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## DIUx Quarterly Results - Q2 2017

APRIL 20, 2017

### Results to Date

Defense Innovation Unit Experimental (DIUx) remains focused on its efforts to accelerate commercial innovation in the U.S. Department of Defense (DoD) to solve the nation's toughest defense problems.

As of March 31st, 2017, DIUx has awarded 25 agreements for a total of \$48.4M; an increase of 13 projects and \$12.3M since Q4 2016. DIUx co-invests with DoD customers to fund projects, with the majority of funding coming from our DoD customers.

"In the last ten months, with a laser focus on solving critical defense problems, DIUx has shown the private sector that the DoD is a reliable, transparent, and fast-moving customer," said Raj Shah, DIUx Managing Partner. "We have seen a significant increase in the number of companies across the nation that want to work with us on our military's toughest challenges. Furthermore, venture capitalists have begun to fund companies that are solely focused on DoD as a customer, increasing the impact of every taxpayer dollar."

The private sector has invested more than \$1.5 Billion\* in DIUx portfolio companies, giving DoD significant leverage and cost efficiency in key technology areas. In some areas, DIUx efforts have diversified the defense industrial base by pairing traditional vendors with those that normally don't work with the military. To date, 356 companies from 36 states have competed to work on DIUx projects.

The projects funded in Q4 2016 are progressing toward milestones and undergoing testing by our customers. There are 20 additional projects in DIUx's approved, near-term pipeline in five focus areas: autonomy, information technology, human systems, space, and our newest area, artificial intelligence. These projects are estimated to account for approximately \$175.0MM in DIUx and customer funds.

DIUx is also scaling its practices by sharing guidance on agile contracting and technology development with organizations across the DoD.

### Additional Highlighted Projects Since Q4 2016

The following are highlighted DIUx agreements awarded since our last update in October 2016.

\*\$1,553,920,000 (Sources: Mattermark/Crunchbase/S&P Capital IQ)



## **Autonomy**

**Counter-UAS.** *Customers: USMC Warfighting Lab; Joint Improvised-Threat Defense Organization*  
*Company: Sensofusion (Milton, DE and New York, NY).* Due to advancements in Unmanned Aerial Systems (UAS), threats to DoD operations by both state and non-state actors are increasing. DIUx has partnered with several DoD organizations to leverage commercial technology to increase Counter-UAS capabilities. The project with Sensofusion aims to leverage its unique radio frequency sensor to be paired on an M-RZR unit to provide Marines advanced warning of UAS threats. The mobile system will be capable of passively identifying, tracking, and defeating threats posed by UAS during day, night, and all weather conditions.

**Personal Aerial Vehicle (PAV).** *Customer: DoD.* This project provides small aerial vehicles for tactical operators. These vehicles will not replace current rotary wing assets, but offer a niche capability for specific tactical applications with a low acoustic signature, near instantaneous start/stop, ability to spread an assault force across multiple vehicles, and automated systems for more accurate navigation and landings.

**Tactical Autonomous Indoor Drone Expansion.** *Customer: Special Operations Forces (SOF) & Naval Air Systems Command (NAVAIR).* *Company: Shield AI (San Diego, CA and Boston, MA).* Given the early success of DIUx's Shield AI pilot project announced in October 2016, which focused on indoor autonomous mapping, SOF customers have partnered with DIUx to integrate the Shield AI drone with a current Navy Unmanned Aerial Vehicle (UAV) program. Integrating the two UAVs will improve range and capability. This expansion of effort has been awarded, demonstrating DIUx's ability to rapidly integrate commercial solutions into existing DoD programs.

## **Human Systems**

**Non-Invasive Cooling.** *Customers: Combat Casualty Care Research Program, U.S. Army Institute of Surgical Research.* *Company: Qool Therapeutics (Menlo Park, CA).* This project seeks to advance the state of the art in therapeutic hypothermia, a key concept in combat injury mitigation. By providing nebulized frozen saline, this technology potentially offers a leap forward regarding improved patient outcomes from cardiac arrest, spinal cord injury, and traumatic brain injury. The expected applications of this technology include systemic cooling of a patient's central organs (i.e., lungs, heart, and brain), and enhanced delivery of drugs or biologics to the airways.

## **Information Technology**

**Digitally Aided Close Air Support Platform.** *Customer: U.S. Air Force Air Combat Command.* *Company: Rockwell Collins (Richardson, TX).* This project creates a standardized platform for Joint Terminal Attack Controllers, forward air controllers, and small unmanned aerial systems to interface with legacy platforms. A single back-end platform abstracts complex messaging protocols and device management features. Future developers and program offices can tailor their interfaces using easy-to-use plugin systems to accommodate capability gaps for each mission instead of re-creating complex systems.



**Hardened Network Defense.** *Customer: U.S. Navy SPAWAR. Company: Polyverse (Kirkland, WA).* Securing DoD's complex IT environment against trained, resourced threats demands advanced, layered, and flexible defense-in-depth capabilities to augment or replace existing network security tools. This project will deliver a flexible toolkit with advanced capabilities such as moving-target defense, self-healing containers, binary scrambling, and honey pots/decoy environments. This toolkit will enable SPAWAR to deploy tools that are appropriate for the environment while providing flexibility in a "crawl, walk, run" approach to reduce risk.

**Knowledge Management.** *Customer: U.S. Navy. Company: Adobe (San Jose, CA); Method (San Francisco, CA).* The Navy's Explosive Ordnance Disposal (EOD) community's knowledge management systems are outdated, many often relying on non-graphical user interfaces. This project will deliver a knowledge management system for the EOD community that manages knowledge, training, and officer career progression.

**Multifactor Authentication for Network Access.** *Customer: DoD Chief Information Officer (CIO). Company: Lastwall (Mountain View, CA and Vancouver, BC); Yubico (Palo Alto, CA).* DoD's complex data access environment and evolving threat landscape requires device-agnostic agility, with strong identification and authentication, even when devices or credentials are lost. This project integrates several multi-factor authentication technologies to build an integrated system. DIUx and DoD CIO have partnered to integrate Lastwall's authentication platform for seamless, risk-based access. DoD CIO is also partnering with the Army's Communications-Electronics Research, Development and Engineering Center to integrate Yubico's YubiKey multi-protocol authentication devices in DoD's public key infrastructure.

## **Space**

**Advanced Analytics from Synthetic Aperture Radar (SAR) Imagery** *Customer: DoD. Company: Orbital Insight (Mountain View, CA)* The proliferation of large commercial constellations of low-cost Synthetic Aperture Radar micro-satellites has enabled daily imaging of the entire Earth. These new data sources have the potential to yield previously inaccessible insights, however require rapid analysis of massive amounts of highly complex data. In this effort, DIUx is applying commercial capabilities to extract insights from collected imagery and associated data through advanced algorithms. Ultimately, this will enable real-time awareness of both natural and manmade threats.

*A more in-depth call on DIUx Space activities will be held in early-May.*

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***DIUx accelerates commercial innovation for national defense. Learn more at [DIUx.mil](https://diux.mil)***