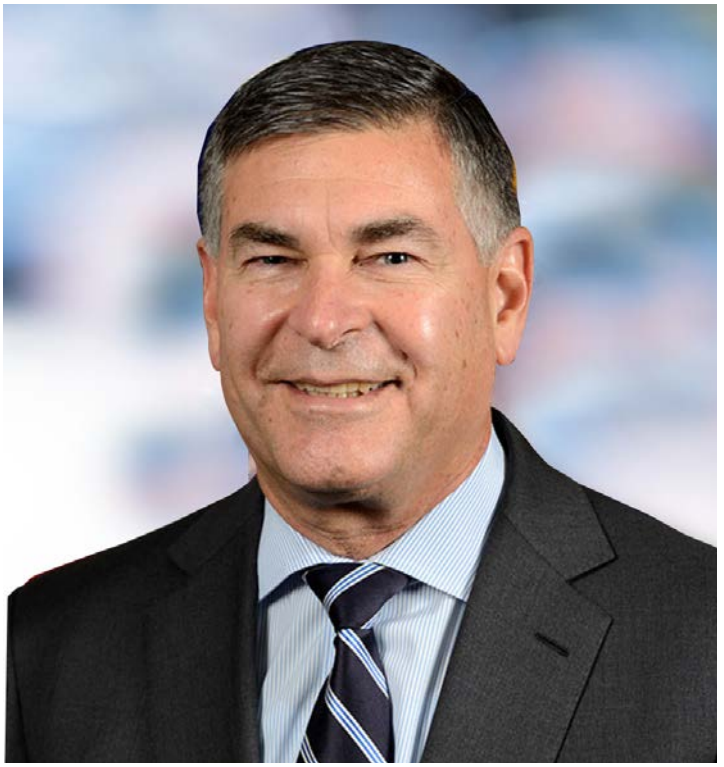
The Defense Innovation Unit (DIU) is the only U.S. Department of Defense (DoD) organization focused exclusively on fielding and scaling commercial technology across the U.S. military to help it solve critical problems and build a future-ready force.

"DIU is building the technology pipeline," explains Michael Brown, director of the DIU. "We work to ensure our global leadership, alongside our allies and partners, by forging new partnerships and growing the innovation ecosystem. A thriving public-private ecosystem is essential to maintaining American competitiveness."

Michael Brown joined me on *The Business of Government Hour* to discuss DIU's critically important mission, his "fast-follower" strategy, and how it uses alternative acquisition approaches to bring commercial technology into the U.S. Department of Defense. We also discuss what DIU is doing to give innovative businesses and startups the opportunity to solve high-impact national security problems, and highlight some key successes. The following is an edited excerpt of our discussion, complemented with updated and additional research.

On the History and Mission of the Defense Innovation Unit

In 2015, then Secretary of Defense Ash Carter created DIU with the expressed purpose of helping the U.S. military make faster use of emerging commercial technologies. Secretary Carter saw that more R&D spending in the U.S. was happening faster in the commercial sector than in the federal government. It was essential, therefore, to get access to this commercial technology in areas like artificial intelligence autonomous systems and cyber to enhance our warfighting capability.



The department needed to become better adept at fielding and scaling this technology across the U.S. military. For these reasons, he established DIU (then DIUx with the "x" standing for experimental) to lead this mission and realize this vision.

Since its inception, DIU's mission has expanded. We continue to focus on accelerating the adoption of commercial technology. But we've also taken on two additional core elements to expand and diversify the types of companies the department can access. In the National Defense Strategy, we call that the "national security innovation base"—meaning we need to work with more than just the defense contractors to make innovative capability available for the department. Here are the two complementary efforts that now reside within the DIU umbrella:

- The National Security Innovation Network (NSIN) works with universities, incubators, and accelerators. It attracts new talent to solve national security challenges, leverage start-ups and academic communities for new concept development, and facilitate the launch of new, dual-use ventures by commercializing Department of Defense lab technology and through customer discovery. In fact, some companies started through this program are now vendors to the DoD.
- The National Security Innovation Capital (NSIC) is a way to catalyze private investment in hardware. The venture capital industry in the U.S. is more focused on software than hardware, but the military runs on hardware. This newly-funded initiative enables dual-use hardware startups to advance key milestones in their product development by addressing the shortfall of private investment from trusted sources.

On Working with DIU

We model the commercial world by focusing on speed and simplicity. This is different than how the DoD traditionally acquired capabilities. When you buy an aircraft carrier you might need some of that complexity; but if you're buying commercial software, you don't need it. What we've done is maximize the ability for competition by minimizing the opportunity costs for companies to compete.

We identify and understand critical national security challenges that can be solved with leading-edge commercial technology within twelve to twenty-four months. Through our Commercial Solutions Opening (CSO) process, we competitively solicit proposals for innovative solutions that meet the needs of our DoD partners. DIU leverages "Other Transaction Authority" (OTA) to award prototype agreements in as few as sixty to ninty days. More importantly, after a successful prototype, the company involved and any DoD entity can enter into a follow-on production contract or agreement, without having to recompete it.

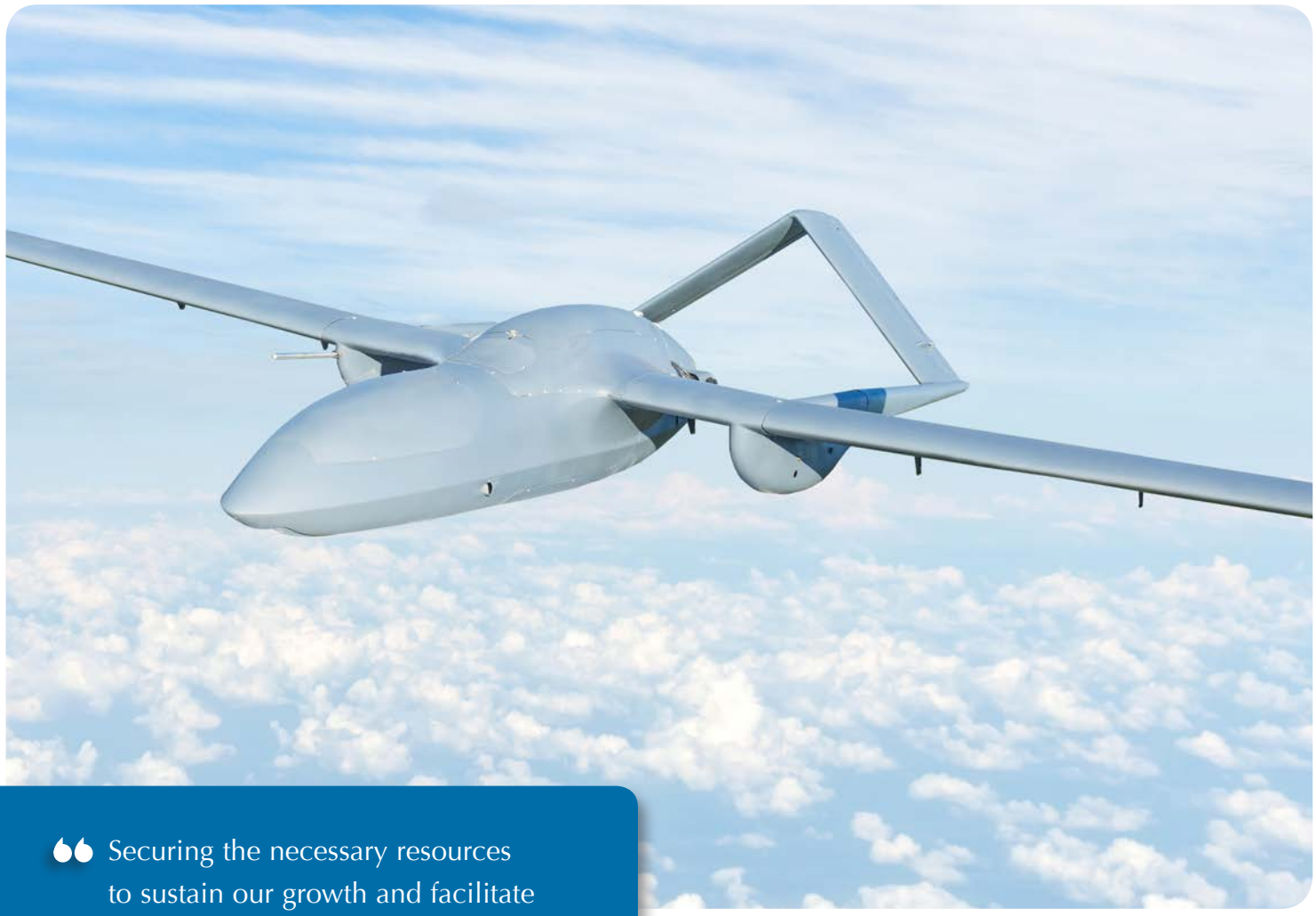
We make it easy for companies that have never done business with the DoD—or the U.S. government—to win contracts based on merit and to implement solutions at commercial speeds. DIU has already introduced more than seventy-five first-time vendors to the DoD. DIU delivers revenue through flexible prototype contracts that apply commercial innovations to solve national security challenges.

Whether seeking hardware, software, or service solutions, DIU lowers the barriers to entry and makes it faster and easier for companies of any size to do business with the department.

On Challenges

The first challenge pertains to resources. For example, in fiscal year 2021, we launched thirty-seven projects—almost double the average number of projects we've started over the last six years of DIU's existence. So we're on a growth path. But we continue to work with the same number of billets and a modest increase in budget year over year. Our throughput is increasing exponentially while our supporting resources remain fixed. We need the people and the funds to be able to sustain this growth. Securing the necessary resources to sustain our growth and facilitate technology adoption across DoD is one of my top priorities.

The second challenge involves working effectively with an organization the size of the U.S. Department of Defense. We are a change agent charged with fielding and scaling technologies in the department. Our goal is to ensure that these technologies have an impact for our end users, the warfighters.



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>
> *—Michael Brown*

The third challenge centers on making sure we can transition commercial technology. We look at how we are changing the process inside the Pentagon to properly transition commercial technology into a military context. For instance, there is a commercial technology capability that has been proven to work in a military environment. But our challenge is to make sure we have a production contract, the budget to move forward, and a way to make that technology scalable for use by our warfighters. Getting the department ready to adopt commercial technology and establish processes to scale commercial tech is quite a challenge.

On Informing and Shaping a Vision

Understanding the strategic competition we have with China is what brought me to DIU. We haven't faced such a competitor in our history. This competition is multifaceted—it is economic, technological, geopolitical, ideological, and likely will define the next fifty years. China is a much bigger economy and is more integrated into the global economy than the Soviets, during the Cold War. This reality shapes and informs the strategic vision of the DIU.

The question is: how do we drive more impact? Our impact is both in identifying the most critical projects to work on and ensuring a transition so that the vendor is successful through a production contract and that the capability is scaled to our warfighters. We have seventy-five projects underway at this point—more than ever before (and double our historical average)—supporting every military branch and many defense agencies and commands. We're also working with more companies than ever before—assessing

more than 1100 submissions last year alone. In our history, we've introduced eighty first-time vendors to the DoD. More of these vendors are also receiving higher-value production contracts such as Anduril who recently received a $1 billion contract from Special Forces to supply counter-drone technology or C3 who received a $500 million contract from the Missile Defense Agency to supply synthetic trajectories for missiles which enables us to better defend against incoming missiles. However, given the types and amounts of procurement of DoD, we're just scratching the surface on the impact we could be having.

We also need to develop solutions alongside our allies and partners around the world on a large scale. We would like to be more proactive in using technology from allied companies. Our vision is to sell technology solutions—qualified in a military environment—to our allied military or partner military.

On Pursuing a "Fast-Follower" Strategy

We need to pursue a fast-follower strategy. This is what is done in the commercial world when you are not first to market. You quickly follow so that you can minimize the time between the first mover and your ability to deploy that technology. Since the 1960s, the Pentagon was a first-mover, taking the lead in bringing technology R&D into use. But times have changed.

Eleven out of the fourteen technology priorities identified by the department recently are commercial technologies—namely artificial intelligence, software, cyber, autonomous systems, rapid launch, satellite imagery, additive manufacturing, and more. As such, positioning the department as a fast follower would make it far more competitive in fielding and scaling the best technology quickly.

There are four core elements to a fast-follower strategy:

1. **Identify an organizational home for commercial technology.**

   We don't need a technology that is service-specific. Rather than duplicate a specific technology across the Services, we need an organizational home for each technology. We do need to have a technology owner whose job it is to assess the need and then field that technology across the Services. Doing this will eliminate duplication and wasted resources.

2. **Create a consistent budget for refreshing capability.**

   We need flexibility from Congress to budget for a capability rather than a program. We are going to buy and field a certain technology for decades, so we need to have a process in place that allows us to refresh and upgrade that technology capability at the rate of the commercial market.

3. **Use commercial acquisition processes.**

   If we want to encourage more companies to work with us, then we've got to use speed as an advantage and encourage that competition. That's what we've done at DIU with the commercial solutions opening. We use Other Transition Authority (OTA)—as opposed to relying on the Federal Acquisition Regulations (FAR)—to meet these demands and exceed our expectations.

4. **Jettison the requirements process.**

   Today, anything that we buy at the Defense Department starts with requirements specifying what we need. With commercial technology, we don't need to specify it. Therefore, requirements can be eliminated. We probably need something in place to validate that we have a need. But we don't need to tell the market what to build.

   If we pursue these four steps—three things that we need in place, one that we need to remove—then we could effectively implement the fast-follower strategy. Ultimately, we need to modernize faster, use more commercial technology, and better enable the interlocking aspects of Planning, Programming, Budgeting, and Execution (PPB&E), requirements, acquisition, and budget work for the department—rather than be impediments. We owe it to our service members to give them the best tools and technologies so they can keep us safe.

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On the Effective Use of Other Transaction Authority

We continue to use Other Transaction Authority very effectively. While this authority has been used by NASA since 1958, its expanded use is somewhat recent within the DoD. Other Transactions have become a vital part of the defense research process. In fact, the IBM Center recently released a report, *Other Transactions Authorities: After 60 Years, Hitting Their Stride or Hitting The Wall?* that concludes OTs are an invaluable tool and offer an increasingly common, viable alternative to traditional, FAR-based procurements. Using them does not represent a significant departure from the principles of public procurement—competition, transparency, and accountability.

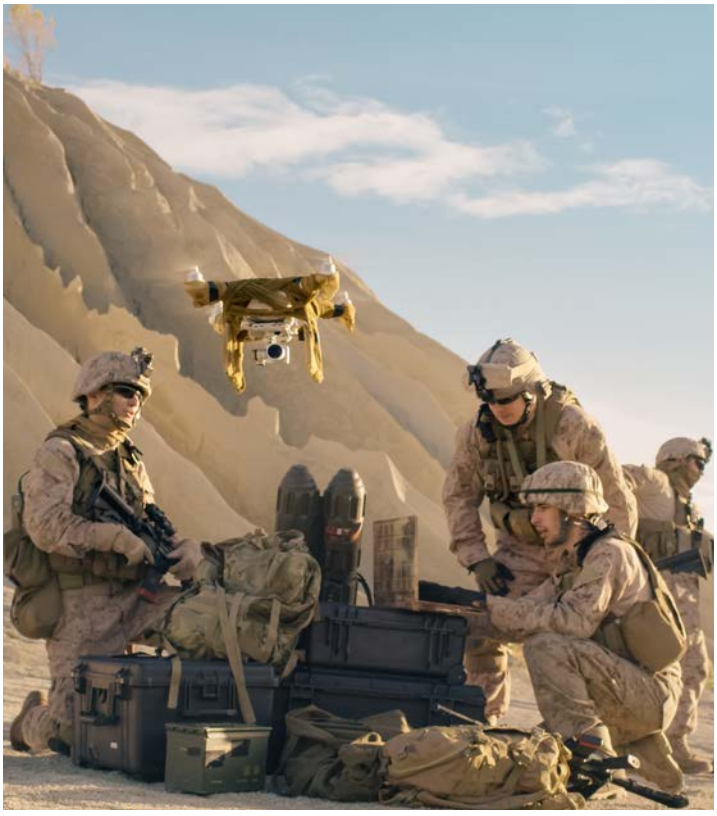
OTAs offer a more streamlined, flexible, and faster way to buy things. The use should continue to grow and more people should be trained in how best to use this authority. I would like to see department leadership encouraging more widespread use of OTAs as an alternative to the federal acquisition regulations.

On Successes

We must increase the impact of the work we are doing. We'd like to be doing more projects on a larger scale, as well as work internationally with our partners. That said, we're proud of our work at DIU.

The creation of the Blue sUAS project, for example, develops trusted small unmanned aerial systems (sUAS) for the broader DoD and other federal government partners. This effort builds upon the U.S. Army's sUAS program of record, Short Range Reconnaissance (SRR), for an inexpensive, rucksack portable, vertical take-off and landing sUAS. Blue sUAS systems share the SRR air vehicles' capabilities but integrate a vendor-provided ground control system. We decided what we needed to do was harmonize requirements across DoD so that we're not splitting the volume that we need across multiple vendors. Blue sUAS is aimed at doing that. Today we're increasing the number of vendors who are on the approved list—they're cyber-hardened and don't use Chinese components or Chinese completed products. They are available on the GSA schedule so any agency can purchase them.

Another example is buying launch as-a-service technology, combined with sponsoring small satellite companies. It's phenomenal what's happening: being able to launch more cargo at low prices and accessing technologies that give us visibility around the earth, that go beyond optical. It's called synthetic aperture radar. It allows us to see day and night and through clouds. Then of course, AI/ML technology allows us to spot what's changing in these images so that people don't have to go blind looking at pixels. We're bringing this combination of technologies to the Defense Department so that we have much more situational awareness or global visibility.

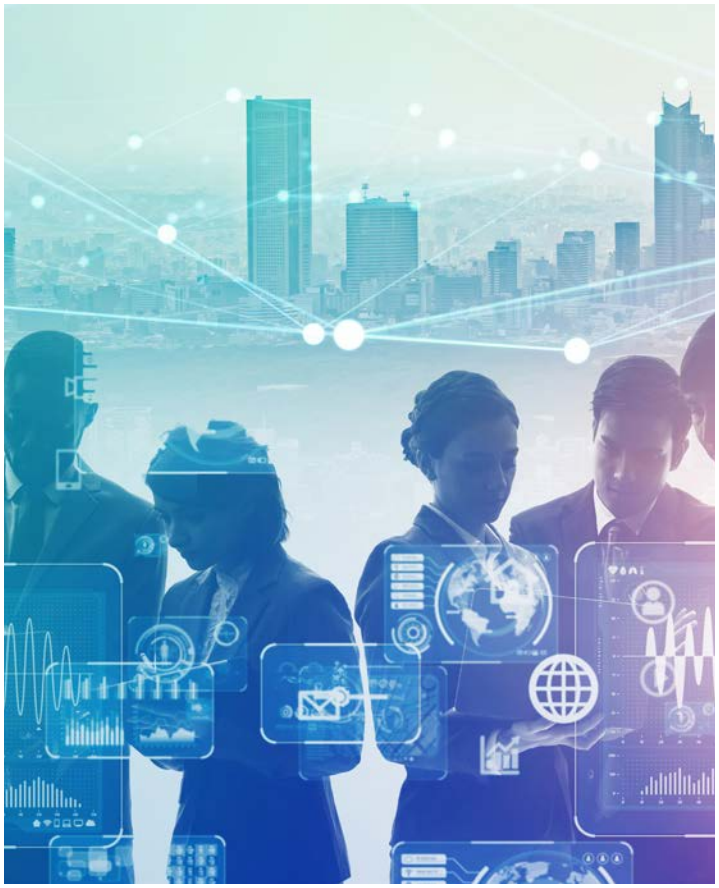


On Key Takeaways

The first takeaway is recognizing China as a strategic competitor and that this competition, amongst other things, centers on technology. We must make sure that our country does not fall behind. Our technology lead is eroding today. This underscores a sense of urgency not only about the work that we're doing at DIU but what the Defense Department and the whole nation needs to be focused on in terms of making sure that we're making the right investments to be preeminent in science and technology for decades to come.

Another key takeaway is understanding that DoD is not a first mover anymore with respect to a lot of the technologies we need like AI, cyber, autonomous systems, etc. Therefore, we have to be a fast follower to incorporate technologies developed by commercial companies (instead of DoD) and field this more quickly.

The third takeaway is speed. Speed is absolutely critical to making sure we've got a Defense Department that is competitive and possesses the capabilities it needs. It needs to adopt new warfighting concepts at the "speed of relevance," as Secretary James Mattis used to say. We're not an agile organization at DoD but we need to become one.



These are some of the key areas that we're focusing on at DIU every day. I was heavily influenced by Secretary Mattis, who hired me. He impressed upon me that DIU is a change agent. We have a dedicated part of DIU that continuously scans for the most important problems, finds solutions that save us the most money, and delivers new capabilities that save the most lives.

How robust are the different types of available commercial capabilities? The sweet spot we look for is very high-impact and a robust set of commercial vendors. That's the area that we want to be targeting.

On Leading

Leadership principles are transferable across sectors. We must understand what we are trying to accomplish. What I call setting the agenda. If you don't have that vision in mind, a destination for where you want to go, then all roads can take you anywhere. A leader must have that vision and agenda for where the organization is going. Once you have a vision, then it's all about executing on it. Having the best possible staff and talent working alongside you to achieve that vision is key. This is true across industries.

I've been very impressed with the caliber of talent that we have at DIU. I feel very fortunate. A leader must give staff the proper tools and resources to be successful. This also involves developing processes and fostering a culture that allows staff to do their best work. We want to make sure that we have an environment where staff can do their best with access to all the tools they need to work collaboratively to realize the vision and mission of this organization.

To learn more about the Defense Innovation Unit, go to diu.mil/.

To hear the interviews from *The Business of Government Hour*, go to businessofgovernment.org/interviews.

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