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NAVY SBIR TRANSITION PROGRAM

SPOTLIGHT

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# *Bridging the DoD's language gap: Lilt brings AI-powered translation capability to the DoD*

"The DoD has a huge capability gap in foreign language translation, and it causes serious problems," observed Phil Stiefel, director of DoD and Asian and Pacific (APAC) programs at Lilt. "There is a universal, across-the-board shortage of people in the DoD who can perform the foreign language translation mission."

Few U.S. citizens eligible for security clearance are fluent in languages important to U.S. intelligence work, such as Chinese, Russian, Korean, Farsi, and Arabic. Training personnel to basic proficiency in an unfamiliar language is slow and expensive. As a result, "The foreign language intelligence we collect is not being used the way it should. By the time it gets translated, it's not useful," he said.

To help close this gap, Lilt recently received Phase III contracts to extend research from two Navy SBIR Phase II projects. These efforts supported the research and development of Lilt's advanced linguistic artificial intelligence (AI) capabilities, including machine translation, natural language processing, and speech recognition technology. The goal is to enhance Lilt's innovative AI-powered translation tool (also called Lilt) for DoD use.

While computer-aided translation tools such as Google Translate exist, Lilt offers robust security features tailored to DoD requirements. Unlike purely automated tools, Lilt integrates human feedback to verify and train the software.

"It's the first foreign language translation software tool that learns from people as they use it. Every time a translator makes a change, the system learns. The more it's used, the smarter and more valuable it gets," Stiefel explained. This continuous learning capability enables Lilt to quickly learn DoD-specific language, including acronyms, names, and scientific and technical terms. It also adapts to the nuances of language—slang, variations between dialects, misspellings, and use of mixed languages in a document.


Phil Stiefel training new Lilt users at U.S. Forces Japan (Yokota Air Base) in 2024.

Through projects with the Defense Innovation Unit (DIU) in 2023, Lilt demonstrated that its software allows translators to complete tasks 10 times faster than working unaided. "We're getting operational information to the point of need faster, and one person can do the work of 10," Stiefel pointed out. "In an environment where people who can do the work are scarce, that's a huge benefit."

The success of these DIU projects, combined

with Navy SBIR investments, set the stage for Lilt's Phase III SBIR follow-on contract awarded by the Office of the Secretary of Defense Chief Digital and Artificial Intelligence Office (OSD CDAO) in November 2024. This Phase III effort extends the innovation and research work of a Navy SBIR Phase II project with U.S. Forces Japan (USFJ) at Yokota Air Base. During Phase II, Lilt worked with Navy personnel to train a DoD-specific Japanese language model.

"We work very closely with our Japanese allies, but we speak very different languages. Japanese is a notoriously difficult language to translate. The SBIR project with USFJ explored how to best combine AI language model training inputs from different mission areas. For instance, the contracting office uses different vocabulary and language than the Japanese nationals working on U.S. Navy ships at the Japan Regional Maintenance Center. How much can these language models be mutually reinforcing? Can we combine them, or do we need to keep them separate?"

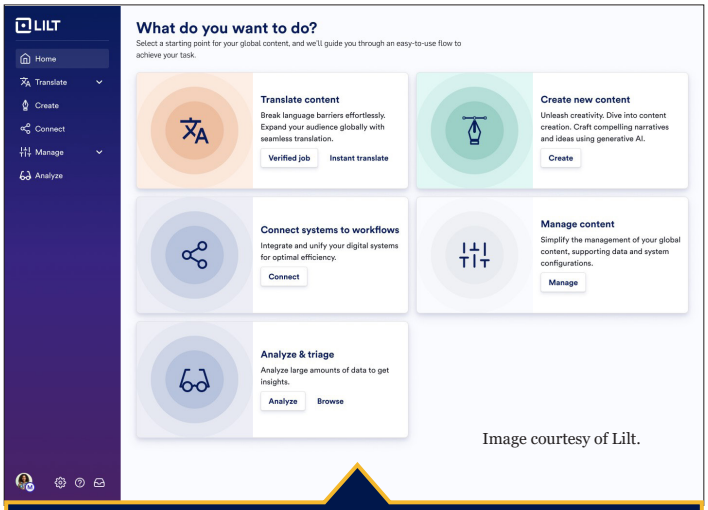


Image courtesy of Lilt.

Lilt's software platform offers users options to analyze and manage content in addition to translation.

The Phase III award from OSD CDAO expands this research. "OSD takes the SBIR experiment with USFJ and extends it across more environments," Stiefel explained. "They saw success in a limited test case and now want to explore additional test cases to determine if this approach can work enterprise wide."

During Phase III, which will wrap up in November 2025, Lilt will work with 300 Navy, Army, and Air Force service members, representing more than 20 units from diverse mission areas beyond translation-specific roles. "Ultimately, we want to enable personnel without a foreign language capability to do jobs that had previously required it," said Stiefel. "They'll be doing their everyday jobs while processing foreign language content as they encounter it. As they work in the AI system, they'll help train it to improve accuracy and to accommodate DoD-specific acronyms and specialized terminology." At the project's conclusion, Lilt will evaluate how AI training improved the model's performance and user productivity.

While the DoD intelligence mission is the biggest use case for Lilt, the software has broader applications. For service members and DoD civilian personnel stationed overseas, Lilt could improve daily life by speeding translation in interactions with local service providers.

Stiefel shared a striking example from Yokota Air Base: "Doctors at the on-base hospital told me about a patient who had an MRI at a Japanese hospital. While each Air Force, Navy, and Army base in Japan has an on-base hospital, personnel, and their dependents often need to visit off-base hospitals for specialized services. When they do, the results are, of course, written in Japanese. In this case, the MRI results showed the patient had cancer, but it took 60 days to get them translated. That person was robbed of 60 days of valuable time that could have been

used to fight the disease."

In addition to the Japanese language project, Lilt was awarded a second Navy SBIR Phase II to advance the software's optical character recognition capabilities. This project is part of the Navy SBIR Transition Program (Navy STP) 2024-25 cohort. "At the end of an SBIR project, you want to see a transition," said Stiefel. "You want to utilize the resources that the Navy put in place to connect with other units that need this capability. The goal is to extend the combat effectiveness of this innovation to as many units as possible. I'm optimistic that working with Navy STP will help open doors across the Navy enterprise."

Before completing the SBIR Phase II, the optical character recognition project had already received Phase III funding from the Navy. With multiple DoD components exploring Lilt's capabilities, the company is engaging with various defense organizations and funding mechanisms to advance innovation and adoption of the software.

Lilt's first SBIR contract came from the Air Force in 2019. Both of its Navy SBIR contracts were Subsequent (now Catapult) Phase IIs originating from Air Force solicitations. "The Navy picked up the innovative work we started in the Air Force and improved it, extended it, and made it more robust in the Navy environment," said Stiefel.

Lilt is also leveraging non-SBIR funding. The Army Intelligence, Surveillance, Reconnaissance (ISR) Task Force—stood up five years ago to identify and develop emerging ISR technologies with the potential to effect transformational change for Army operations—has supported Lilt's efforts. "They invest a small amount of money to test the capability, gather operational results, and then help you scale the solution in the Army ecosystem once it's proven successful," Stiefel explained. "That is how we were introduced to the Army, and it's been very effective. They're getting incredible value from Lilt's capabilities. We have not done an SBIR with the Army, but fortunately, due to this other group, that didn't slow us down from extending the benefits of our technology and all the SBIR-driven innovation we've developed to Army users as well."

Lilt provides AI-powered linguistic solutions to federal agencies, including the Department of Justice and the National Oceanic and Atmospheric Administration. The National Weather Service uses Lilt to translate weather forecasts and warnings into Spanish, Chinese, and a growing collection of other foreign languages. Several agencies within the U.S. and European intelligence communities fielded Lilt at the enterprise level.

Lilt is a dual-use technology with broad applications. It was first established in the commercial market, where it is used by companies such as Intel, NVIDIA, Anduril, ASICS, Lenovo, Canva, Walmart, and Amazon. It has also been adopted by local government, law enforcement, and nonprofit organizations.

Founded in 2015 by Stanford University and the University of California, Berkeley language technology researchers Spence Green and John DeNero, Lilt's mission is to make information available to everyone in their preferred language. To that end, Lilt prioritizes investment in large language models as the foundation to enable enterprise-scale machine translation. For more information, visit www.lilt.com.