U.S. ARMY
SBIR|STTR

2023
YEAR IN REVIEW

U.S. ARMY

SMALL BUSINESS
IGNITING BIG INNOVATION

FROM THE DIRECTOR

Dr. Matt Willis

Director of Army Prize Competitions and Army Applied SBIR Program

Office of the Assistant Secretary of the Army for Acquisition, Logistics and Technology

This past year, America's Seed Fund adopted novel strategies to enhance the U.S. Army's innovation ecosystem. I am excited to share our progress, and how these initiatives shape and strengthen the nation's defense capabilities while preparing the Army for future conflicts.

Congress established the Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) Program to support growth within a core area of the nation's economic landscape — the small and nontraditional business sectors that account for 99.9% of all U.S. businesses.

To facilitate this growth, strengthen the nation's economic landscape and drive innovation across federal agencies, the Army SBIR|STTR Program accomplished several strategic initiatives during the 2023 calendar year, including the launch and execution of the Army SBIR CATALYST Program and xTechPrime; kicking off the Army Tech Marketplace; and joining forces with colleagues leading Project VISTA and the Army IP Cadre.

Project VISTA, an extension of the SBIR Commercialization Readiness Program, incentivizes integrators to assimilate SBIR|STTR technologies into Army programs. In that same vein, the Army SBIR CATALYST pilot and xTechPrime competition utilized funding as much as eight times the normal amount to spur collaboration between small businesses, technology integrators and Army customers.

Our achievements also extended beyond these evolutionary initiatives. With its October 2022 reauthorization of SBIR|STTR, Congress reaffirmed the importance of the programs and the necessity to increase diligence surrounding Foreign Ownership, Control or Influence (FOCI).

Together, we enhanced the value of the Army SBIR |STTR Program, and continued to lead and employ FOCI due diligence methodologies to safeguard our nation's technology capabilities and developments. These changes, combined with $354.5 million in small-business investments, have allowed us to modernize the Joint Force by improving the quality and quantity of Phase I and Phase II awards.

In addition, our efforts have fostered growth in the defense and commercial sectors, facilitating closer collaboration between industry and the Army's mission. This positive trend will continue into 2024 with the introduction of new initiatives, such as the continuation of Army SBIR CATALYST, which will further support academia and small business success.

As we continue to evolve the programs, our primary mission remains unchanged — to reduce the barrier to entry to collaborating with the Army, accelerate the development of transformative solutions and ensure we equip our Soldiers to overcome any challenge.

ABOUT THE ARMY
SBIR|STTR PROGRAM

Established under the Small Business Innovation Development Act of 1982, the U.S. Army SBIR|STTR Program helps sustain the Army's readiness and modernization by stimulating economic competition, growth, and productivity across government and commercial markets. The program accomplishes this by awarding more than $354.5 million annually to innovative small businesses capable of solving critical Army priorities and transforming concepts into equipment in the hands of Soldiers.

ARMY SBIR|STTR CONTRACT OPPORTUNITIES

PHASE I

Participating small businesses or academia must submit a short concept white paper highlighting the scientific, technical and commercial feasibility of their proposed solution.

- **Up to $250,000**
- **3-6 months**

PHASE II

This is a major research and development effort where small businesses or academia develop prototypes of their Phase I projects for testing and demonstration.

- **Up to $2 million***
- **18-24 months**

PHASE III

Funded by sources other than the SBIR|STTR Program, this phase marks the transition of technologies from previous SBIR|STTR funding agreements to Program Executive Offices, prime integrators or the organic industrial base.

*Army SBIR CATALYST offers awards up to $15 million total, comprising matching funds from the Army SBIR Program, Army transition partners and integrators.
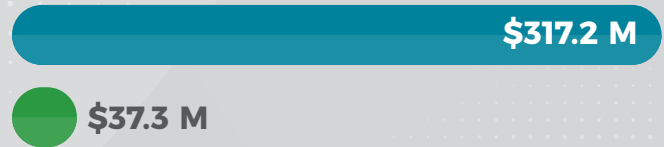
2023 BY THE NUMBERS

(The original version of this report contained an inverted number of $371.2 M.)

● Army SBIR
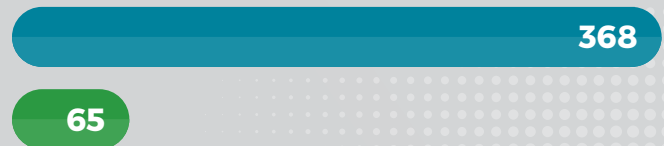● Army STTR

PARTICIPATING SMALL BUSINESSES

Army SBIR	209
Army STTR	59

TOTAL ARMY OBLIGATIONS

Army SBIR	$317.2 M
Army STTR	$37.3 M
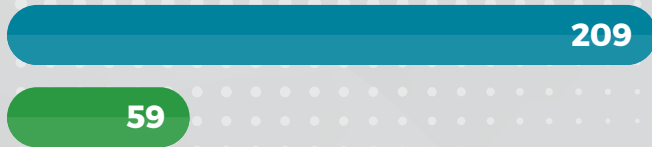
TOTAL SOLICITATIONS RELEASED

Army SBIR	27
Army STTR	24

TOTAL NEW CONTRACTS AWARDED

Army SBIR	368
Army STTR	65

ARMY SBIR NEW-START CONTRACTS

Contract	Total Obligated Amount	# Of New Contracts Awarded	# Of Firms Receiving Awards
Phase I	$31.6 million	188	91
Phase II	$262.5 million	180	146
Total	$294.1 million	368	237

ARMY STTR NEW-START CONTRACTS

Contract	Total Obligated Amount	# Of New Contracts Awarded	# Of Firms Receiving Awards
Phase I	0	0	0
Phase II	$37.3 million	65	59
Total	$37.3 million	65	59

ARMY NEW-START PHASE III CONTRACTS

Contract	Total Obligated Amount	New Contracts Awarded	# Of Firms Receiving Awards
Phase III	$95 million	59	39

> " The timely release of funds by the Army STTR Program enabled us to make rapid progress. By swiftly receiving the funding, we could direct our focus and resources toward science itself — accelerating our research and development activities. This streamlined process was essential in driving our success and achieving meaningful milestones. "
>
> — *MelaTech*

OUR 2023 ACCOMPLISHMENTS

Throughout 2023, the Army SBIR|STTR Program identified advanced technology domains where Army needs intersected with innovative private sector expertise. To transform concepts into Soldier-ready equipment, the program implemented a transition-focused acquisition strategy to support industry partners and address Army program goals.

RAPID CONTRACTING

The Office of the Assistant Secretary of the Army for Acquisition, Logistics and Technology-led Army SBIR Contracting Center of Excellence injected innovation into the Army SBIR|STTR Program by awarding, administering and positioning all Army SBIR Phase I and Phase II contracting resources under one centralized office.

In the government FY23, the Army SBIR CCoE awarded 313 contract actions and obligated a total of nearly $242 million — marking an increase of **153% and 164%**, respectively, compared to government FY22. The SBIR CCoE also increased its flexibility and timeliness by cutting the average contract action time to 21 days for Phase I contracts and 32 days for Phase II contracts — highlighting an improvement of **34% and 6%**, respectively, from government FY22.

ARMY SBIR|STTR TRANSITION AND PROGRAM HIGHLIGHTS

▶ Submitted by Program Executive Office Intelligence, Electronic Warfare and Sensors (PEO IEW&S), project "Interconnected Networks and Dense Urban Resilience-A19-012" — which enables decision makers to accurately forecast the impact of various actions leading to rapid shifts in urban resilience or population sentiment — transitioned to the U.S. Military Academy. Meanwhile, the U.S. Army Training and Doctrine Command (TRADOC G-2) expressed an interest in investing in the technology and applying it to a concept Army training system via $400,000-$500,000 in potential funding across FY24 and FY25.

▶ Proposed by DEVCOM Command, Control, Communications, Computers, Cyber, Intelligence, Surveillance and Reconnaissance (C5ISR) Center, the project "Carbon Free Soldier Power Generator-A224-020" resulted in two Army SBIR Phase II contracts valued at $1.8 million each to develop Soldier Wearable Power Generation technologies, which are 30%-40% lighter, for Army transition partner PEO Soldier Project Manager Soldier Warrior.

"In a recent valuation, our companies' accounting and recordkeeping practices shocked others, as we were head and shoulders above companies in a similar stage as ours. Our maturity in this area began with leveraging the Army TABA programs, which we used to complete an SF1408 audit and close the gaps identified in the audit. "

— Bryton Praslicka, Ph.D.,
Founder and CEO of FluxWorks

▶ In coordination with the U.S. Army Corps of Engineers (USACE) Civil Works, and as part of the "Detection and Classification of Small Moving Objects Floating in Water-A20-060" project, SubUAS LLC will develop an unmanned aerial vehicle equipped with sensors capable of identifying and geographically locating small, floating and submerged objects in 2024.

▶ Company NanoSonic made considerable progress on its "Non-Intrusive Pressure Measurement in Gun Tubes-A20-029" project, where it is making a non-intrusive remote sensor technology for measuring the peak and dynamic pressure differentials inside large caliber gun tubes without the need for drilling and other modifications.

▶ For the "Diver Performance Monitoring System (DPMS)-A234-004" project, the Army SBIR Program and Army Applications Laboratory (AAL) secured a Small Business Administration (SBA) waiver — enabling the program to offer Phase II selectees $6.5 million total in funding to address underwater safety risks during the Combat Diver Qualification Course at the John F. Kennedy Special Warfare Center and School. While the Army already implements stringent safety measures for training, it aimed to enhance existing measures by investing in technologies that can accurately monitor student biomarkers to determine when to alert nearby instructors. Current Phase II selectees are developing prototypes capable of determining risk thresholds based on vital sign monitoring such as heart rate, heart rate variability, blood oxygen saturation and skin temperature.

▶ In September 2023, DEVCOM Army Research Laboratory awarded an Army STTR Phase III contract to VRC Metal Systems based on their research performed during Phase I and Phase II efforts with the USACE Engineering, Research and Development Center (ERDC). The research awarded through ERDC developed methods and instrumentation for in situ additive manufacturing to repair and retrofit infrastructure such as railways and bridges. DEVCOM ARL awarded the Phase III contract to further develop that research into new methods for other Army end items.

ACCELERATOR AND TECHNICAL AND BUSINESS ASSISTANCE SUPPORT

Accelerator

The Army SBIR|STTR Program made it easier for small businesses to collaborate with the Army by providing tools to mature and transition their technologies to Soldiers in the field. As a benefit — and at no additional cost to selectees — the Army SBIR Accelerator provided business development, education models, targeted networking and mentorship to firms navigating the Army acquisition process.

In 2023, the Army SBIR Accelerator supported 27 Phase I and 34 Phase II companies across four cohorts. Each cohort hosted eight educational webinars; 12 Army and other Defense Industrial Base (DIB) subject matter experts as guest speakers, presenters and panelists; and facilitated pitch events for each cohort, to provide exposure and partnering opportunities with defense integrators. Through the DIB participation, integrators and SBIR awardees formed connections for future partnering opportunities. As a result, Army SBIR saw a 17% increase in overall participation from the previous year and a 30% rise in Phase II Accelerator participants.

TABA

Complementing the Army SBIR Accelerator, the Army SBIR Program provided nearly $600,000 in Technical and Business Assistance (TABA) to its selectees. Through TABA, firms received free information and assistance to drive faster technology transitions. Throughout the year, TABA supported 28 SBIR Phase I companies and nine SBIR Phase II companies, with 52 services delivered. These included market research reports, pitch deck reviews and commercialization strategy reviews.

OPEN-TOPIC SOLICITATIONS

Artificial Intelligence and Machine Learning

▶ The Army SBIR Program finalized contracting for its government FY22 artificial intelligence and machine learning open topic, through which the program awarded 39 small businesses nearly $5.6 million in Phase I SBIR contracts.

▶ The Army held a topic solicitation for the Army Tech Marketplace strategic initiative announced in 2022. The program surfaced potential solutions from six small businesses and awarded over $1 million total via Phase I SBIR contracts. These businesses are leveraging artificial intelligence and data fusion to develop an online portal and IT platform with internal and external functions to improve information sharing and contract opportunities.

▶ The Army Tech Marketplace will increase the speed of innovation by using information on technology research, development and resource opportunities across the Army enterprise. The portal will also support the Soldier by facilitating greater transition of innovative technologies, while mutually benefiting Army offices, labs and acquisitions.

Autonomy

▶ xTechSBIR Autonomy was an open-topic prize competition focused on autonomy, with the addition of several key problem statements that were of interest to the Army such as remote command, 360-degree situational awareness, target detection, and identification and sensor functionality.

▶ Through the competition, U.S.-based small businesses pitched novel technology solutions to earn prize money, received direct exposure to Army and DoD stakeholders, and submitted proposals for Phase I and Direct to Phase II SBIR contracts.

▶ The competition awarded $400,000 total in cash prizes, and winning companies submitted proposals for Army SBIR Phase I contracts worth nearly $250,000 each and Phase II contracts valued at nearly $1.9 million each — resulting in $14.2 million in total contract funding.

Clean Technologies

▶ The Army SBIR Program awarded over $11.5 million to 15 small businesses via Phase I and Direct to Phase II contracts for its Sustainable Building Materials open-topic solicitation, which will help the U.S. Army meet the goals of the DoD Climate Adaptation Plan and the Army Climate Strategy via environmentally friendly construction technologies.

Immersive and Wearables

▶ The Army SBIR Program awarded 24 small businesses over $35 million in Phase I and Phase II SBIR contracts for its Physiological Monitoring open topic, a solicitation seeking a wearable device that senses, collects, and monitors real-time physiological data to assess aspects of Soldier operational health and readiness. This includes human performance, cognitive resilience, illness prediction, disease detection, and behavioral health across all training and operational environments.

EVENTS AND CONFERENCES

To better reach and educate small businesses on how to work with the Army, the Army SBIR|STTR program actively participated in numerous industry panels, expos and other events. Through these efforts, the program enhanced collaboration between the Army, industry and academia — while gaining insight from industry on their unique challenges and capabilities.

South by Southwest Conference

▶ The Army SBIR Program participated in the SXSW 2023 Technology and Innovation Conference, where attendees from around the globe traveled to Austin, Texas, to share and discuss novel topics, technologies, ideas and strategies.

▶ As a panelist at SXSW programming, Dr. Matt Willis, director of Army Prize Competitions and Army Applied SBIR Program, discussed how small businesses can participate in different innovation programs to leverage more than $4 billion in annual federal funding.

▶ Alongside Dr. Willis, the panel featured COL Elliott Leigh of AFWERX, Bob Smith of the Navy SBIR/STTR Program and COL Paul Weizer of SOF Digital Applications — informing small businesses and investors new to working with the government and SBIR about the different innovation strategies from across the DoD.

Fed Supernova

▶ The ASA(ALT) Office of Army Prize Competitions and Army Applied SBIR Program were marquee participants in the Fed Supernova 2023 conference in Austin, Texas, Aug. 22-24, showcasing the program's thought leadership and brand recognition through the Startup Crawl, a panel on the FSN mainstage, a private roundtable with venture capital providers and xTech's first Collider event — part of the xTechPrime competition, which culminates with follow-on Army SBIR awards for competition winners.

▶ More than 300 attendees visited the xTech and Army SBIR resource table during the startup crawl that kicked off FSN programming; program leadership spoke on a mainstage panel on Robotics and Ground Combat also featuring Defense Innovation Unit, Army Futures Command and Aslyon; and a standing-room-only fireside chat with program leadership focused on Army innovation with nontraditionals and small businesses.

▶ The xTech Collider event featured exhibitions by xTechPrime semi-finalists, an advisory panel on best practices for teaming and one-on-one mentoring sessions focused on cultivating impactful relationships. As companies progressed through the competition, winners ultimately had the opportunity to submit their proposals for Army SBIR Direct to Phase II contracts up to $1.9 million each.

Association of the United States Army 2023 Annual Meeting and Exposition

▶ The ASA(ALT) Office of Army Prize Competitions and Army Applied SBIR Program hosted the Innovator's Corner at the AUSA 2023 Annual Meeting and Exposition at the Walter E. Washington Convention Center in Washington, D.C., Oct. 9-11.

▶ The event drew more than 41,000 people over three days and consisted of members from all components of the DoD, civilians, contractors and industry.

▶ The Innovator's Corner featured 15 company finalists from xTech competitions, including xTechSearch 7, xTechPacific and xTechInternational — as well as the five Army SBIR CATALYST pilot program selectees that each shared their science and technology innovations with Army and DoD stakeholders, civilians, and industry leaders.

▶ Seven of the featured xTech finalists were winners from xTechSearch 7 and xTechPacific, competitions that provided winners the opportunity to apply for Phase I and Direct to Phase II Army SBIR contracts; the five xTechSearch 7 winners were selected as recipients of Phase I Army SBIR contracts, and one xTechPacific winner was selected to receive a Direct to Phase II Army SBIR contract.

Regional Events and Outreach

▶ The Pacific Operational Science and Technology (POST) Conference 2023, an annual conference hosted by the National Defense Industrial Association in Honolulu, Hawaii, provided a chance for Dr. Matt Willis, director of Army Prize Competitions and Army Applied SBIR Program, to speak with companies within and focused on the Indo-Pacific region about their unique challenges — and to highlight the launch of the xTechPacific competition, which offered businesses both non-dilutive prize money and Phase I SBIR contract opportunities.

▶ The Senator Ernst Entrepreneur Expo at Iowa State University in Ames, Iowa, was a first-time event hosted by Sen. Joni Ernst, the ranking member of the U.S. Senate Small Business & Entrepreneurship Committee and member of the Senate Armed Services Committee. The event allowed program leadership to meet with Sen. Ernst about the importance of small businesses in national security and interact with 50 small businesses that were previously unaware of DoD SBIR programs.

▶ Throughout the year, the Army SBIR|STTR Program participated in panels and presentations for APEX Accelerators — organizations based throughout the country to expand the reach of the program and inform nontraditionals, small businesses, and academia of the program's contract and funding opportunities.

" One of the greatest opportunities within this accelerator was networking with other companies. This alone is my primary reason for recommending it to another participant. ...I have already begun collaborating with several companies from [our cohort], both for current technology and potential future SBIR opportunities. **"**

— Willowview Consulting

STRATEGIC INITIATIVES

THE ARMY SBIR CATALYST PROGRAM

▶ In September 2023, the Army SBIR CCoE awarded five companies the first Army SBIR CATALYST contracts. The Army SBIR CATALYST Program is an effort originally announced by the Under Secretary of the Army, Hon. Gabe Camarillo — alongside the Army Tech Marketplace, IP Cadre, Project VISTA and xTechPrime competition — to incentivize partnerships between the Army and industry.

▶ The Army SBIR CATALYST Program provides selected firms nearly $15 million each to develop, mature, deploy and transition technology prototypes under the Army SBIR Program. The following companies received awards as part of the program:

- ANDRO Computational Solutions, LLC, "DeepSPEC: Artificial Intelligence-Powdered Blind Signal Detector and Classifier"

  ▪ Technology Ecosystem: Artificial Intelligence and Machine Learning

  ▪ Potential Transition Partner: PEO Intelligence, Electronic Warfare and Sensors (PL Tactical Space Superiority)

- Compound Eye Inc., "VIDAS-SLAM: Undetectable, GPS Denied Mapping and Positioning"

  ▪ Technology Ecosystem: Autonomy

  ▪ Potential Transition Partner: PEO Ground Combat Systems

- EM Photonics Inc., "Image Analysis Approach for Wind Management"

  ▪ Technology Ecosystem: Sensors

  ▪ Potential Transition Partner: PEO Soldier (Individual Weapons)

- R-Dex Systems, Inc., "Blue Jay: Strengthening SIGINT Classifiers and Identifying Adversarial Attacks"

  ▪ Technology Ecosystem: Immersive and Wearables

  ▪ Potential Transition Partner: PEO IEW&S (PD Sensors-Aerial Intelligence)

- Solvus Global LLC, "Repair & Restoration of Gun Tubes"

  - Technology Ecosystem: Contested Logistics and Sustainment

  - Potential Transition Partner: DEVCOM Armaments Center, DEVCOM Army Research Laboratory, and PEO Ground Combat Systems (PM Main Battle Tank Systems)

▶ At the October 2023 AUSA Annual Meeting and Exposition, the director of Army Prize Competitions and Army Applied SBIR Program, Dr. Matt Willis, announced that the Army SBIR CATALYST Program will expand on the pilot, broadening eligibility to firms that previously received SBIR or STTR contracts from any federal agency, maximizing the coordination and transition between small businesses, technology integrators and federal stakeholders via $75 million in total funding.

xTECHPRIME

▶ As one of Hon. Camarillo's initiatives, the Office of the ASA(ALT) launched xTechPrime in April 2023 to empower small businesses and technology integrators to partner as teams to accelerate the transition of novel and often overlooked ideas. The competition sought to leverage the speed and creativity of nontraditional firms and couple them with the resources and expertise of large integrators to drive technological growth across industry and the Army through nearly $1 million in cash prizes and $28.5 million in follow-on Direct to Phase II Army SBIR contracts. The following companies were announced in December 2023 as the xTechPrime winners:

- Alitheon Inc., "Digital Fingerprinting to Overcome Distance and Complexity for Supply Chain Security"

  - Technology ecosystem: Artificial Intelligence and Machine Learning

  - Technology integrator: GXM Consulting, LLC

- Amprius Technologies, Inc., "Reduce Weight, Double Endurance with Amprius Silicon Lithium-Ion Cells"

  - Technology ecosystem: Autonomy

  - Technology integrator: AeroVironment, Inc.

" Over the course of evaluating xTech and SBIR proposals, we remained impressed by the breadth and range of solutions provided by the small business community. Both the [xTechSBIR Clean Tech competition] and other competitions have brought some impressive technology, like clothing that can detect wearer injuries and treat wounds — to regenerating a fuel cell catalyst without removing the system. As the technologies and requirements develop in the electrification space, we anticipate significant development across all the Army's systems for Soldier power, ground vehicles, aircrafts and anywhere in between. "

— *Benjamin Paczkowski, U.S. Army Combat Capabilities Development Command Ground Vehicle Systems Center (DEVCOM GVSC)*

- ATOMICS, Inc., "Sustainable Molecular Data Storage"

  - Technology ecosystem: Climate and Clean Tech

  - Technology integrator: Battelle

- AxNano LLC, "Mobile Supercritical Water Oxidation (mSCWO) for Treatment of PFAS in Army Waste Streams"

  - Technology ecosystem: Climate and Clean Tech

  - Technology integrator: Geosyntec

- DotBliss, LLC, "Screen-printed, textile-based interactive touch displays with spectral control, electronic sensors with haptic feedback enabling covert communication"

  - Technology ecosystem: Immersive (Augmented Reality/Virtual Reality)

  - Technology integrator: Paragon Robotics, LLC

- Enveil, Inc., "Encrypted Machine Learning Model Evaluation for Model & Data Integrity"

  - Technology ecosystem: Project Linchpin

  - Technology integrator: RTX Corporation

- FluxWorks LLC, "Non-Contact, Lubrication-Free Magnetic Gear Integrated Motor Generator for Reduced Maintenance, Increased Survivability, Extended Range, and Enhanced Payload Capacity of Autonomous Vehicles"

  - Technology ecosystem: Small Multipurpose Equipment Transport, Increment II

  - Technology integrator: BAE Systems

- GDI, "Scalable 100% Silicon Anodes for Superior Energy Storage"

  - Technology ecosystem: Climate and Clean Tech

  - Technology integrator: Navitas Systems

- Latent AI, "MLOps for Optimized and Secured Edge AI"

  - Technology ecosystem: Project Linchpin

  - Technology integrator: Booz Allen Hamilton

- Lunewave Inc., "Luneburg lens enabled broadband RF signal detection, direction finding and geolocation system in a drone network"

  - Technology ecosystem: Sensors

  - Technology integrator: EpiSci

- Mesodyne Inc., "LightCell Power Generation for Long-Endurance, High-Reliability Autonomous Systems"

  - Technology ecosystem: Autonomy

  - Technology integrator: RTX Corporation

- ModalAI, Inc., "Soldier Borne Unmanned Aerial 3D Geospatial Intelligence"

  - Technology ecosystem: Sensors

  - Technology integrator: Booz Allen Hamilton

- Neurable, Inc., "Non-invasive Brain-Computer Interface (BCI) for Soldier Performance Optimization"

  - Technology ecosystem: Artificial Intelligence and Machine Learning

  - Technology integrator: Gentex Corp.

- Notch Inc., "No Power, low SWaP, RF metasurface GPS anti-jam system for Autonomous Vehicles"

  - Technology ecosystem: Autonomy

  - Technology integrator: Anduril Industries

- TERADAR, Inc., "Enhancing Target Detection through TeraDAR's breakthrough Sensor Technology for Advanced Perception"

  - Technology ecosystem: Sensors

  - Technology integrator: Lockheed Martin

▶ The Army evaluated 25 proposed projects to Accelerate the Procurement and Fielding of Innovative Technologies (APFIT) funding. This is a merit-based and competitive program that provides between $10 million and $50 million of procurement funding targeted at supporting small businesses and nontraditional defense contractors. The funding also enables the transition of technologies to overcome the "valley of death." The Under Secretary of Defense for Research and Engineering will select the top APFIT projects for funding in early 2024.

▶ In 2023, the Army SBIR Program published its Innovation Framework, the innovation model underpinning the Army SBIR|STTR Program by providing state-of-play information regarding the infrastructure of the innovation economy and its participants, as well as context about the Army's role in facilitating technological innovation.

> " The Army SBIR|STTR Program not only provided us a funding vehicle to de-risk and transition our technology, but the program staff continue to create excellent, educational content on Phase IIIs, and have always been present to quickly answer our, or our technical point of contact's, questions, to help us contract the next step. "
>
> — *Bryton Praslicka, Ph.D.,*
> *Founder and CEO of FluxWorks*

ARMY SBIR TECH SCOUTING TRENDS

ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

- ▶ The AI/ML portfolio generated 96 awards during 2023, resulting in $67.25 million in funding.

- ▶ Throughout 2023, AI/ML rapidly gained traction in commercial sectors while also showing potential for greater integration into Army operations.

- ▶ Automated detection and prevention, as well as process automation, remained the largest areas of interest for the year.

- ▶ Current projections suggest that Computer Vision, Explainable AI, Natural Language Processing (NLP), Predictive Behavior Solutions and Scalable AI will see increased interest from Army stakeholders in 2024.

AUTONOMY

- ▶ The Autonomy portfolio generated 31 awards during 2023, resulting in $30.25 million in funding.

- ▶ Data management, data validation and synthetic data generation are key drivers of the Autonomous market, with companies across the sector forming partnerships with Unmanned Autonomous Vehicle (UAV) providers to reduce the barrier to deploying Army-ready autonomous equipment.

- ▶ Army customers sought solutions in Data Curation, Passive Perception, Unmanned Aerial Vehicles, Light Detection, and Ranging and Alternatives.

- ▶ Market trends suggest cybersecurity for autonomous vehicles will see increased interest throughout the industry, with the Ukraine-Russia conflicting emphasizing the importance of deploying robust cybersecurity in autonomous software and vehicle systems.

CLIMATE AND CLEAN TECHNOLOGIES

▶ The Climate and Clean Technologies portfolio generated 60 awards in 2023, resulting in $76.65 million in funding.

▶ In support of the Army Climate Strategy, clean energy generation, clean industry technologies and energy storage were among the most prevalent investment areas, with hydrogen fuels and fuel cells at the forefront of the emerging clean technology space.

▶ Forecasts suggest 45% of the portfolio's awards will prioritize clean energy generation in government FY24, with an increased interest in hybrid powertrains and mobile energy storage solutions.

CONTESTED LOGISTICS AND SUSTAINMENT

▶ The Contested Logistics and Sustainment portfolio provided small businesses with $3.3 million in funding in 2023.

▶ The Army SBIR Program launched the Contested Logistics and Sustainment portfolio to help sustain military operations in environments where adversaries are actively seeking to disrupt or degrade military logistics and supply chains.

▶ To combat these evolving conditions, the portfolio focused on demand reduction, assured resupply, logistics system defense, information advantages, internet of things and sensing, supply chains, communications, predictive logistics and maintenance, and Soldier training efficiency and retention.

▶ As the Contested Logistics and Sustainment portfolio further grows, it will prioritize technologies in sectors such as Modeling and Simulation, Satellite Communications, Free Space Optical Communications, Supply Chains, Internet of Things, Sensors, Digital Twins and Electronic Warfare.

IMMERSIVE AND WEARABLES

▶ The Immersive and Wearables portfolio generated 57 awards in 2023, resulting in $47.5 million in funding.

▶ The Immersive and Wearables market shifted towards software and low-code opportunities, with the U.S. defense technology space showing a notable interest in software solutions ranging from robust interoperability with AI/ML, low-code no-code (LCNC) and AI-enabled AR/VR technologies, and Immersive and Wearable hardware companies offering AI/ML solutions.

▶ Conversely, the global market, and near-peer rivals such as China, remained focused on Immersive and Wearables solutions such as micro-electronics, semiconductors and bandwidth technologies for edge capabilities.

▶ The Army anticipates an increased interest in augmented reality for training efficiency and persistent situational awareness in 2024.

▶ Additionally, environmental threat sensors, and chemical, biological and radiation wearables are likely to see a rise in usage for early threat detection and warning.

SENSORS

▶ The sensors portfolio generated 25 awards in 2023, resulting in $30.38 million in funding.

▶ The Army invested in and integrated sensor technologies, with a focus on Soldier lethality, long-range precision fires, and synthetic training environments to monitor Soldiers and threats; reduce Size, Weight and Power; and enhance Soldier training.

▶ The Sensors market shifted its focus to processing hardware that can embed AI/ML on sensors to pre-process data before transmission, with popular commercial uses such as the Internet of Things (IoT), navigation, healthcare, fitness, autonomous driving, and oil and gas.

▶ While quantum sensors are in the preliminary stages of development, the technology continued to see advancements, with the World Economic Forum noting that 17 nations spent an estimated $30 billion on quantum computing, communications, cryptography and sensing in 2023.

▶ Current forecasts suggest the Sensors market could grow from $116.72 billion in 2023 to $165.47 billion in 2028, indicating a compound annual growth rate of 7.23%.

▶ The emergence of automation may augment the demand for sensors, as they play a key role in detecting, analyzing, and measuring, and process several transformations such as alteration in position, length, height, exterior and dislocation in industrial manufacturing sites.

THANK YOU

Thanks to the talented people connecting the Army with small businesses, 2023 was yet another big year for the Army SBIR|STTR Program. The program appreciates your contribution to driving innovation, and we look forward to your continued success in 2024.

The Army must modernize the Joint Force. To achieve this goal, the Army requires the support of industry, which often brings leap-ahead capabilities through their investments in research and development.

The DoD recognizes the vital role small businesses play in transforming concepts into equipment in the hands of Soldiers — not only for the Army but across a variety of federal agencies. These firms often contribute transformative ideas that fuel the development of novel and innovative military applications, aligning with the DoD's National Defense Strategy.

To enhance collaboration between the Army and small businesses, the Army SBIR|STTR Program will continue to expand the Army SBIR CATALYST and APFIT programs, in addition to its core investments in important technology ecosystems. These efforts will encourage closer coordination with industry, while also improving transition and commercialization outcomes.

Additionally, the Army SBIR|STTR Program will develop a greater number of open topics while capitalizing on opportunities within the Army xTech Program — the Army's prize competition that offers academia, small businesses and nontraditional firms opportunities to earn non-dilutive prize money, exposure to Army customers and subject matter experts, and a chance to submit for an Army SBIR contract.

The Army SBIR Contracting Center of Excellence will continue to streamline proposal requirements and reduce time to capital. This rapid contracting strategy will enhance the Army SBIR|STTR Program's efforts by ensuring small businesses' commercial success and Army partnerships are not mutually exclusive.

Combined, the Army SBIR|STTR Program's strategic initiatives underscore the Army's continued commitment to addressing modernization and sustainment priorities. The program will coordinate with Army stakeholders and independent technology scouts to discover and invest in solutions capable of transitioning to Soldier use.

Furthermore, the program will continue to evolve and support the development of innovative technologies by reducing the barriers to entry. As the Army SBIR|STTR Program grows, we will implement smart investment strategies that involve Army customers, small businesses and other industry partners — enhancing the national economic landscape while broadening Army capabilities in the process.

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