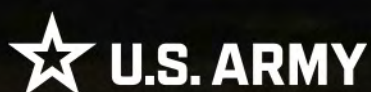




U.S. Army Small Business
Innovation Research and
Small Business Technology
Transfer (SBIR|STTR)

2024

YEAR IN REVIEW



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MISSION

The Army SBIR|STTR Program connects small businesses and their breakthrough technologies with vital Army programs that drive readiness and accelerate modernization—ensuring the Army remains the most lethal combat force in history.

&

VISION

The Army SBIR|STTR Program provides small businesses the opportunity to propose innovative research and development solutions that address critical Army needs.

LETTER FROM THE DIRECTOR



Dear Readers,

I am thrilled to share our remarkable accomplishments this past year through America's Seed Fund. We provided funding opportunities through the Small Business Innovation Research (SBIR) CATALYST Program to help small businesses overcome the "Valley of Death," launched initiatives to incentivize partnerships with prime contractors, and made strategic investments to support the Army's artificial intelligence (AI) strategy. These efforts significantly strengthened our nation's defense capabilities and prepared the Army for future conflicts.

Congress established the SBIR and Small Business Technology Transfer (STTR) Program to drive growth in the small and nontraditional business sectors, which account for 99.9% of all U.S. businesses. This program stimulates technological innovation and ensures small businesses contribute to federal research and development (R&D) needs.

To support this growth, the Army SBIR CATALYST Program accelerated innovation by fostering partnerships between the U.S. Army, small businesses, and integrators. This collaboration propelled small business technologies toward commercialization. Similarly, xTechPrime leveraged the xTech Program's competition model to promote coordination between small businesses and prime defense contractors, awarded cash prizes, and provided additional funding opportunities. xTechScalable AI advanced key technology areas like artificial intelligence by building on this model.

Our initiatives, combined with Fiscal Year 2024's \$387.7 million in small business investments, provided pathways to integrate and scale novel innovations within the Army. These efforts fostered growth in the defense and commercial sectors and strengthened collaboration between industry and the Army's mission.

This positive trend will continue into 2025. We will offer new small business funding opportunities and competitions to address Army capability gaps, promote academic coordination, and support small business success. Moving forward, we will uphold our primary mission to reduce the barriers to entry for collaboration with the Army, accelerate the development of transformative solutions, and support innovators who turn concepts into equipment for our Soldiers.

Sincerely,

A handwritten signature in black ink, appearing to read "Matthew Willis".

Dr. Matthew Willis

Director of Army Innovation Programs

ABOUT SBIR|STTR

The U.S. Army SBIR|STTR Program, created under the Small Business Innovation Development Act of 1982, actively supports the Army's readiness and modernization. The program maintains the Army's technological edge by investing in initiatives that drive economic competition, growth, and productivity across government and commercial markets.

In FY24, the program awarded \$387.7 million to 309 innovative small businesses to address critical Army priorities and convert groundbreaking concepts into practical equipment for Soldiers.

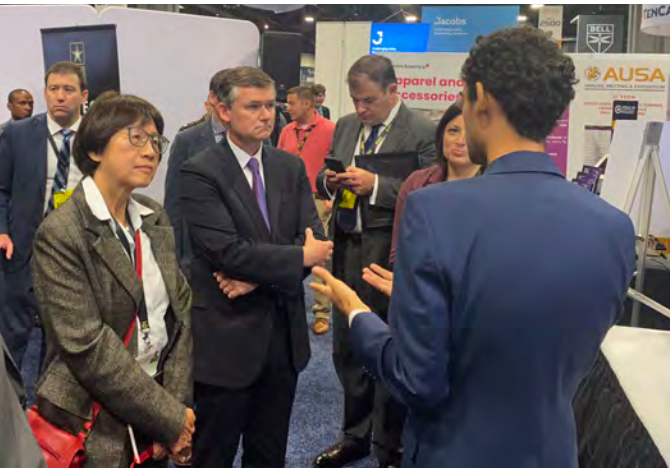
PROGRAM EVOLUTION

For 40 years, the Army SBIR|STTR Program has leveraged innovative small business technologies to support Army goals and address emerging global threats. In October 2020, the Office of the Assistant Secretary of the Army for Acquisition, Logistics, and Technology (ASA(ALT)) revamped the program and streamlined the integration of emerging solutions from small businesses into Army acquisition programs.

This reimagined approach adapts more effectively to the needs of innovators and Army acquisition and sustainment programs, actively managing portfolio risk, maximizing effectiveness, and accelerating technology transition. Key program features make it easier for small businesses to engage with experts, address the Army's technological needs, and work efficiently within the Army R&D ecosystem.

On August 1, 2024, the Army issued the first Army regulation for the Army SBIR|STTR Program, Army Regulation 70-79, which merged the Army SBIR and STTR programs within the Office of the ASA(ALT).

These new operational guidelines will enhance the role of innovative small businesses in federally funded R&D by centralizing and streamlining the contracting process under



Hon. Heidi Shyu, former Under Secretary of Defense for Research and Engineering (left), and Hon. Douglas Bush, former Assistant Secretary of the Army for Acquisition, Logistics and Technology (right), speak with Dr. Austin Murdock, CEO of SixMap, Inc., an xTechSearch 6 winner and SBIR awardee, at the xTech Innovator's Corner during the 2022 Association of the United States Annual Meeting and Exposition. (U.S. Army)

a single office for all SBIR and STTR awards beginning in FY25. Additionally, the guidelines prioritize technology adoption by integrating transition planning at the outset of execution and expansion of the program across all Army elements including science and technology organizations, acquisition offices, and the operational Force.

This consolidation marks a significant step in supporting and encouraging small business participation in Army-funded opportunities. It expands SBIR|STTR participation opportunities to all Army elements, ensuring broader access to innovation-driven funding and fostering collaboration across diverse mission areas. By accelerating dual-use applications, it benefits both the Army and small businesses by providing quicker access to R&D capital, offering active support during contract performance, and improving the probability of successful transition and commercialization.

ABOUT SBIR|STTR

HOW IT WORKS

The Army SBIR|STTR Program provides eligible small businesses with the resources and support they need to succeed. The program enables small businesses to develop and integrate their solutions into the Army's operations, effectively maintaining its technological edge and readiness through several key features:

- **AGILE AWARD STRUCTURE**
The program tailors funding based on customer needs and technology maturity.
- **CENTRALIZED CONTRACTING**
The Army SBIR|STTR Contracting Center of Excellence (CCoE) streamlines Phase I and II awards, reducing processing time and enhancing service.
- **DUE DILIGENCE AND SECURITY**
The program helps small businesses mitigate risks from foreign ownership, control, and influence.
- **TECHNICAL AND BUSINESS ASSISTANCE (TABA)**
The program provides free technical and business support to participating small businesses.
- **PORTFOLIO MANAGEMENT**
The program strategically manages projects, aligning Army priorities with commercially advancing technologies to maximize transition potential and partnerships.
- **TRANSITION BROKER TEAMS**
Each project receives expert guidance to support technology maturation, ensure Army alignment, and accelerate transition.



AGILE AWARD STRUCTURE

The Army SBIR|STTR Program releases new solicitations on the first Wednesday of every month, providing consistent opportunities for industry to respond to emerging Army needs as they arise. The program provides agile funding opportunities based on customer needs and the market maturity of technology solutions. These include:

SBIR STTR Funding Opportunities		
ENTRY POINT	FUNDING	PURPOSE
SBIR or STTR Phase I	Up to \$250,000, up to 6 months	Feasibility Study
SBIR Direct to Phase II	Up to \$2M, 12-24 months	Development & Demonstration of Prototype
SBIR CATALYST	Up to \$15M with matching funds from Army customer and integrator, 36 months	Scaling and Integration for Transition

PHASE I: FEASIBILITY STUDY

Participating small businesses propose short feasibility studies to support the investigation of innovative technologies and demonstrate their Army impact and commercialization potential.

PHASE II & DIRECT TO PHASE II: PROTOTYPE DEVELOPMENT

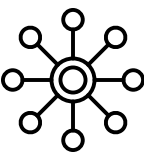
Small businesses successfully proving concepts in Phase I propose research efforts to develop well-defined prototypes for test and evaluation. When technologies are sufficiently mature for prototype development, the program releases solicitations offering Direct to Phase II contract awards (SBIR only). Direct to Phase II awards enable small businesses to demonstrate feasibility and apply directly for Phase II prototype development. Direct to Phase II awards are only available for SBIR projects.

PHASE III: TRANSITION

Funded by sources outside the Army SBIR|STTR Program, Phase III transition awards enable prior Phase I or Phase II awardees to build upon, expand, or complete efforts initiated under earlier SBIR|STTR contracts without requiring further competition. These awards focus on commercializing or operationalizing technologies through products, production, services, and R&D, with no limits on their number, duration, type, or dollar value. The competition for SBIR|STTR Phase I and Phase II awards fulfills any requirements of the Competition in Contracting Act for Phase III awards.

ARMY SBIR CATALYST

The Army SBIR CATALYST Program facilitates the scaling and integration of small business technologies into Army systems by incentivizing Army program managers, integrators, and small businesses. It uses matching capital from Army transition partners and third-party technology integrators to drive SBIR contracts with a potential total value of \$15 million or more, effectively addressing scaling and integration challenges.



CENTRALIZED CONTRACTING

Established in 2021, the Army SBIR|STTR CCoE centralizes the award, administration and closeout of all Phase I and Phase II contracts, streamlining execution across the program. In FY24, the CCoE executed 366 contract actions totaling more than \$313 million—representing 80% of all Army SBIR|STTR awards and aiming for full execution in FY25.

Since its inception, the center has accelerated timelines by 42%, with average turnaround times of 77 days for Phase I selection to award, 24 days for Phase I execution, 91 days for Phase II selection to award and 33 days for Phase II execution. Through faster awards, stronger acquisition support and improved customer service, the CCoE enhances how the Army engages small businesses and delivers innovation.

DUE DILIGENCE AND SECURITY

The Army SBIR|STTR Program safeguards Army customers and small businesses by assessing security risks and mitigating potential foreign threats that could harm U.S. companies and their innovations. It conducts thorough Foreign Ownership, Control, and Influence (FOCI) Due Diligence reviews of all proposals to reduce the risk of adversarial foreign influence. These reviews protect companies and technologies from unwanted technology transfer, exploitation by foreign threat actors, and potential loss or denial of U.S. government funding or contracts.

In FY24, the DoD SBIR|STTR Due Diligence Program reviewed over 3,400 proposals from small businesses in support of Army and other Defense agency SBIR|STTR programs. It conducted comprehensive risk assessments, ensuring proposals met security requirements while safeguarding the integrity of critical technologies.

TECHNICAL AND BUSINESS ASSISTANCE

TABA Program funding allows small businesses to contract with vendors for essential services, including product development, market research, intellectual property protection, regulatory planning, commercialization planning, product marketing, and Army transition support. In FY24, TABA advanced the commercialization of Army SBIR|STTR-funded technologies by connecting businesses with scientists, engineers, technologists, and various market resources. Army SBIR and STTR selectees accessed these services at no additional cost, with Phase I projects receiving up to \$6,500 and Phase II projects up to \$50,000 of TABA support.

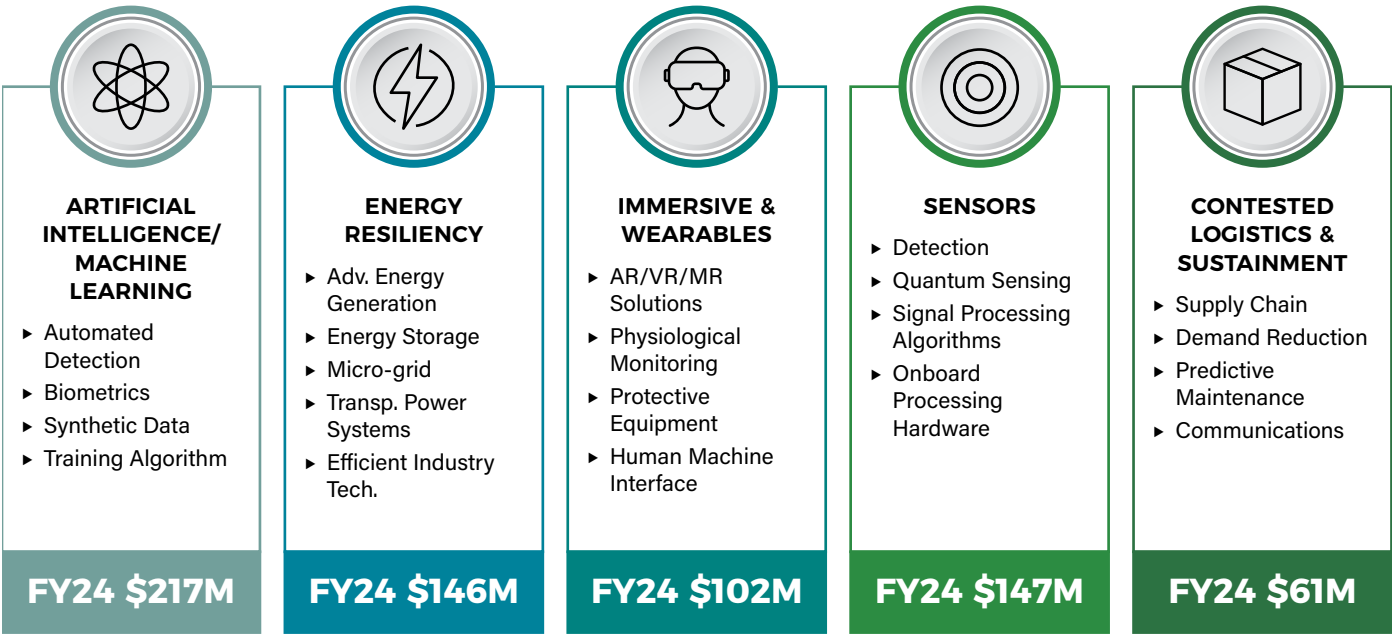
PHASE I TABA ENGAGEMENTS-Total value of \$383K			
2 Pitch Deck Reviews	57 Commercialization Strategy Reviews	3 Live Workshop Events with Nicole Fox	59 Total Phase I Awards
PHASE II TABA ENGAGEMENTS-Total value of \$2.1M			
33 Market Research and Strategy Consultations	5 Intellectual Property Engagements (licensing & IP strengthening)	4 Cybersecurity Maturity Model Certification Assessments	42 Total Phase II Awards



PORTFOLIO MANAGEMENT

Through technology scouting, market analysis, and research, the Army SBIR|STTR Program identified five portfolios of critical next-generation technology domains where Army needs align with private sector expertise. These portfolios are actively managed, creating a structured framework to prioritize efforts and mitigate risks effectively. Each portfolio receives support from a Transition Broker Team (TBT), which helps Army customers and small businesses with transition planning and technical guidance.

ARMY SBIR|STTR TECHNOLOGY PORTFOLIOS: FY24 TOTAL ASSETS UNDER MANAGEMENT



TRANSITION BROKER TEAMS

The Army SBIR|STTR Program develops the right capabilities at the right time and cost by applying a transition-focused acquisition approach. It aligns new projects with Army mission priorities and schedules while identifying Army and other DoD transition partners ahead of launching initiatives.

Before solicitation, every topic includes a technology transition plan that identifies key stakeholders, outlines transition milestone dates, and specifies the transition modality. Technology transitions take various forms, from informing requirements to integrating software/hardware into an existing system or delivering solutions for an Army mission.

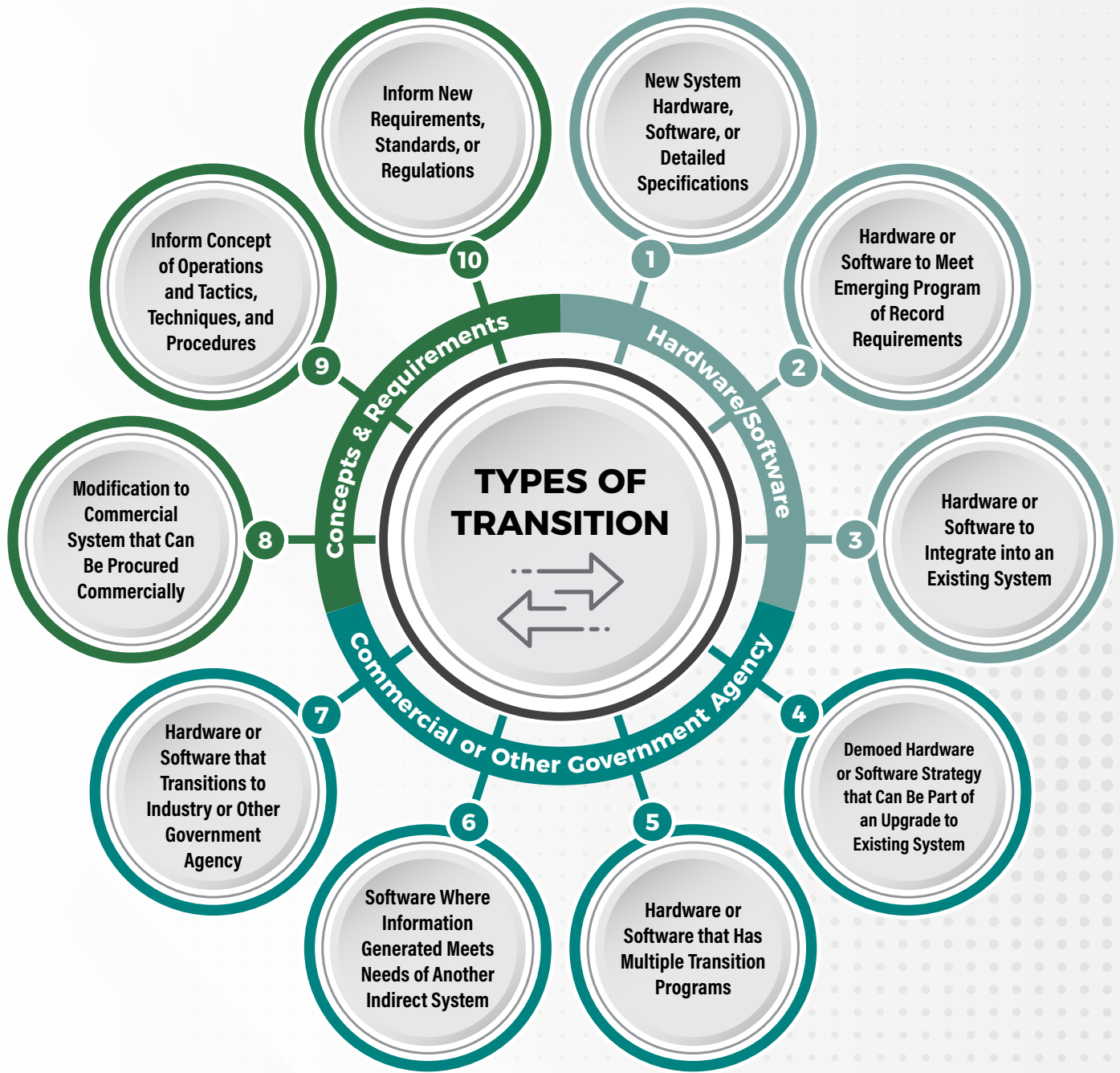
The program brings together a diverse group of Army stakeholders to form TBTs that identify and integrate small-business innovations with disruptive potential. Portfolio Directors lead TBTs, which include over 400 members from technical, programmatic, and operational sectors. These teams drive continuous transition planning and risk mitigation for SBIR|STTR investments, bridging gaps between firms, Army technical experts, and transition partners.

TBTs actively managed 758 projects in FY24, supported by 413 members across DoD

UNDERSTANDING TECHNOLOGY TRANSITION

Transition occurs when tangible technology or project deliverables developed under Science and Technology efforts complete development and demonstration. These innovations are then incorporated—both funding and program control—into current or planned Programs of Record by the Program Executive Office (PEO) or Program Manager (PM).

Successful transition requires a clear agreement between the technology team and the receiving program on what defines success. This process moves innovation from research into real-world acquisition and capability delivery, ultimately equipping the warfighter. See the “Types of Transition” graphic below to explore the pathway from innovation to operation.



FY24 BY THE NUMBERS

91

SBIR|STTR Topics Released in FY24

22+

Army Organizations Supported

FOCUSED TOPIC

Solicitations with discrete problem statements address specific challenges by delivering targeted solutions tailored to their unique requirements.

79

Topics

1895

Proposals (Phase I & Direct to Phase II)

24

Average Proposal Count per Topic

OPEN TOPIC

Open topic solicitations broaden the scope of technology development approaches and expand potential applications to tackle larger problem areas more effectively.

12

Topics

1092

Proposals (Phase I & Direct to Phase II)

91

Average Proposal Count per Topic

xTECH/SBIR TOPICS

Topics that leverage the prize authority lower the barrier to entry and incentivize new and non-traditional small businesses.

4

Topics

1215

Proposals (Phase I & Direct to Phase II)

304

Average Proposal Count per Topic

FY24 SBIR SUMMARY

71

Total Solicitations Released

256

Small Businesses Awarded New Start Contracts (Phase I & II only)

325

Total Contracts Awarded

\$340,464,821

Total Army Obligations (Phase I & II only. Excludes CATALYST & Mods.)

Contract	Small Businesses Receiving Awards	New Contracts Awarded	Total Obligated
Phase I	134	152	\$32,570,478
Direct to Phase II	62	66	\$121,514,244
Phase II	98	107	\$186,380,098

FY24 BY THE NUMBERS

FY24 STTR SUMMARY

20

Total Solicitations Released

69

Small Businesses Awarded New Start Contracts (Phase I & II only)

80

Total Contracts Awarded

\$47,186,526

Total Army Obligations (Phase I & II only. Excludes CATALYST & Mods.)

Contract	Small Businesses Receiving Awards	New Contracts Awarded	Total Obligated
Phase I	44	48	\$9,374,841
Phase II	30	32	\$37,811,685

FY24 ARMY PHASE III CONTRACTS

Contract	Small Businesses Receiving Awards	New Contracts Awarded	Total Obligated
SBIR Phase III	69	97	\$308,254,160
STTR Phase III	14	18	\$11,610,167
Total Phase III	87	115	\$319,864,327

\$313,697,311

Total obligations for FY24 – the CCOE executed 80% of Army SBIR|STTR awards and aims to reach 100% execution in FY25

366

Contract actions executed in FY24

42%

Contract award timeline improvement since the establishment of the CCoE

77 Days

Average Time from Selection to Phase I Contract Award

24 Days

Average Phase I Contract Execution Time

91 Days

Average Time from Selection to Phase II Contract Award

33 Days

Average Phase II Contract Execution Time

ARTIFICIAL INTELLIGENCE
& MACHINE LEARNING

18

New Topics Released

76

New Awards

\$113

Million in New Investments

111

Ongoing Projects

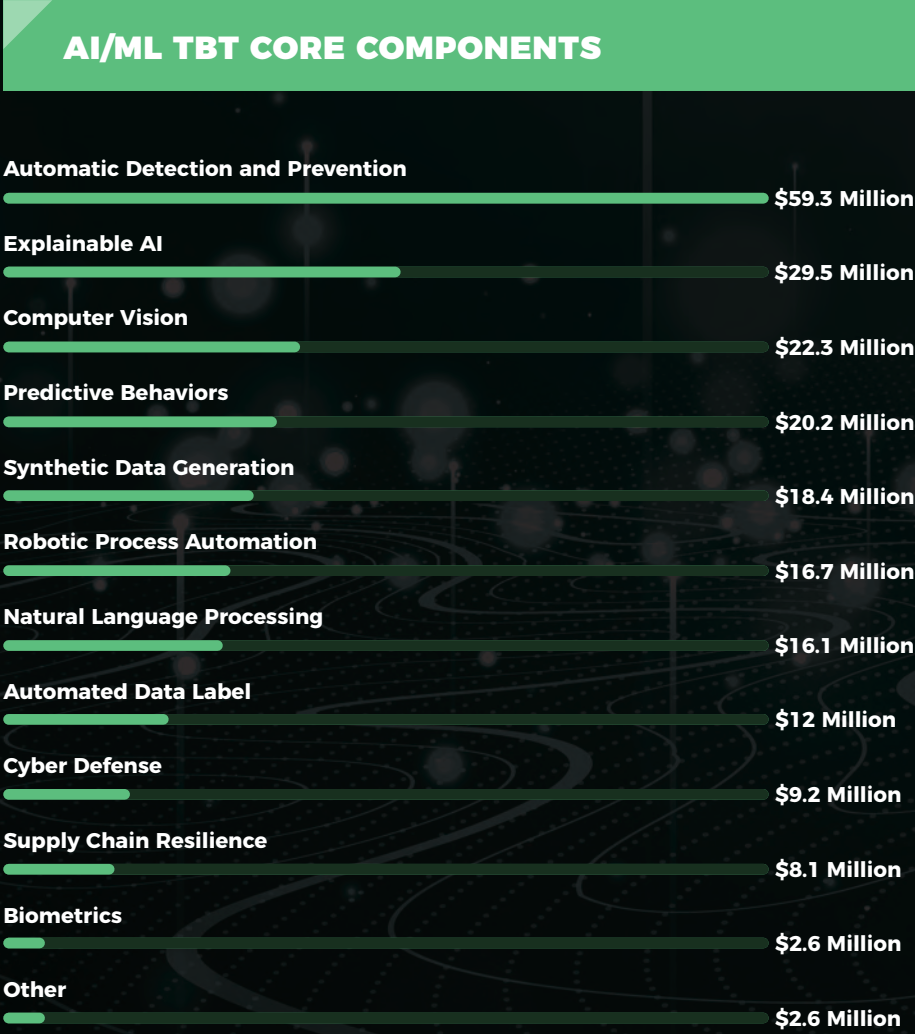
\$104

Million in Ongoing Investments

\$217

Million Under Management

The Artificial Intelligence and Machine Learning (AI/ML) TBT advances technologies that strengthen Army operations, refine decision-making capabilities, and enhance business analytics and warfighting effectiveness across multi-domain operations. It identifies and integrates AI/ML-driven solutions that improve operational efficiency, increase battlefield awareness, and support data-driven strategies for mission success.



KEY AI/ML SOLICITATIONS

AI/ML Open Topic

In FY24, the Army SBIR|STTR Program awarded Phase II funding opportunities to 26 innovators, allocating \$50 million in follow-on funding to small businesses within its AI/ML Focused Open Topic solicitation. This investment highlights the Army's commitment to fostering start-ups that develop critical technologies for its AI Implementation Plan, ensuring advancements in artificial intelligence support mission readiness and operational effectiveness.

Dynamic Generative Large Language Model for Continuous Situational Awareness

To tackle the growing prevalence of large language models (LLMs) in the AI landscape, the Army implements robust cybersecurity measures to protect sensitive data and prevent malicious attacks. In FY24, the Army SBIR|STTR Program launched the Dynamic Generative LLM for Continuous Situational Awareness solicitation. This solicitation strengthens Army capabilities by equipping Soldiers with LLM tools that detect bias and hallucinations, increasing trust and user adoption.

The topic advances LLM capabilities for military applications, particularly within the U.S. Army. It develops methodologies to identify and mitigate bias in model outputs, ensuring the generation of fair and unbiased information. Additionally, it drives innovative solutions that detect and correct hallucinations, improving LLM reliability and reinforcing operational decision-making across Army missions.

AI/ML SPOTLIGHTS

Primer AI developed the Soldier Orchestrated Natural Language Processing platform under the Army SBIR|STTR Program's AI/ML Open Topic. The company harnessed custom transformer models, fine-tuned on defense data, to automate the extraction of key entities and relationships from large volumes of unstructured text. The platform now integrates with the Army Intelligence Data Platform to streamline intelligence processing, exploitation, and dissemination, improving operational efficiency. It reduces analysts' cognitive load, allowing them to focus on critical assessments and enhance real-time battlefield awareness.



Army SBIR|STTR funds AI/ML innovations to improve personnel data systems for future-ready operations. (U.S. Army)

Primer AI employs advanced AI/ML techniques to monitor open-source social media and news feeds, analyze sentiment in target groups, and provide customizable dashboards for actionable insights. These capabilities strengthen intelligence operations and decision-making processes. Beyond military applications, Primer AI has expanded its reach into the commercial sector, with its NLP solutions adopted by leading defense contractors, intelligence agencies, and Fortune 500 companies. The company has formed strategic partnerships with the North Atlantic Treaty Organization, Microsoft, Palantir, Carahsoft, and Amazon Web Services, reinforcing its position as a leader in defense AI innovation.

AI/ML MARKET TRENDS

The commercial market continues to receive business proposals and investment pitches. However, private sector investors have become more selective than in 2020 and 2021 due to macroeconomic conditions. Interest in the "new wave" of early-stage companies is growing, and the market remains primed for disruption and venture-backed investments, given the emerging nature of LLMs and future AI/ML innovations.

The Army actively invests in AI/ML technologies that strengthen Soldier effectiveness, enhance model testing and evaluation, and improve cybersecurity. AI/ML solutions refine training simulator learning plans, boosting Soldier readiness. Several Army organizations continue to advance AI/ML technology R&D and integrate AI/ML algorithms into operations to optimize logistics, improve predictive maintenance, and accelerate AI model development for mission-critical applications.

ENERGY RESILIENCY

8 New Topics Released

50 New Awards

\$63 Million in New Investments

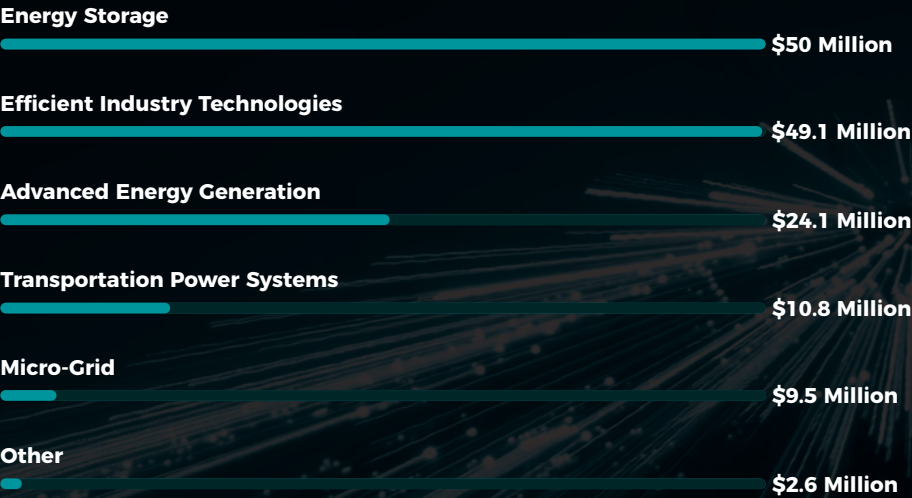
69 Ongoing Projects

\$83 Million in Ongoing Investments

\$146 Million Under Management

The Energy Resiliency TBT advances expeditionary energy technologies that maximize efficiency, adapt Army systems to reduce net energy demand, and decrease reliance on logistic fuel supply. It develops solutions that meet the power demands of future Army systems across echelons, ensuring resilient and sustainable energy sources for operational effectiveness in diverse environments.

ENERGY RESILIENCY TBT CORE COMPONENTS



KEY ENERGY RESILIENCY SOLICITATIONS

Energy Demand Reduction Open Topic

The Army SBIR|STTR Program awarded over \$14 million to 18 small businesses through Phase I and Direct to Phase II contracts under its Energy Demand Reduction Open Topic solicitation. This initiative strengthens the Army’s energy resilience by advancing sustainable power generation, enhancing energy storage solutions, and improving micro-grid technologies.

Tactical Micro-Grid Standard Add-On for Power Sources

In 2024, the Army SBIR|STTR Program launched the Tactical Micro-Grid Standard (TMS) Add-On for Power Sources solicitation. TMS requires compliant power devices to support specific data types and interfaces, rendering all currently used power devices non-compliant. A TMS Interface device connects to legacy components, evaluates performance, and exchanges TMS-compliant data. Retrofitting legacy systems with TMS optimizes microgrid efficiency, enhances operational capabilities and strengthens Soldier support in the field.

ENERGY RESILIENCY SPOTLIGHTS

Anthro Energy advanced battery technology through its Primer AI platform, delivering ruggedized, high-performance lithium-ion batteries for military applications. Through the Army SBIR program’s xTech/SBIR Energy Resiliency Open Topic Competition, the company secured funding and successfully demonstrated the ISSE platform’s intrinsic safety and electrochemical performance under extreme conditions. In collaboration with the Department of Energy, Anthro Energy improved cell energy density by 25%, reinforcing its commitment to innovation and operational reliability for the DoD.

Anthro Energy strengthened the U.S. energy supply chain by investing over \$25 million in new manufacturing facilities in Kentucky. This expansion increased advanced battery



Army SBIR|STTR backs energy innovations like the Multi-Fuel Generator for flexible battlefield power. (U.S. Army)

production and stimulated economic growth by creating jobs. Additionally, the company established the first U.S.-owned and operated Advanced Electrolyte Production Facility, securing domestic battery supply independence and supporting national defense initiatives.

ENERGY RESILIENCY MARKET TRENDS

Early-stage investors actively fund AI/ML-augmented microgrid technologies, silicone-anode (SiA) batteries, and small modular nuclear reactors. AI/ML enhances microgrid efficiency and cybersecurity by enabling load balancing, optimizing energy sharing, and extending component lifecycles, making microgrids more appealing to investors.

The battery market faces challenges due to reliance on manufacturing in China, particularly for critical minerals like graphite. Emerging technologies in silicone and synthetic graphite strengthen the energy storage capabilities of U.S. battery technology and reduce dependence on China’s supply chain.

The Army invests in energy resiliency, focusing on next-generation combat vehicles, alternative manufacturing methods, and diversified power sources. Several Army organizations drive energy resiliency R&D by refining energy storage technologies, improving construction practices, and advancing on-the-move power generation for operational effectiveness.



IMMERSIVE AND WEARABLES

6 New Topics Released

33 New Awards

\$42 Million in New Investments

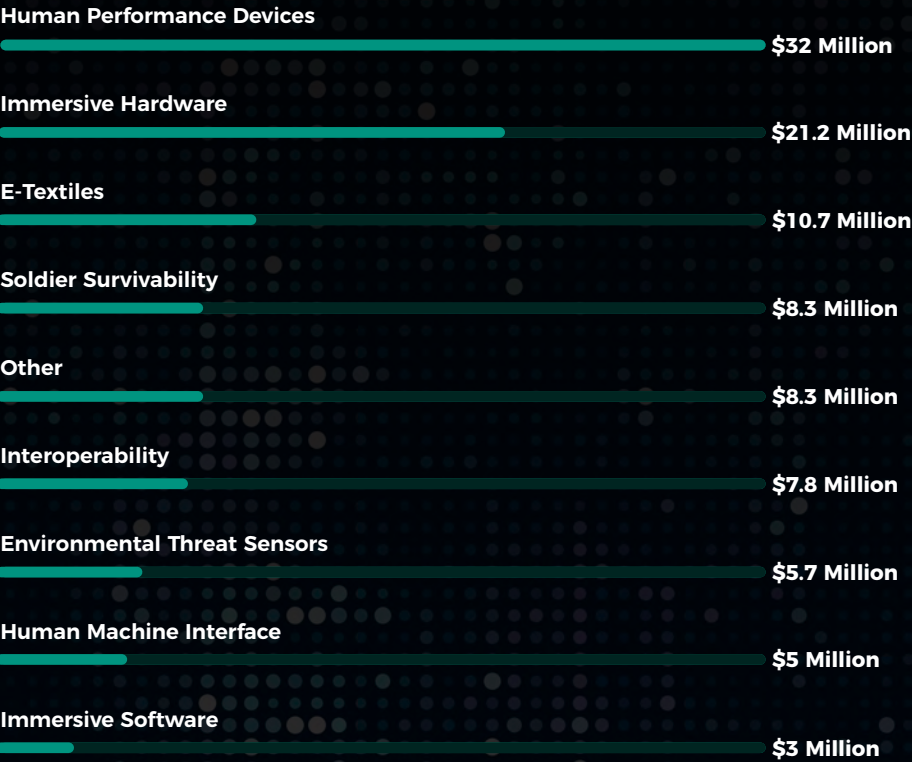
48 Ongoing Projects

\$60 Million in Ongoing Investments

\$102 Million Under Management

The Immersive and Wearables (I&W) TBT advances technologies that simulate or extend the real world, including Extended Reality (XR). It develops wearable technologies such as devices, garments, and equipment designed to enhance readiness, optimize performance, support recovery, and provide protection.

I&W TBT CORE COMPONENTS



KEY I&W SOLICITATIONS

Off-the-Visor Heads-Up Display

The Army needs MR displays that remain highly visible in daylight while preserving Soldiers’ ability to interact with their surroundings. This initiative leveraged advancements in micro-display technology to deliver high-contrast MR overlays, improving situational awareness without obstructing Soldiers’ vision.

Precision Control Lens Eye Tracking Sensor

In November 2024, the I/W TBT released the Precision Control Lens Eye Tracking solicitation to develop a game-changing contact lens eye tracking sensor to unlock the full potential of XR for our warfighters. This technology will enhance Command and Control, improve training, and enable real-time cognitive monitoring for adaptive systems – all while overcoming the limitations of current, bulky eye tracking solutions. This innovation will provide a significant advantage by enabling intuitive XR interaction and unlocking a new level of situational awareness and cognitive understanding on the battlefield.

I&W SPOTLIGHTS

The I&W TBT leveraged \$3.25 million in Navy SBIR funding to fuel an enhanced collaboration between the Army, Naval Special Warfare Group, and Special Operations Command (SOCOM) on the Army’s Diver Performance Monitoring solicitation. This co-investment shows a strong commitment



Army SBIR|STTR supports wearable tech and sensors to advance logistics, infrastructure, and Soldier navigation. (U.S. Army)

to Soldier performance technologies and has the potential to transform training and operational efficiency for Special Operations Forces Combat Diver missions. This partnership is driving innovation and delivering cutting-edge solutions to enhance the capabilities of our elite warfighters.

I&W MARKET TRENDS

The U.S. I&W market continues shifting toward software and low-code opportunities. Software solutions incorporate robust AI/ML interoperability, low-code and no-code platforms, and AI-enabled AR/VR applications. Innovation primarily emerges from software-as-a-service (SaaS) approaches and AI/ML interoperability, even as the largest deals remain focused on capital-intensive hardware and microelectronics advancements.

SENSORS

23 New Topics Released

56 New Awards

\$55 Million in New Investments

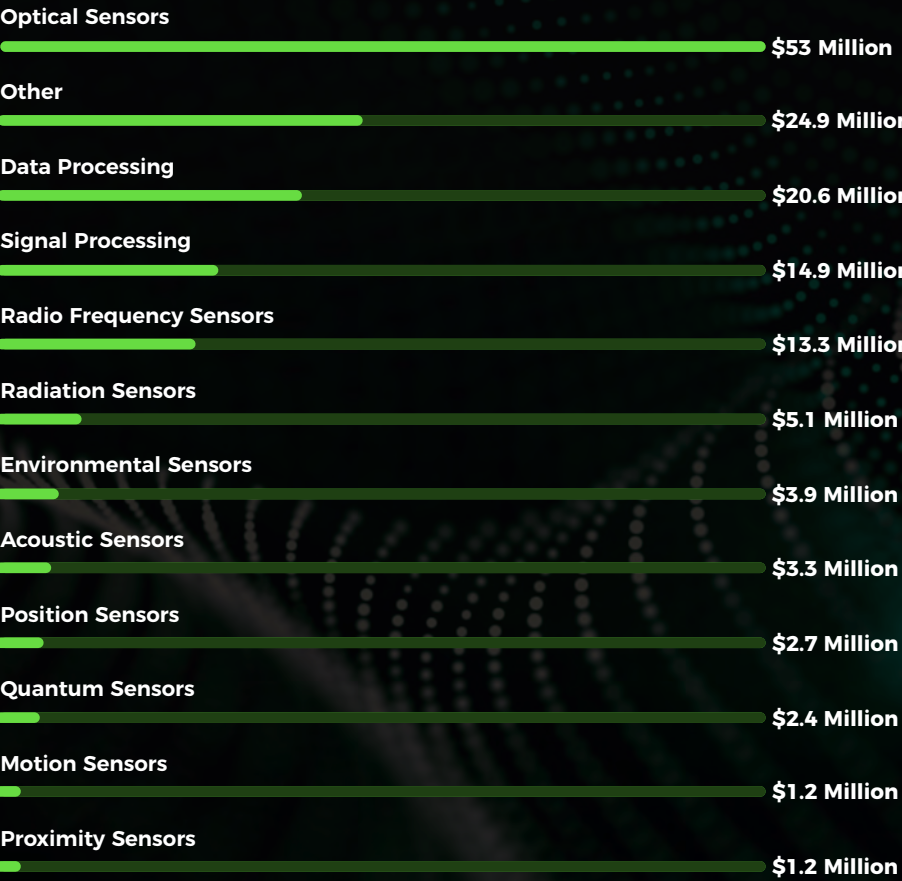
85 Ongoing Projects

\$91 Million in Ongoing Investments

\$146 Million Under Management

The Sensors TBT advances technologies that detect stimuli and generate outputs, along with onboard processing technologies that refine and manage data before transmission. These device advancements enhance automation across Army systems, improving efficiency and operational effectiveness. (The Army SBIR|STTR Program updated all Core Components within the Sensors TBT in FY25.)

SENSORS TBT CORE COMPONENTS



KEY SENSOR SOLICITATIONS

Quantum Enhanced Radio Frequency Components

Advances in quantum technology drive the development of next-generation, quantum-enhanced radio frequency transceivers. Small businesses awarded under the Quantum Enhanced Radio Frequency Components solicitation applied the principles of quantum mechanics to strengthen radio frequency communications, improve sensor performance, and detect radio frequency signals with unprecedented sensitivity. This innovation marked a significant leap in radio frequency capabilities, opening new possibilities for secure communications and advanced sensing.

Miniaturization of Hyperspectral Sensors for UAS Applications

The Army will accelerate the fielding of Unmanned Systems and Ground/Air-launched effects across all Divisions by the end of 2026. Airborne hyperspectral imagers detect potential targets through camouflage and adverse environmental conditions, but traditionally rely on bulky, power-intensive optical components and extensive ancillary hardware. This effort sought a sensor prototype designed to meet the size, weight, and power requirements necessary for integrating hyperspectral sensors with smaller UAS.

SENSOR SPOTLIGHTS

In July 2024, the Sensors TBT partnered with Army Combat Capabilities Development Command (DEVCOM) C5ISR Center to release the Uncooled Thermal Sensor Component



Army SBIR|STTR funds cutting-edge sensors like surf zone detection and advanced lasers to boost capabilities. (U.S. Army)

Enhancement and Supply Chain Open Topic solicitation. In FY24, the Sensors TBT invested \$3.5 million, awarding Phase I contracts to 14 small businesses. These awards support the development of innovative infrared thermal sensor solutions and establish domestic sources for critical infrared thermal sensor components.

SENSOR MARKET TRENDS

Private market investments have transitioned from sensor hardware upgrades to technologies that strengthen sensor and AI interoperability. Innovation continues to expand in the AI-embedded sensor space, which plays a vital role in automation processes for industrial manufacturers. Lessons learned from the Ukraine conflict accelerate sensor advancements, enabling edge operations in data-rich environments.



CONTESTED LOGISTICS AND SUSTAINMENT

22 New Topics Released

41 New Awards

\$36 Million in New Investments

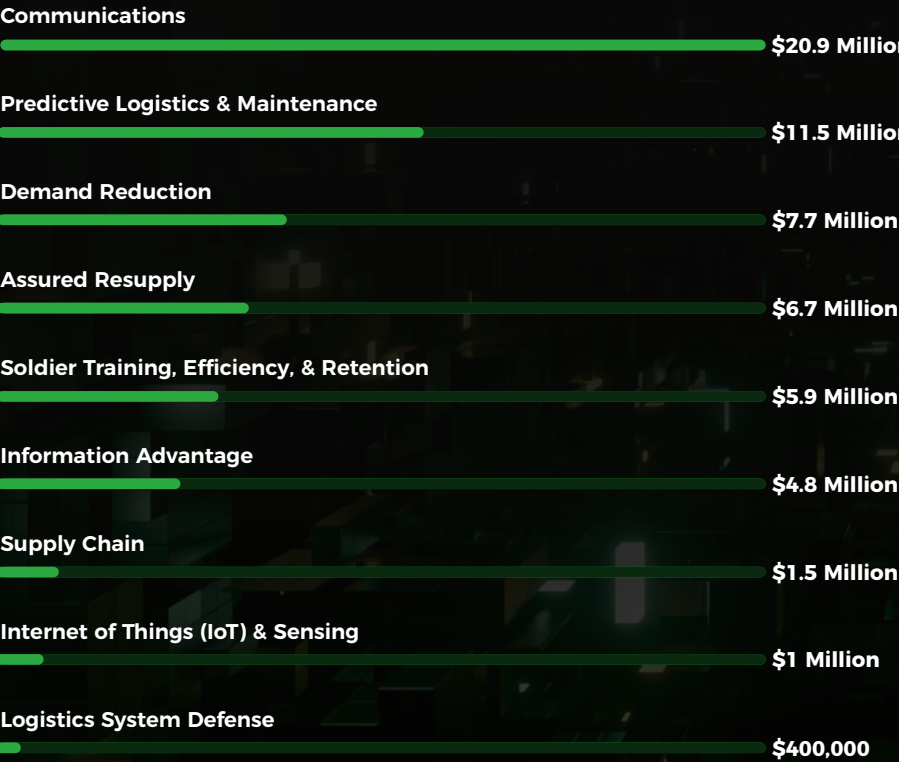
20 Ongoing Projects

\$24 Million in Ongoing Investments

\$60 Million Under Management

The Contested Logistics and Sustainment (CL&S) TBT advances strategic and operational technologies that support the planning and execution of force and material movement under adversarial conditions. It strengthens logistical operations, optimizes supply chain management, and enhances sustainment activities to ensure mission success in contested environments.

CL&S TBT CORE COMPONENTS



KEY CL&S SOLICITATIONS

Pacific Open Topic

The Army SBIR|STTR Program invested over \$19 million in 28 small businesses through Phase I and Direct to Phase II contracts under its Pacific Open Topic solicitation. This enables the Army to respond to evolving conflicts with foreign adversaries by strengthening logistics efficiency, reducing supply chain burdens, and overcoming long-distance operational challenges.

Letterkenny Depot Day

On July 9, the Army SBIR|STTR Program hosted the first Letterkenny Army SBIR Depot Day in Chambersburg, Pennsylvania. Ten small businesses participated in tours, briefings, breakout sessions with Letterkenny experts, and live demonstrations. The program highlighted collaboration opportunities and allocated \$7.5 million to Phase I technologies, including mobile sustainment tools, shop tools, enablers, and reverse engineering equipment.

By attending, businesses gained valuable exposure and increased their potential to secure new partnerships and collaborate with the Army SBIR|STTR Program and Army organizations. The event reinforced the vital role of small businesses in advancing defense innovation.

CL&S SPOTLIGHTS

CL&S Industry Week

The Army SBIR|STTR Program co-hosted Contested Logistics Industry Week at Fort Gregg-Adams on September 19-20, bringing together over 600 attendees, including representatives from more than 120 small businesses. The event focused on modernizing sustainment for 2040, with key figures—including Mr. Chris Manning (DASA), MG Gavin Lawrence (AMC), BG Beth Behn (HQDA), and Ms. Kristin French (DLA)—leading panels to identify critical gaps in contested logistics.

The week’s discussions highlighted four SBIR solicitations aimed at solving specific logistical problems: Enhanced Explosive Ordnance Disposal Training, Advanced Manufacturing of Engine Cooling Fans, Water at the Point of Need, and Lighter, Low-Cost Bidirectional Inverters. These solicitations led to a total of 16 Phase I awards and 2 Direct to Phase II awards, underscoring the Army’s commitment to harnessing the private sector to strengthen its logistical



Army SBIR|STTR accelerates airdrop and electronics repair tech to enhance readiness in complex missions. (U.S. Army)

capabilities and prepare for future challenges. Work is already underway on these Phase I and Phase II projects, potentially paving the way for further development and implementation.

CL&S Market Trends

Macroeconomic pressures have reduced venture capital funding, especially for capital-intensive projects. However, CL&S continues to expand as emerging technologies drive advancements in logistics. Digital twins and the IoT improve predictive maintenance and real-time monitoring, increasing efficiency and minimizing disruptions.

Additive manufacturing streamlines supply chain operations, while Satellite Communications and Free Space Optical Communication enhance communication and data transfer in remote environments. The Army Futures Command (AFC) strengthens CL&S by establishing the Common Logistics Cross-Functional Team, which focuses on precision sustainment, demand reduction, and advanced distribution platforms.

The U.S. Indo-Pacific Command (INDO-PACOM) reinforces logistics resilience in the Pacific, improving communication networks and increasing the lethality and survivability of deployable formations. The Joint Counter-Small Unmanned Aircraft Systems Office deploys multi-domain counter-small, unmanned aircraft systems (UAS) systems and collaborates with U.S. Africa Command, Central Command, and INDOPACOM to evaluate advanced drone technologies.

These efforts, combined with private-sector innovation, accelerate CL&S advancements, ensuring operational readiness and adapting logistics capabilities to evolving defense needs.

INITIATIVES BROADENING INNOVATION



In FY24, the Army SBIR|STTR Program advanced technology development and expanded the innovation ecosystem through targeted initiatives. Key highlights include its continued partnership with the Army xTech Program, which lowers barriers to entry for nontraditional innovators, and its support for the Army AI Implementation Plan released in March 2024.

The program expanded TABA offerings and effectively leveraged newer initiatives such as Army SBIR CATALYST and the Office of the Under Secretary of Defense for Research and Engineering's Accelerate the Procurement and Fielding of Innovative Technologies (APFIT) program to tackle integration and scaling challenges. It also strengthened engagement with the private capital community to identify and support top-tier technology providers across the country.

These initiatives collectively drive innovation within the Army and DoD, fostering strategic partnerships with forward-thinking companies. Together, these efforts enhance Army readiness while ensuring a resilient and dynamic innovation ecosystem.

xTECH PARTNERSHIP

The Army launched the xTech Program—a prize competition program—in 2018 to fully maximize the authorities provided by Congress to incentivize new and nontraditional

innovators to explore ways their technologies could help solve national security challenges. Through a prize-to-contract model, the Army SBIR|STTR Program partners with the Army xTech Program to engage new-to-DoD companies, offering non-dilutive xTech cash prizes for participation and follow-on Army SBIR|STTR contract opportunities, significantly lowering the barrier to entry. The Army utilizes Title 10 U.S. Code § 4025 prize authority to meet competition requirements for xTech competition winners, supporting SBIR|STTR or other follow-on funding opportunities.

In FY20, the first xTech-to-SBIR competition launched, awarding cash prizes for participation and follow-on SBIR Phase I funding to 24 winning small businesses, enabling them to adapt their technologies for Army use cases. By integrating prize authority with other funding agreement mechanisms, xTech provides Army customers with an innovative approach to conducting comprehensive market research while streamlining funding opportunities for innovators, enhancing accessibility and accelerating defense innovation.

In FY24, the Army SBIR|STTR Program executed six xTech-to-SBIR competitions and awarded 86 follow-on SBIR contracts totaling \$73 million to xTech-SBIR topic winners. Winners included participants from xTechSearch 8—the Army's annual open-topic competition—xTechPrime, which promoted partnerships between tech integrators and small businesses—and xTechScalable AI 1 and 2, which supported

INITIATIVES BROADENING INNOVATION

the 2024 Army AI Strategy. All recipients earned prize money and submitted SBIR proposals after successfully completing competitive down-selection through the xTech competitions.

In addition to SBIR awards, during the prize competitions participants secured non-dilutive cash prizes, increased visibility among Army stakeholders, and gained access to networking and mentorship opportunities, positioning them for successful collaborations with the Army.

COMPETITIONS	SUBMISSIONS	WINNERS
xTechSearch 8	674	20
xTechPrime	345	15
xTechScalable AI 1	133	4
xTechScalable AI 2	207	12
xTechSpecial Forces	201	5
xTechAutonomy	218	20

xTECH COMPETITION SPOTLIGHTS

xTechSearch 8

xTechSearch is the Army's premier open-topic prize competition series, designed to uncover disruptive commercial technologies that provide the Army with leap-ahead capabilities. By eliminating predefined problem statements, xTechSearch challenges industry to introduce groundbreaking innovations, often revealing solutions to critical challenges before the Army formally codifies them into Army requirements.

Throughout the competition, participants receive training and guidance as they advance through various stages, refining their technology solutions to align with real users and buyers within the Army. In its latest iteration, xTechSearch 8, 70 participants secured a total of \$800,000 in cash prizes and 20 winners submitted proposals for a total of \$5 million in SBIR contracts.



Dr. Matthew Willis, Dr. Kevin O'Brien, Col. Ryan Howell and Adam Mohamed speak with small business innovators at the Capital Factory during the xTechPrime Collider. (U.S. Army)

This competition fosters new partnerships and accelerates novel technology solutions, including revolutionary advancements in air defense against uncrewed aerial vehicles, edge computing, cybersecurity, wearable electronics, and more.

xTechPrime

xTech launched xTechPrime in April 2023 to encourage prime contractors to integrate and scale small business technologies within Army programs of record. xTechPrime accelerated the transition of innovative solutions by combining the speed and creativity of small businesses with the resources and capabilities of large integrators.

In partnership with five Army Program Managers, xTechPrime awarded \$1 million in cash prizes and selected 15 winners in December 2023 to apply for up to \$28.5 million in follow-on SBIR Direct to Phase II contracts, addressing five distinct problem areas.

This collaboration enabled the integration of game-changing technology into the Army's portfolio while providing small businesses with cash prizes, feedback, mentorship, and networking opportunities.

xTECH INDUSTRY SPOTLIGHTS

xTechPrime Winners Supporting AI Initiatives

In FY24, the xTechPrime competition selected **15 small business winners** to submit Direct to Phase II SBIR proposals addressing five Army Program Manager-sponsored problem statements. Among xTechPrime’s partners, PEO Intelligence, Electronic Warfare & Sensors (IEW&S)—Program Manager for Intelligence Systems & Analytics (PM IS&A)—is working with two of the 15 xTechPrime winners to develop operational data, policies, and trusted infrastructure for deploying and fielding AI applications. These efforts directly support Project Linchpin, an Army initiative designed to develop and deploy advanced AI/ML capabilities that enhance intelligence, cyber, and electronic sensor systems through a centralized operations pipeline.



Latent AI: MLOps for Optimized and Secured Edge AI

“Army SBIR|STTR and xTech are committed to strategically investing in areas where we can leverage the excellence of the private sector and transition technologies to Army programs such as Project Linchpin. We have the funding and processes in place to drive industry collaboration and investment opportunities for these large-scale Army efforts.”

– Dr. Matt Willis, Director of Army Innovation Programs



Enveil, Inc.: Encrypted Machine Learning Model Evaluation for Model and Data Integrity

FluxWorks (xTechPrime & xTechEnergy Resiliency Winner)

FluxWorks, an xTechEnergy Resiliency winner —an initiative aimed at identifying innovative technologies to enhance the Army’s energy reliability, efficiency, and sustainability from an earlier xTech-to-SBIR competition in 2022—secured a Direct to Phase II Army SBIR contract for its magnetic gear-integrated motor-generator technology. The firm delivered a power transmission solution using engineered magnetic fields for future vehicles, including the Light Artillery Mobility Platform and the Armored Multi-Purpose Vehicle. FluxWorks continues working with the Army to secure additional funding in FY25 to further technology transition.

The company also received a Direct to Phase II contract after winning the xTechPrime competition to refine a high torque density axial flux variant of its magnetic gear with BAE Systems. Under the xTechPrime contract, FluxWorks is developing a larger gear tailored for BAE Systems to test under varied conditions. The BAE Systems Platforms & Services Group aims to integrate the gear into the Armored Multi-Purpose Vehicle Medical Variant’s auxiliary system.

A recent DEVCOM Ground Vehicle Systems Center (GVSC) feasibility study, funded by the Operational Energy Capability Improvement Fund, awarded DCS Corporation as the prime contractor with FluxWorks as a subcontractor. Through this effort, FluxWorks identified new methods to develop advanced magnetic-gear technologies, aligning with additional Army requirements for future funding.

Genesis Systems (xTechSearch 5 Finalist & xTechEnergy Resiliency Winner)

Genesis Systems, an xTechSearch 5 finalist and xTechEnergy Resiliency competition winner, achieved significant milestones in August 2024. After securing a \$1.9 million Army SBIR|STTR Phase II contract award, the company partnered with the DEVCOM-GVSC to deploy its revolutionary WaterCube® technology. This system extracts moisture from the air to generate over 2,000 gallons of fresh, drinkable water per day, supporting Soldiers in austere environments.

Building on this success, Genesis Systems continues working with DEVCOM-GVSC to determine additional requirements for future WaterCubes® across the Army. Plans include developing smaller WaterCubes® capable of producing approximately 650 gallons per day and operating on a standard military vehicle, ensuring a reliable water supply through Army convoys.

“xTech is an exemplary program because it helped us gain traction. We secured funding, assembled the right team against the challenge, delivered the solution and now the Army is asking, what is next?”

– Dr. David Stuckenberg, Co-founder of Genesis Systems

Beyond military applications, Genesis Systems actively supports humanitarian efforts. Following Hurricane Milton, Florida deployed a WaterCube® to Johns Hopkins All Children’s Hospital, preventing the evacuation of young patients due to water disruptions. The company also deployed a system for emergency operations near Venice Beach, demonstrating how WaterCube® technology strengthens disaster response and recovery in real-world crises.



Genesis Systems Water Cube

ARMY AI IMPLEMENTATION

In March 2024, the Principal Deputy Assistant Secretary of ASA(ALT) announced the Army AI Implementation Plan at the National Defense Industrial Association Michigan Chapter’s Ground Vehicle Systems Engineering and Technology Symposium.

The plan launched with a 100-day risk assessment sprint to lay the foundation for operationalizing AI across the Army. This effort developed an AI acquisition playbook, established a layered defense framework called “Defend AI,” and introduced policies for generative AI.



The Army xTech Program announced the launch of the xTechScalable AI 2 competition at the 2024 SXSW Conference. (U.S. Army)

Following the sprint, the plan transitioned into a 500-day phase to operationalize AI by addressing capability gaps, securing commercial technologies, and integrating counter-AI methods. The initiative drives continuous modernization to align AI efforts within the Army and strengthen its strategic edge in national defense.

To advance this effort, the Army SBIR|STTR and xTech programs aligned their investment strategies to integrate innovative AI solutions. By coordinating investments with the Army AI Implementation Plan and PM IS&A—which delivers AI capabilities through Project Linchpin—the program expanded AI integration to enhance strategic operations.

In FY24, Army SBIR|STTR allocated \$113 million to active AI projects, linking private-sector AI advancements with the Army’s broader AI pipeline. The program invested \$30 million in Automated Detection and Prevention solutions to counter and prevent malicious attacks, representing 24% of its AI/ML portfolio by awards.

“His [Dr. Willis’] team is looking to collaborate across industry and academia to evolve the framework and prioritize capability exploration and implementation in support of Army programs, such as Project Linchpin, which is building an operational pipeline of trusted AI solutions.”

– Young J. Bang, former Principal Deputy Assistant Secretary of the Army for Acquisition, Logistics and Technology

Additionally, Army SBIR|STTR partnered with the xTech Program to support the newly established PM IS&A Project Linchpin, awarding two Direct to Phase II contracts of up to \$2 million through the xTechPrime competition to support technologies tied to Project Linchpin initiatives. The program plans 16 additional awards for the xTechScalable AI competitions, further accelerating AI development and deployment.

These investments and partnerships demonstrate how Army SBIR|STTR serves as a strategic tool that Army PMs actively leverage to reduce risk in their programs and establish a pipeline for innovative solutions that support acquisition efforts. These initiatives span multiple efforts, advancing AI capabilities through a comprehensive approach.

xTECHSCALABLE AI 1 & 2

In FY24, the xTech Program partnered with Army SBIR|STTR and PEO IEW&S to launch two groundbreaking prize competitions: xTechScalable AI and xTechScalable AI 2. These competitions advanced the Army’s AI Implementation Plan and strengthened Project Linchpin.



Young J. Bang, former Principal Deputy Assistant Secretary of the Army for Acquisition, Logistics and Technology, stands with xTechScalable AI 2 winners, recognizing breakthrough AI innovations that support the Army’s modernization goals. (U.S. Army)

xTechScalable AI 1

Launched in December 2023, the inaugural xTechScalable AI competition invited small businesses to develop scalable AI solutions that strengthen the DoD’s security capabilities. The competition prioritized systematic testing and evaluation of AI-based security systems, trusted validation strategies, continuous monitoring capabilities, and comprehensive approaches to counter adversarial AI attacks. Announced in July 2024, the top four winners earned the opportunity to submit proposals for Direct to Phase II SBIR contracts. The winners included:

TOP xTECHSCALABLE AI 1 WINNERS
1 ST Place—\$100,000
Infleqtion: Secured AI Positioning
2 ND Place—\$75,000
Eduworks: AI Agent Microservices
3 RD Place—\$50,000
Ad Hoc Research: Adaptive AI Testing
4 TH Place—\$25,000
dMetrics: Information Extraction

xTechScalable AI 2

In its second iteration, xTechScalable AI 2 partnered exclusively with Project Linchpin to advance robust testing and evaluation of AI operations pipelines, automate AI risk management, and develop scalable techniques for center-of-mass and course-of-action analytics supporting intelligence preparation of the battlefield.

The competition featured a business accelerator program, awarded \$603,000 in cash prizes, and provided opportunities to submit Phase I or Direct to Phase II SBIR proposals. Finalists showcased their solutions in the Army-sponsored Innovators’ Corner at the October 2024 Association of the United States Army (AUSA) Annual Meeting and Expo, where they received exhibitor booths and conducted live demonstrations for Army and DoD subject matter experts.

The competition selected 12 winners, awarding prize money—including a \$100,000 grand prize—and enabling follow-on SBIR proposals to address challenges supporting Project Linchpin.

TOP xTECHSCALABLE AI 2 WINNERS
1 ST Place—\$100,000
Protopia AI: Privacy Enhancement
2 ND Place—\$50,000
R-DEX Systems: Real-time Data Drift
3 RD Place—\$25,000
Cenith Innovations LLC: Threat Visualization

ARMY SBIR CATALYST

The Army announced the SBIR CATALYST Program at the October 2022 AUSA Annual Meeting and Exposition as part of its key initiatives to strengthen industry collaboration and incentivize Army customers and prime contractors to integrate and scale small business innovations.

The pilot phase began in February 2023, offering up to \$75 million for small business technologies that could secure matching funds from both Army customers and technology integrator partners to overcome the valley of death. During the pilot phase, the program selected five small businesses with prior SBIR|STTR awards and matching funds secured from both Army customers and technology integrator partners. Each firm received base-year contracts of \$1 million, with a potential total award value of \$15 million or more, pending matching funds.

Since its establishment, Army SBIR CATALYST has awarded over \$9.3 million to five companies.

The SBIR CATALYST Program continues to gain popularity and has updated its funding structure to allow more flexibility with integrator funding matches. The program unites the Army, technology integrators, and small businesses to create advanced solutions and funded projects with the highest propensity to transition into current or new Army system.

In FY24, the Army made four new SBIR CATALYST selections within the CL&S portfolio and awarded three new task orders on ongoing SBIR CATALYST projects, leading to \$1.1 million in non-SBIR matching funds.

FY24 ARMY IDENTIFIED SBIR CATALYST CANDIDATES			
LiquidPiston		MaXentric Technologies	
► Proposal: Compact Mobile Command Post Auxiliary Power Unit		► Proposal: Wideband, Programmable, Multifunctional TRX Module	
► Funding Area: CL&S		► Funding Area: CL&S	
► Potential Transition Partner: C5ISR and PEO Combat Support & Combat Service Support		► Potential Transition Partner: PEO Aviation	
Orbital Research		Near Earth Autonomy	
► Proposal: Networked Lethality Using Weaponized UAS		► Proposal: Rotorcraft Uncrewed Conversion Kit for Contested Logistics and Sustainment	
► Funding Area: CL&S		► Funding Area: CL&S	
► Potential Transition Partner: Maneuver Capabilities Development and Integration Directorate		► Potential Transition Partner: PEO Aviation	

ARMY SBIR CATALYST SPOTLIGHT

LiquidPiston (Army xTech & Army SBIR CATALYST)

LiquidPiston initially engaged the Army through a Cooperative Research and Development Agreement but faced challenges identifying Army customers and transitioning its patented compact, fuel-efficient rotary diesel combustion engine technology. In 2019, LiquidPiston leveraged the Army xTech Program as a low-barrier opportunity to present its technology to Army experts, including Army SBIR|STTR technology scouts.

The company secured \$145,000 in cash prizes as a finalist in the xTechSearch 3 competition and quickly identified potential transition paths for its technology: with PEO Aviation, PM Uncrewed Aerial Systems (PM UAS) for hybrid-electric uncrewed aerial systems, and with PEO Combat Support & Combat Service Support (CS&CSS) for portable electric generators that matched current systems’ power output at a quarter of their size and weight.



As part of its technology development efforts, LiquidPiston submitted an Army SBIR Phase I proposal, earned a contract in 2020, and began collaborating with the CL&S technology scouting team. The following year, the company secured an \$8.3 million contract from Parsons to integrate the engine technology into a 10kW generator, conducting testing at the DEVCOM-C5ISR Center.

In 2022, LiquidPiston received a \$1.7 million Army SBIR Phase II contract to advance its hybrid electric engine system. The small business’ success continued over several years, bolstered by collaborations with multiple Army organizations and a combination of SBIR awards that positioned the company for engagement with other services. For instance, in 2023, LiquidPiston obtained a \$35 million AFWERX Strategic Funding Increase contract to develop a larger heavy fuel-capable rotary engine and hybrid electric power system and collaborated with Air Force end-users to develop and field ground and airborne power systems.

Through networking and exposure provided by the CL&S technology scouts, LiquidPiston secured a \$9 million indefinite delivery/indefinite quantity contract from DEVCOM Army Research Library to design, build, and demonstrate an advanced heavy-fueled combustion engine. These contracts collectively propelled the firm to apply for the Army SBIR CATALYST Program, further developing its technology with support from Army customers and third-party integrators.

ACCELERATE THE PROCUREMENT OF INNOVATIVE TECHNOLOGIES

The DoD launched the APFIT program in FY22 to expedite the transition of innovative projects into operational use. By providing procurement funding for projects that complete R&D, APFIT ensures that war-winning capabilities quickly reach the warfighter.

The program prioritizes projects developed by small businesses and nontraditional defense contractors, offering \$10 million to \$50 million in funding to advance technologies beyond the “Valley of Death.”

APFIT employs a competitive, merit-based selection process, evaluating projects based on their impact on the warfighter, sustainment support, and broader applicability to the DoD. By accelerating procurement and fielding, APFIT guarantees the swift delivery of critical capabilities to the warfighter.

In FY24, two U.S. Army projects received APFIT funding: Family of Systems for Assured Movement and Maneuver with \$15.95 million and Ultra Long Endurance - Perpetual with \$20.4 million.

APFIT SPOTLIGHTS

Orbital Research (APFIT, Army SBIR, & Army SBIR CATALYST)

Orbital Research developed and tested its Hunt Kill Return (HKR) System with Drop-Glide Munitions via multiple Army SBIRs, including Phase III awards for drone weaponization with prime contractors. In September 2022, the company secured a \$9 million firm-fixed-price Phase III contract for 1,700 drop-glide munitions and 24 Unmanned Aerial Systems and weapon release systems under the APFIT Program.



By September 2024, Gen. James Rainey, Army Futures Command Commanding General, authorized a directed requirement for weaponized medium and long-range reconnaissance UAS as a Program of Record, which will include Orbital’s HKR system with Drop-Glide Munitions.

Orbital Research took part in multiple Soldier Touchpoint Exercises, including the Army Expeditionary Warrior Experiment at Fort Benning. During the experiment events in 2023 and 2024, Soldiers used Orbital’s HKR system during

tactical Force-on-Force exercises. These events allowed the company to test and improve its solution, including dropping live rounds on ranges, significantly advancing its low-cost Drop-Glide Munitions.

In May 2024, the Army SBIR CATALYST Program selected Orbital Research to work with the DEVCOM Armaments Center on a common lethal interface kit for UAS.

“We put our SBIR technologies directly in the hands of the Soldier, and they provided us with invaluable feedback. Within two weeks, we returned with improvements so Soldiers could test the next iteration. These minor changes to our design have a significant impact on the tactical viability of our hardware.”

– Fred Lisy, Vice President of Orbital Research

Mayflower Communications (APFIT & Army SBIR Phase III)

In May 2014, Mayflower Communications received a \$99,000 Army SBIR Phase I award for the GPS Anti-Jam Antenna System (GAJAS) solicitation, working with the Army Program Management-Position, Navigation and Timing (PNT). After Phase I, the company secured a \$1.3 million Phase II award.

Since 2014, the firm obtained two Phase III contracts, including GAJAS Phase III (Multi-Platform Anti-Jam Navigation Antenna (MAGNA) EMD) in 2017 and GAJAS Phase III (MAGNA IDIQ) in 2020, totaling \$80.5 million — a 58x return on investment for the Army SBIR solicitation. This led to integration into multiple Army platforms and expansion plans for this technology with the U.S. Navy, SOCOM, and Air Force Special Operations Command (AFSOC).

U.S. Army PEO Aviation plans to integrate MAGNA into platforms like the UH-60V/M, Gray Eagle, Future Vertical Lift, Fixed-Wing Transport, Fixed-Wing Special Electronic Mission Aircraft and Headquarters, Department of the Army (HQDA) Platforms.

The Under Secretary of Defense for Research and Engineering selected MAGNA for the FY23 APFIT program, awarding the Mayflower Communications an additional \$19.97 million for procurement of their antennas. The U.S. Navy Naval Air Systems Command plans to integrate MAGNA on the MQ-8, H-1, AH-1Z, UH-1Y, F-18C/D and ships like the United States Naval Ship (USNS) Mercy, USNS Comfort and USNS McLean. U.S. SOCOM and AFSOC will integrate MAGNA across multiple Fixed-Wing and Unmanned Aerial System (UAS) aircraft.

Mayflower Communications recently deployed a software/firmware upgrade, enhancing capabilities without affecting MAGNA’s size and weight. Additionally, the PEO Aviation MAGNA Definitive Order Agreement contract received certification at Design Assurance Level B through PEO Aviation. The Army, Navy, and Air Force continue to place orders through the PEO Aviation indefinite delivery/indefinite quantity contract, driving \$4.92 million in funding in FY24.

PRIVATE CAPITAL ENGAGEMENT

Throughout the year, the Army SBIR|STTR Program engaged with leading venture-capital firms, business accelerators, and academic partners to host events addressing Army technology challenges and highlighting how emerging technology companies can close capability gaps. These events feature reverse pitches, where Army technical experts can showcase available R&D funding opportunities and include the planned Army Demand Signal Forum in FY25, where Program Managers from half of the Army’s PEOs will present their technology demands to an audience of 180 private companies, evenly divided between technology providers and venture finance firms.

During each event, Army technical and program experts articulated critical needs and pinpointed specific opportunities for industry-government collaboration. These events aimed to clarify Army priorities and encourage more technology firms to view the Army as an attractive market. Expanding the Army ecosystem to include a greater share of the talent and technology offered by the American innovation economy remains a top priority for the Army SBIR|STTR Program.

In FY24, the program presented nine topics to over 750 attendees at private capital reverse pitch events.

By leveraging strategic partnerships, the Army SBIR|STTR Program increased awareness within the private capital community about its investments and priorities. This approach helped recruit best-in-class nontraditional firms while reinforcing the Army’s commitment to harnessing commercial innovations. Reverse pitch events continue to be essential in shaping defense-focused technological advancements.

On July 25, the Army xTech and SBIR|STTR Programs collaborated with Venrock, a venture capital firm, to conduct a reverse pitch. The event provided an overview of the Army SBIR|STTR Program and highlighted current proposal opportunities, including:

- ▶ AI/ML-Focused Open Topic
- ▶ Hybrid Powertrain, Power, and Propulsion System (HEPPS) Open Topic
- ▶ Mobile Sustainment Tools Open Topic
- ▶ Shop Tools and Enablers Open Topic
- ▶ Reverse Engineering Equipment Open Topic

More than 500 participants, including nontraditional partners, attended the event, gaining valuable insights into these specific solicitations and other new Army SBIR|STTR Program initiatives.

On August 15, the Army SBIR|STTR Program conducted another reverse pitch, collaborating with Plug and Play, a business accelerator, and Gallium Solutions, a government-focused venture capital firm. Army technical experts from three separate organizations presented \$30 million in funding opportunities for pre-release topics across multiple SBIR|STTR portfolios, including:

- ▶ Battery-Focused Open Topic
- ▶ Dynamic Generative LLMsfor Continuous Situational Awareness
- ▶ LLMCourse-of-Action Analysis

FY24 SUCCESS HIGHLIGHTS

In FY24, the Army SBIR|STTR Program actively guided companies through the innovation process, supporting the development of advanced technologies. This hands-on approach helped small businesses navigate the complexities of R&D, driving continued technology development and maturation.

From the outset, the program identified transition partners, aligned projects with end-user needs, and secured clear pathways for commercialization. These partnerships mitigated risks and accelerated the transition of innovative solutions from prototype to field, ensuring seamless integration into Army systems while meeting operational requirements.

ANDRO COMPUTATIONAL SOLUTIONS (ARMY XTECH, ARMY SBIR CATALYST)

ANDRO Computational Solutions won the xTechWaveform competition in June 2021, securing \$1.7 million to develop its open hardware architecture for software-defined radios. In 2024, ANDRO received a second Army SBIR Phase II award to advance this initiative via standardized Software-Defined Radio systems, designing a ruggedized VPX chassis aligned with the Sensor Open Systems Architecture (SOSA) standard. Partnering with Sciens Innovations, ANDRO integrated software-based waveforms with SOSA-aligned hardware.

Previously, ANDRO secured nearly \$1 million from the Army SBIR CATALYST Program for Task Order and \$1.8 million for Phase II Enhancement, funding efforts to port Deep SPEC—its platform for enhancing radio frequency signal detection and classification—to C5ISR Modular Open Suite of Standards/SOSA-aligned hardware. The company also received \$1.7 million for Deep Forecaster and successfully conducted field tests at White Sands Missile Range.

Additionally, ANDRO is developing a modular, AI-powered electromagnetic sensing payload prototype for UAS or drones, sponsored by the Army Applications Laboratory (AAL). Aptly named RF-HAWK, this novel UAS payload concept consolidates multiple specialized units into a single, integrated package for in-flight AI-driven electronic sensing. It detects, identifies, and mitigates counter-adversarial radio frequency threats, including command-and-control



disruption and intentional electromagnetic interference. Optimized AI models enable real-time inferencing at low power, allowing RF-HAWK to multitask and make rapid decisions. Its performance acts as a force protection multiplier, ensuring reliable operation in highly congested and contested signal/spectrum environments.

PRATT MILLER (ARMY SBIR PHASE III)

In October 2024, Pratt Miller secured an Army SBIR Phase III award of \$22.5 million, with an additional \$7.5 million in options for full-rate production of the Trackless Moving Target (TMT) family of products, a robotics-based marksmanship training technology. The award covers production and initial fielding support for the first nine installations, starting in the summer of 2025 and concluding by late 2026, with additional ranges planned through 2029.

Pratt Miller launched the TMT project as an Army SBIR Phase I in 2012, collaborating with PEO Simulation, Training, and Instrumentation. Over 12 years, the targets evolved from fixed or linear to fully programmable, operating throughout the range safety zone with 360-degree engagement and realistic, reactive behaviors. The system ensures Soldiers can independently use and maintain the equipment without external support.

Integrated into the Army's Targetry Range Automated Control and Recording II software, TMTs provide a transformational live-fire marksmanship training experience. The system combines a mobile armored platform with GPS-based path-following technology and a zone-based hit detection system, enabling reactive behavior scenarios and real-time scoring. Its portability supports multi-range use

FY24 SUCCESS HIGHLIGHTS



while lowering fixed-target installation costs. Pratt Miller will execute the project with an estimated completion date of September 2029.

ARMY APPLICATIONS LABORATORY (AAL) PARTNERSHIP SPOTLIGHT

In FY24, the Army SBIR|STTR Program partnered with the AFC AAL to execute SBIR projects worth over \$25 million dollars. AAL's SBIR investments are advancing programs such as Atomic Clock, Holistic Health and Fitness Readiness Kit (H2FRK), and Augmented Reality Maintainer-Operator Relay System (ARMORS) by breaking down barriers for industry, government stakeholders and end users to work together on solving some of the Army's toughest challenges. These examples of AAL-led SBIR projects highlight the Army's ability to rapidly bring cost-effective commercial technologies to the warfighter.

Vector Atomic (Army SBIR, Army SBIR Phase III)

In FY24, Vector Atomic developed a portable atomic clock called the Compact, Optically Stabilized Molecular Iodine Clock (COSMIC) to enhance PNT capabilities. This advanced technology provides precise timekeeping and synchronization, enabling critical applications such as secure communications, geolocation of adversary emitters, and multi-static radar. Following its transition to Army DEVCOM as part of the Atomic Clock program, Vector Atomic secured an \$11 million Phase III award to further develop and deploy its atomic clock technology in operational environments. These efforts contribute to a broader initiative to leverage quantum technology for Army applications.

Virtuvia LLC (Army SBIR, Army SBIR Phase III)

In coordination with Virtuvia LLC, AAL developed the Holistic Health & Fitness Management System to help Soldiers track holistic wellness across five domains: fitness, mental, sleep, nutrition, and cognitive. This innovative project earned two Phase III awards from the Army's Holistic Health and Fitness initiative and U.S. Army Training and Doctrine Command to pilot the platform for One Station Unit Training infantry training and load testing. Virtunia's system provides leaders with critical data to make informed decisions about service member readiness, strengthening the effectiveness of Army defense operations.

“By investing, experimenting and transitioning together, we get better capabilities faster and with less impact to the DoD budget.”

– Dr. Casey Perley, Executive Director, Army Applications Laboratory

Taqtile Inc. (Army SBIR, Army SBIR Phase III)

Taqtile was one of three companies awarded a Phase I SBIR contract to advance the Augmented Reality Maintainer-Operator Relay System (ARMORS) project developing augmented reality technology to support Soldiers in vehicle maintenance, remote inspection and virtual learning to enhance Army sustainment operations. Taqtile showcased its AR maintenance solution, Manifest, on an M1 Abrams tank providing real-time, hands-free access to digital work instructions and expert guidance. Taqtile is rapidly advancing this technology to meet specific end-user needs through direct feedback from Soldiers and is planning to deploy on an overseas rotation to undergo evaluation during sustainment exercise and other military operations as they wrap up their SBIR effort. ARMORS software is now available on Computer Hardware, Enterprise Software and Solutions, enabling individual units to purchase licenses for implementation and is currently deployed in U.S. Indo-Pacific Command and U.S. European Command theaters.

CLOSING THOUGHTS

The Army relies on small businesses to drive technological advancements and propel transformative capabilities for dual-use applications. Often, small businesses outpace traditional contractors and Army research labs, accelerating the development of emerging solutions in areas such as AI, where firms actively collaborate and share ideas. The

DoD recognizes small businesses as key innovators for the Army and other federal agencies, consistently delivering groundbreaking ideas that strengthen national security.

The Army SBIR|STTR Program's strategic initiatives reinforce the Army's commitment to driving innovation and ensuring long-term military readiness. The program continues to partner with Army stakeholders and independent technology scouts to identify and fund promising technologies for rapid battlefield transition.

Additionally, the Army SBIR|STTR Program fuels innovation by removing barriers and streamlining the process for businesses to develop cutting-edge technologies. As the program expands, it implements smart investment strategies, collaborating with Army organizations, small businesses, and industry partners to fund technology that strengthens the nation's economy and enhances the Army's capabilities.

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To learn more about the Army SBIR|STTR Program visit our website at <https://armysbir.army.mil> and subscribe for email updates. For inquiries, contact us at usarmy.sbirsttr@army.mil.

