THE PENTAGON IS BUILDING A DREAM TEAM OF TECH-SAVVY SOLDIERS

SIE LAPOWSKY

Chris Lynch, director of the U.S. Defense Department’s Defense Digital Service, works in his office at the Pentagon in Washington, D.C.

ANDREW HARRER/BLOOMBERG/GETTY IMAGES

NICOLE CAMARILLO WAS touring the Army base at Fort Meade, Maryland, in early 2017 when a young captain—I’ll call him Matt, due to the sensitivity of his position—crossed her path.
I’ve got to talk to that kid, Camarillo remembers thinking. Just weeks before, she’d seen Matt deliver a presentation on a tool he was developing to counter enemy drone strikes in the Middle East. The technology, he explained, was being developed on a “shoestring budget.” That caught Camarillo’s attention. As executive director of talent strategy at the US Army Cyber Command, a relatively new branch of the Army, Camarillo’s job is to persuade top employees in Silicon Valley that they should sacrifice their stock options and six-figure salaries and apply their technological know-how in the Army instead. The idea that someone with Matt’s skills was scrounging to develop tools that could mean life or death for soldiers hardly boded well for her program.

Camarillo approached Matt and offered to help. She asked him to tell her about the hurdles he encountered trying to develop technology for the Army. Matt decided to show her instead. He led Camarillo to a converted barracks where he and his team had created a makeshift workshop. In an old shower, they’d set up a battery fire, which they used to solder metal for hardware parts. Because the security restrictions on government-issued computers prevented them from coding, they’d purchased replacement parts and were building their own computers. These hacks helped them circumvent the costly, time-consuming military-acquisitions process that would have slowed their progress for months or even years.

The whole scene reminded Camarillo of the storied garages where Apple and Hewlett-Packard began, and there was a certain romance to it all. But Camarillo walked away as inspired as she was concerned. The Army already had plenty of tech talent within its ranks. What they needed was a more nurturing environment.

“The ingenuity of what they were able to do with their existing resources was pretty spectacular,” Camarillo says. “I thought, ‘What would happen if we unleashed them and gave them all the resources they needed? What could they do?’”

One year later, that seed of an idea has blossomed into a formal partnership between Army Cyber and the Defense Digital Service, a sort of tech startup inside the Department of Defense. Named Jyn Erso, after the protagonist in Rogue One who teams up with the Rebel Alliance to steal the plans for the Death Star, the new initiative merges the Army’s top technologists with experts from the private sector. Working out of DDS’s office inside the Pentagon, the Jyn Erso team is rapidly developing tools that in some cases the DOD had already spent hundreds of millions of dollars and many years unsuccessfully trying to build.
It’s the flip side of what DDS set out to accomplish when it began in 2015. The goal then was to get geeks from Silicon Valley to take tours of duty in Washington, cut through the morass of military bureaucracy, and build technology that’s actually user-friendly and doesn’t take years to produce. Since its launch, the DDS team has built technology to help service members keep track of their active duty records and even deployed to Afghanistan to redesign an arcane piece of software for NATO.

In all that time, though, it never occurred to DDS director Chris Lynch that the same level of talent might be found within the military’s ranks. “I thought, ’My team is the best the country has to offer, and that type of talent wouldn’t exist in uniform today,’” says Lynch, who accompanied Camarillo on the Fort Meade tour. “That’s the thing that was wrong.”

For years, the term technical in the Army had been used to describe soldiers who knew how a tank works, not soldiers who knew how to write software. Matt, for one, is a West Point–trained computer scientist who spent time working for the National Security Agency and has been in the Army for seven years. But when it was time for him to join a specific branch in the Army, there was no cyber option. The Army didn’t develop such a path until 2015. “The Army didn’t really know what to do with me,” he says. “So they sent me to Ranger School. I learned how to jump out of planes and carry rifles and stuff like that.”

Even when Matt transferred to Army Cyber, the computers his team was given were so restricted, he couldn’t write code on them. “We were like, how do people get any work done around here?” he says.

Camarillo and Lynch wanted to give soldiers like Matt the freedom they didn’t have on the base. And so, in the spring of 2017, they approached General Paul Nakasone, the former commander of Army Cyber, with a novel idea: They wanted to bring a small cohort of Army soldiers to the Pentagon for two to three months to work alongside the DDS on any mission of the general’s choosing. Initially, Nakasone was reluctant, Camarillo explains.

“He thought DDS was trying to take the best soldiers we had,” she says. “I was like, ’No, this is for you.’”
Nakasone, who is now head of the National Security Agency, relented and agreed to let Camarillo and Lynch borrow a handful of soldiers to work on technology that could disable enemy drones. They called the project Jyn 1, because they hoped it would be the first of many under the Jyn Erso initiative.

Matt set about hand-selecting his dream team from within the Army’s ranks. There was his friend and fellow West Point grad who’d been toiling away in the Fort Meade workshop with him, the talented statistician awaiting assignment at the Army Cyber School, and the aircraft technician with a side hobby of hacking cars. One by one, like a scene out of Ocean’s Eleven, they were tapped to come work alongside the DDS team, whose members had been engineers, designers, and project managers at top private-sector companies like Facebook, Deloitte, and Dropbox. There was also one Marine pilot working for DDS as a civilian.

In May of 2017, the soldiers reported for duty at the Pentagon dressed in full uniform. “We were like, ‘When you come in next week, wear civilian clothes,’” remembers Erin Delaney, who was a DDS project manager at the time. “We got them some Macbooks and got them ready to go.”

The central question before the Jyn Erso team was, Matt says, “How do we stop ISIS from dropping grenades on our soldiers’ heads?”

It’s a problem the military has spent $700 million trying to solve, according to Camarillo. There are nets you can shoot up into the sky to catch the drones and bulky, suitcase-sized jamming technology that’s hard for soldiers to lug around. The French have trained eagles to do it. Then there’s what the military calls “kinetic” technology. “Kinetic means you blow it up,” Lynch says.

The team decided to build a tool the size of a handheld radio that wouldn’t have to be carted around on the back of a truck and that could precisely target an enemy drone without jamming all nearby communications, including friendly ones.

They also wanted to make sure they could update the software on the device to keep pace with new commercial drones being released. One of the central challenges in fighting ISIS, says Tom Bereknyei, a software engineer at DDS and a major in the Marines, is that their fighters use off-the-shelf technology that’s more nimble than the militarized tools that might take 10 years for the US government to develop and approve. “We’re operating against what I call the ‘Christmas cycle.’ The new model of these commercial drones comes out, because you buy it for your kids,” he says. “We have to create capabilities that match that.”

It’s a problem Matt had been working on steadily at Fort Meade, but now he was in an environment where he could actually get it done. The Jyn 1 team reserved
3D printers at local maker spaces, where they could print parts, and worked on laptops that, unlike the ones at Fort Meade, allowed them to write code. They transformed the DDS office into a testing ground, turning aluminum foil-wrapped garbage cans on their sides to create makeshift Faraday cages.

Day after day, they watched and waited for a single light on a drone’s remote control to flicker from green, indicating the signal from the drone was strong, to red, indicating it had been disrupted. The day the light finally turned red, about four weeks into development, the whole team celebrated with shots of Fireball.

Perhaps the most meaningful difference, though, was the fact that the team was able to conduct user testing on the battlefield. That’s almost unheard of in the military acquisitions process, where contractors are given a set of requirements drafted by government officials in an office somewhere. Often, soldiers don’t get to try the product out until it’s too late to do anything with the feedback they might have. Lynch had already convinced the Department of Defense to send DDS staffers to Afghanistan once. After some wrangling, he secured their approval again, and in August of 2017, the team took off for another trip to an undisclosed location in the Middle East.

That trip changed the design of the tool almost completely. After demoing it with soldiers in the field, they realized they would need to completely toss out the sleek, screen-based user interface they’d built, and substitute it with an analog dial with three simple settings. “Everyone’s wildly overworked,” Matt says. “They wanted something that just worked as autonomously and automatically as possible.”

The team’s willingness to overhaul the design took the soldiers by surprise. “This was really the first time I’ve ever seen a procurement process like this, where they came to us with an initial concept and said, ‘Before we start putting this into production, we want your input,’” says Chief Warrant Officer Cecil Fox, who was part of the testing group. “It gives us a way to get what we want the first go-round.”

The fact that he was having those conversations with other soldiers helped, too. "We speak all the same acronyms," Fox says.

The Jyn 1 team returned to the Pentagon to make the necessary changes, and in January of 2018, they flew back out to the field for one last test, this time with a group of young infantry soldiers straight out of basic training. The Jyn Erso team sat the group down, handed them the boxes with no instructions, and then waited to see if the soldiers could get the tools to work.
They did. “All they could see is a knob and some blinking lights, but when they
looked in the distance, the drone couldn’t fly any closer to them,” remembers
Lieutenant Dan Lim, a software engineer on the project. “This was people who
have absolutely no background in what we’re doing, and they were able to work
with it in literally a minute.”

According to DDS, the Jyn 1 project cost the DOD less than $100,000, compared
to the hundreds of millions of dollars that have been spent on contractors trying
to solve the same problem. Now, having completed their first purchase order, the
team is handing the Jyn 1 specifications over to partners both inside and outside
the Pentagon to continue manufacturing the tools. Jyn Erso will never replace
those contractors, but Camarillo and Lynch hope this model could be used to
develop technical capabilities within the Army that are both more cost effective
and more responsive to soldiers' needs. The Jyn Erso team is already spinning up
another project, called Jyn 2, focusing on new ways for cyber soldiers to hunt
down adversaries on DOD networks.

Thanks to the Jyn Erso initiative, the DDS has shifted its scope. It still recruits in
Silicon Valley, but now it also cultivates top talent within the armed forces. In the
face of international hacking rings and tech-savvy adversaries, projects like these
are crucial for the military as it adapts to the realities of modern warfare.

"The military thought the problems they were facing were because of a lack of
talent," Bereknyei says. He thinks Jyn Erso's work has proven that theory wrong.
"We changed their environment. We changed their support and gave them
designers to work with," he says. "It made all the difference in the world."