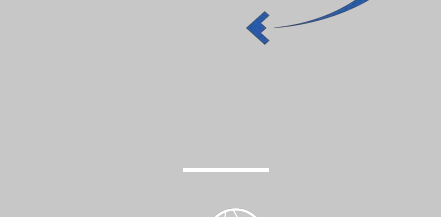


END OF YEAR SUMMARY



A division of Cyber Innovation Center

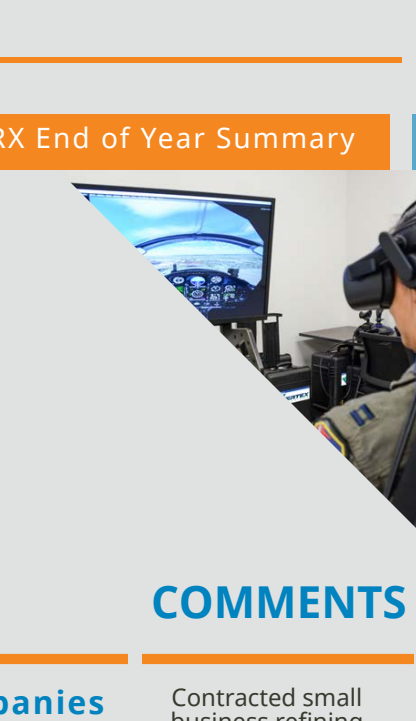
01 MEET CE + STRIKEWERX

Sparking innovation requires dedication and drive. The team at the Collaborative Environment and STRIKEWERX spent 2021 making innovation a reality for Air Force Global Strike Command.

The result of a partnership between Cyber Innovation Center and Air Force Global Strike Command's Office of the Chief Scientist, these accomplishments will stretch to every corner of the Command.

CE and STRIKEWERX is an agile team of talented employees within the Cyber Innovation Center (CIC), a 501c3 not-for-profit business. Every day they act as partners with AFGSC headquarters under a Partnership Intermediary Agreement (PIA) relationship that allows them to work on projects alongside the headquarters to find quick and efficient solutions that directly benefit the warfighter and revitalize the Air Force nuclear enterprise.

Since 2017, the CE has been performing analysis, education, innovation, and collaboration to help meet AFGSC challenges spending \$20 million in a variety of industry sectors, with most of those dollars invested locally.



02 2021 PROJECT OVERVIEW

PROJECT	METRICS	COMMENTS
Emergency Aircrew Alerting Revolutionize how aircrews are alerted	\$200M+ saved in acquisitions	3 companies contracted
B-52 Air Refueling Simulator Innovative training for B-52 pilots	\$4M saved/yr in costs	3 Months saved in training time
A-Circuit Trainer Improve training for ICBM security forces	\$376k saved in costs	2,000 man hours saved
Portfolio Data Engineering Platform Improving decision making for AFGSC leadership	8 databases accessed	Generated interest from other commands within the Air Force as a leading example of a data science platform for DoD use.
Striker Airmen Coders Airmen + students develop software solutions	10 + 8 Airmen + students	7 Software products

02 2021 PROJECT OVERVIEW

STRIKEWERX kicked off the year revolutionizing Emergency Aircrew Alerting by sourcing three new technologies.

Pelican Defense will harden the EAR system from an electromagnetic pulse and another small business, IoT/AI, will produce a personal alerting device that can reach aircrews at any location, at any time. Q Networks will demonstrate a 5G-network capability to connect aircrew members with command posts.

"This project increased competition and has saved the government money on the program of record. Additionally, it identified a local company, Pelican Defense Technologies, who can support the nuclear mission with their products," said Joshua Fisher, CIC program manager for the EAR challenge.

Air Force officials estimated the program's cost dropping from \$450 million to \$223 million

Pelican Defense and IoT/AI demonstrated their prototypes in October. AFGSC/ST is having IoT/AI further refine their unique, futuristic badge communicator to become thinner, more flexible and durable.

STRIKEWERX also sourced two companies to prototype one-of-a-kind capabilities via the B-52 air refueling simulator.

Air refueling is a crucial skill for pilots to learn, but it is also one of the most challenging, in addition, training is expensive to maintain and time consuming to conduct. This unique, cutting-edge simulator will teach the skills necessary for maintaining vital long range strike capability.

"STRIKEWERX's process was different from any other approach I've ever taken to find a solution for our problem. It's exciting to survey the wide range of cutting-edge technology that is out there," said Lt. Col. Warren Carroll, project champion. "We were able to take the work being done by our SBIR partners like King Crown Studios and Specular Theory and have industry experts define the realm of the possible."

Estimated to save \$4M per year in costs and nearly three months in training time

02 2021 PROJECT OVERVIEW

The Portfolio Data Engineering Platform, or PDEP, is a project that will change how decisions are made in Air Force Global Strike Command.

This groundbreaking approach to using data within the Command hosts data for decision makers to optimize mission effectiveness and use of funding.

"PDEP has the potential to change the way the entire Command operates. Whether by automating repetitive tasks that soak up Airmen's time and increasing speed of reporting, or making information more available and revealing previously unknown, but useful info," said Crawford Watkins, CIC project manager for PDEP.

CE gained access to 8 data sources and 12 unique metrics were computed from experts' data.

"PDEP generated a lot of interest from other commands within the Air Force and is a leading example of how a data science platform can be used within the DoD," Watkins added.

AFGSC Chief Scientist Dr. Donna Serntf said, "PDEP is clearly pushing the boundaries of how data is analyzed and used and will affect every area of Air Force Global Strike Command."

BetaFlx is developing a solution that will help the largest group of security forces in the Air Force.

The Ruston, Louisiana-based company is building a mixed reality trainer for the A-Circuit security device in used in Intercontinental Ballistic Missile fields.

The A-Circuit is like a vault door and has the important task of safeguarding ICBM fields. But that also means combinations must be changed regularly on a very delicate device. Being off by a single digit or even bumping the device during combination changes can result in a costly and time-consuming solution.

"The A-Circuit Trainer will be an immersive learning experience combining the best elements of various learning techniques. It will impact security forces by equipping them with the necessary skills to avoid resetting the A-Circuit or replacing it altogether," said Jim Davison, owner of Beta Flx.

Since May 2019-2021, there were 41 issues with the A-Circuit

Costs of A-Circuit issues in that time = \$376K & 2K man hours

02 2021 PROJECT OVERVIEW

The Striker Airmen Coder program saw another successful group of students develop software solutions that will mean a variety of long-term impacts.

Ten Airmen and eight students participated, creating seven software products.

"This project has multiple levels of positive long-term impacts — Airmen leave with skills to better serve their squadron, problem-solving software solutions are developed, local university students gain both industry and military exposure, and industry is provided access to potential future employees," said Lauren Wheelless, CIC program manager for SAC.

10 Airmen and 8 students participated in SAC cohort 2

The cohort resulted in 7 new software products

While 2021 was a year of new highs, successful innovation only goes as far as your latest idea. CE, STRIKEWERX and The Office of the Chief Scientist are committed to making those ideas a reality.

03 ECONOMIC IMPACT

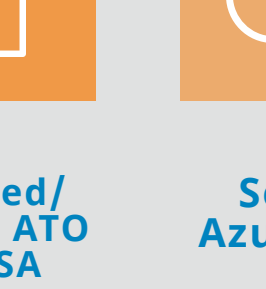
In 2021, CE and STRIKEWERX hosted 69 events with nearly 2,000 attendees and an economic impact of more than half-a-million dollars.

No event symbolized innovation more than the STRIKEWERX Spark Sprint, or S3.

S3 highlighted and amplified Airmen's innovative ideas from across the command. 13 Airmen were chosen by Global Strike innovation experts to spend a week at STRIKEWERX being trained on how to best present their ideas to Command leadership and business leaders.

"Everyday problems are coming up through Global Strike headquarters and we bring these Airmen in to STRIKEWERX and help solve those problems," said Lt. Col. Luciana Augustine, S3 organizer. "We are helping all these Airmen push their projects where they need to go. S3 serves to help Airmen's voices be heard."

Staff Sgt. Daniel Brewer and Senior Airman Jordan Heck from Dyess Air Force Base, Texas, and Capt. Robert Moran and Master Sgt. Julio Torres from Barksdale Air Force Base, La., were voted as the S3 2021 winners. Their ideas for a new communications field kit and an upgraded B-52 ejection seat kit are finalists for the 2022 Air Force Spark Tank competition with the opportunity to represent the Command at that event.



Events economic impact \$500K

No. of events 69

No. of attendees 2K

04 IT SUCCESSES

2 fully networked M&S suites

- 21 networked assets
- Classified suites

Re-certified/ATO with DCSA

- The only PIA that has accomplished this

Setup of Azure Cloud

- IL2 environment with 37 accounts for 5 different organizations

\$1.5M network in development

- Mission Partner Connection underway
- 15 classified work stations
- 3 classified virtual teleconferences

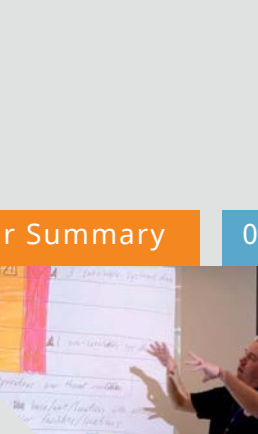
05 2021 IN THEIR OWN WORDS

2021 was our best year ever of technology transfer support for Air Force Global Strike Command. We established new highs in every performance area of our partnership. While we can point to specific collaborative project successes, modelling & simulation advances, and expanded knowledge transfer, to name a few, what these mean above all is improved capabilities for the warfighters of Air Force Global Strike Command.



Jeff Beene, Collaborative Environment Director

We consider the project successful when we've met the project champion's objectives, but we're especially satisfied when the projects are fielded. This year we completed seven projects that all met stated objectives, and four were fielded. A fifth may be operational and fielded early next year at 450 missile sites. We were able to make these projects successful from continuous, collaboration among AFGSC subject matter experts, dedicated CIC staff, and engaged small businesses who truly listen to the needs of the Airmen.



Russ Katers, STRIKEWERX Director

05 2021 IN THEIR OWN WORDS

The Global Strike Program Fellowship Program provided a wide-spread impact to the command. Between the end of the pilot year in May and the start of a second year in September, the program has provided 24 Fellows to AFGSC to advance communication initiatives including NC3, Knowledge Management, and PDEP. While providing significant advancement to major mission objectives, the Fellowship also provides Fellows exposure to military culture, potential future employment in the local area, and extensive experience in their field of study.



Lauren Wheelless, Program Manager

The standing up of the Azure Virtual CE has given us and AFGSC a development sandbox that allows for collaboration and is able to nurture and incubate development projects in the cloud until they are ready for deployment onto air force systems. We have examples of this use on many projects within the PIA.



Kyle Branch, Data Analytics Manager

Find out more about CE at cyberinnovationcenter.org/collaborative

Find out more about STRIKEWERX at strikewerx.com

