DIBX Pitch Competition

August 26, 2026

DIBX Plenary Stage (Terrace Ballroom)

DIBX Pitch Competition – Finalist Overview

The DIBX Pitch Competition includes nine finalists across three categories.

1 Strategic & Critical Minerals

- **5N+ Semiconductors** - U.S. GaAs Substrate & Optical Component Production
- **Graystone Resources** – Autonomous Recovery of Critical Minerals from Coal Ash
- **Kunin Technologies** - Domestic Production of Scandium from Titanium Waste Acid

2 Expeditionary Manufacturing of Electronics

- **KVG** – Expeditionary Electronics Manufacturing System (EEMS)
- **Senra Systems** - AMP-X: A Deployable Cell for Expedited, On-Demand Manufacturing of Mission-Critical Wire Harnesses
- **TaskHawk Systems** - Manufacturing Release Control for Expeditionary Electronics

3 Fuel Distribution

- **Cybernet Systems** - Autonomous Fuel Distribution Vehicles
- **Hollocraft** – Quad-Wing: Autonomous Attritable Aerial Fuel Distribution
- **Neya Systems Division, Applied Research Associates** - Large Scale Autonomous Fuel Distribution

Proposal Summaries

1 Strategic & Critical Materials

Securing our supply chain by modernizing legacy extraction and refining processes to increase material output or by developing modular processing capabilities.

1 5N+ Semiconductors

U.S. GaAs Substrate & Optical Component Production

Abstract: Gallium arsenide (GaAs) is used in defense electro-optical systems and advanced semiconductor devices. The United States has no qualified domestic supply of GaAs electro-optical components, and defense primes rely on foreign sources. 5N+ Semiconductors proposes to establish a qualified U.S. source at our operating facility in St. George, Utah, beginning with a current defense-prime requirement. This is not a basic research program. 5N+ has designed, built, and operated Vertical Gradient Freeze (VGF) crystal-growth furnaces and has already grown both six-inch and eight-inch GaAs crystals. The project moves that demonstrated capability into controlled, low-rate production. During the 24-month effort, 5N+ will add VGF crystal-growth and GaAs compounding equipment, improve process repeatability, establish the required inspection and material-control methods, and produce qualified GaAs electro-optical components. The work includes growing six-inch single-crystal ingots, fabricating infrared optical components, completing electrical, optical, dimensional, and surface inspection, and delivering parts with full traceability and inspection records. The project also reduces raw-material supply risk. Clean bulk GaAs generated during crystal growth will be controlled and reused where practical. Machining fines will be collected for future gallium recovery, and North American and allied gallium suppliers will be evaluated. This reduces material loss and dependence on constrained foreign supply. The remaining work is execution: install and commission the equipment, tighten process controls, establish the inspection system, qualify the product with the customer, and increase output in a controlled way. The same equipment, fabrication processes, characterization capability, and quality system can later support domestic GaAs substrates for other defense and aerospace applications, including space solar cells and monolithic microwave integrated circuits (MMICs). The project will establish a qualified U.S. source for GaAs electro-optical components, support an immediate defense requirement, and provide a practical base for future domestic GaAs substrate production.

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1

Graystone Resources

Autonomous Recovery of Critical Minerals from Coal Ash

Abstract: Rare earth elements are essential to a wide range of defense and commercial systems, yet the United States remains dependent on foreign sources for the processing and refining of these materials. Domestic supply efforts have focused largely on new mining, but a substantial resource already exists in coal combustion residuals. U.S. power plants have generated billions of tons of coal ash, which commonly contains rare earth elements at concentrations of 300 to 600 parts per million in a material that has already been extracted, size-reduced, and collected within existing industrial facilities. Graystone Resources is developing a modular system that recovers rare earth elements from coal ash using a proprietary technology and is deployed on site at the power plants where the ash is produced. The system yields a mixed rare earth oxide concentrate suitable for domestic separation. It is skid-mounted for rapid deployment and, once commissioned, operates as a fully autonomous, unattended plant. The process recycles its working fluid, leaves the treated ash suitable for existing beneficial-use, and produces minimal liquid waste, avoiding the acid-intensive waste streams that have constrained previous domestic recovery efforts. The technical basis for the approach was established through bench-scale work on Alaskan coal ash conducted under the Department of Energy's CORE-CM program. This effort advances that work to a prototype at the University of Alaska Fairbanks combined heat and power plant, validating performance through a 500-ton demonstration campaign. The 24-month program will deliver an operational prototype, a validated techno-economic model, and a production-scale module design that enables capacity to grow through replication across domestic coal plants without new mining or major new facilities. This approach offers a decentralized, easily scalable pathway to a more resilient domestic rare earth supply chain.

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1

Kunin Technologies

Domestic Production of Scandium from Titanium Waste Acid

Abstract: Kunin is advancing the commercial readiness of the United States' first domestic scandium production opportunity, unlocking scandium for the defense industrial base for the first time in 60 years. In partnership with a domestic Titanium Dioxide pigment plant, Kunin has demonstrated production of 99.9% pure scandium oxide – with a pathway to Solid Oxide Fuel Cell grade purity. Kunin has established an initial framework to provide the process technology, conduct the engineering, and finance a minimum 20 ton per year commercial facility for completion in late 2027. This DIBX accelerator progresses Kunin from pilot execution to detailed engineering and final investment decision. Kunin is America's only vertically integrated ion-exchange resin media manufacturer, process technology developer, engineering services provider, and project financier – focused exclusively on co-production of non-core critical metals from operating industrial assets – mines, smelters, and refineries.

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Pitch Competition Proposal Summaries

2 Expeditionary Manufacturing of Electronics

Requesting ruggedized, deployable systems capable of manufacturing Printed Circuit Boards (PCBs) and other critical electronic components on-demand in austere, forward-deployed environments to support production at the tactical edge.

2

KVG

Expeditionary Electronics Manufacturing System (EEMS)

Abstract: Modern defense operations depend on electronics — communications, sensors, electronic warfare, counter-UAS, and autonomy — yet the production of printed circuit boards and other critical electronic components remains centralized and largely offshore. In contested or austere environments, a single failed board can mean weeks to months of downtime, directly degrading warfighter readiness at exactly the moment it matters most. KVG LLC, teamed with Arlin Dynamics, is developing the Expeditionary Electronics Manufacturing System (EEMS): a ruggedized, transportable production node capable of assembling, programming, testing, and repairing mission-critical electronics at the point of need. Housed in a standard ISO-transportable container and designed with C-130 compatibility as a stated objective, EEMS brings a trusted, first-article-quality manufacturing capability directly to the tactical edge, cutting replacement timelines from months to local turnaround. EEMS is built around three layers. The Expeditionary Production Node handles assembly, programming, test, and repair in the field. A Distributed Manufacturing Ecosystem links forward nodes to a trusted surge and supply network, so that capacity and material can flex to where they are needed. A Digital Manufacturing Network ties it together with a secure data thread, giving every board a verifiable pedigree from design through field repair — a supply chain resilience capability the current centralized, offshore model cannot offer. The prototype effort funded under this proposal will demonstrate the forward production node: equipment installation and integration into the transportable format, a government-witnessed factory acceptance and functional test, and an expeditionary move-and-restart demonstration proving the system can be relocated and returned to production in a realistic operational timeline. Success is measured against concrete, objective criteria — first-pass functional yield, restart time, and production continuity under disruption — not just a static demonstration. KVG LLC is a Service-Disabled Veteran-Owned Small Business and non-traditional defense contractor based in Gettysburg, Pennsylvania, serving as prime integrator. Arlin Dynamics brings manufacturing-technical authority and an established international equipment and supplier network. Together, the team is structured to move from this prototype toward a fielded, scalable capability: a forward-deployable production tier for assembly, test, and repair, paired with a larger fixed-site or regional tier for board fabrication — giving the Department of War a real, executable path to a resilient, distributed electronics industrial base rather than a single point of offshore dependency.

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2

Senra Systems

AMP-X: A Deployable Cell for Expedited, On-Demand Manufacturing of Mission-Critical Wire Harnesses

Abstract: Wire harnesses pace the weapons production ramps the Department is funding today: lead times routinely exceed 26 weeks, roughly 44.8% of U.S. harness imports come from non-allied sources led by China, and existing capacity can neither surge nor deploy. AMP-X answers the Expeditionary Manufacturing of Electronics problem statement with a deployable wire harness manufacturing cell built into a modified 20-foot high-cube ISO container, a self-contained factory that travels by truck, rail, ship, or aircraft and produces qualified, mission-critical harnesses wherever they are needed. The cell compresses Senra's production-proven, software-driven process into roughly 150 square feet. An offline-first edge deployment of Amp, Senra's Industry 4.0 manufacturing platform, generates each harness's complete digital build file, including work instructions, machine programs, and electrical test code, from a digital twin of the product. Five stations in a U-shaped lean flow carry each job from kitted materials through wire preparation, force-monitored crimping, projection-guided formboard assembly, and automated electrical test, run by a crew of three technicians. Workmanship is maintained to IPC/WHMA-A-620 and NASA-STD-8739.4 with full digital traceability, under NIST SP 800-171-aligned CUI and ITAR handling. The container holds a factory-grade microclimate (18-30 C, 30-70% RH) in ambient conditions from -32 C to +49 C, runs on 208Y/120V three-phase power or a standard 60 kW tactical generator, and produces its first qualified article within 72 hours of set-down. Senra factory baseline data show approximately 37% labor-hour reduction, 1.6x throughput, and 98% or better first-pass yield versus conventional methods - performance AMP-X is designed to replicate in the field at roughly 2,400 assemblies per cell-year. The proposed 24-month fixed-price OTA effort designs, builds, and validates the first cell, from preliminary design and the edge port of Amp through critical design review, cell build and factory acceptance, on-demand production validation, and an instrumented transport trial, closing with a replication playbook that enables follow-on production of cells across the defense industrial base under 10 U.S.C. 4022(f). Senra Systems is a nontraditional defense contractor and small business whose privately developed software platform, factory infrastructure, and trained workforce come to the program at no charge to the Government.

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TaskHawk Systems

Manufacturing Release Control for Expeditionary Electronics

Abstract: TaskHawk Systems proposes Manufacturing Release Control for Expeditionary Electronics to help forward production and repair teams prevent incorrect or incomplete electronics items from advancing to final release. The effort addresses Printed Circuit Board (PCB) production, electronics repair, assembly, and hybrid-electronics operations where wrong design data, wrong material lots, missed inspections, skipped process steps, or unauthorized release can create scrap, rework, delay, and readiness risk. The prototype will evaluate critical release conditions across design and Bill of Materials (BOM) status, authorized personnel and equipment, material and component lots, process sequence, inspection and test completion, rework closure, and final release. At each agreed control point, the production workflow receives a clear RELEASE, HOLD, REWORK, or HALT decision and a reviewable record of the outcome. Evaluation will use representative PCB or electronics-repair travelers across nominal, rework, and seeded-fault scenarios. Proposed success measures are eight or more release gates; 100 percent of agreed bad-release attempts blocked or routed; local p95 decision time of one second or less; a 72-hour disconnected operating profile; and post-run reconstruction in under 15 minutes. The operational objective is faster, more trustworthy forward electronics production and repair with fewer escape defects, fewer repeated inspections, less preventable scrap and rework, and stronger production-record integrity. The demonstration will show how the capability supports local decision-making through disconnected or degraded-network conditions and provides Government evaluators with independently checkable results after the run. The same performance measures can be evaluated in a TaskHawk baseline workflow, a Government-designated environment, or an authorized partner work cell. This creates a practical path for manufacturers, integrators, and test organizations to assess the capability against real production and sustainment requirements.

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Pitch Competition Proposal Summaries

3 Fuel Distribution

Calling for attritable, autonomous delivery systems that disaggregate fuel transport to reduce the vulnerability of large convoys. Solutions must be capable of delivering at least 1,000 gallons over 100 nautical miles and guarantee mission success even with up to a 40% platform loss rate.

3

Cybernet Systems

Autonomous Fuel Distribution Vehicles

Abstract: Cybernet Systems proposes an attritable autonomous fuel-delivery capability that disaggregates fuel transport across independently operating tanker vehicles, reducing reliance on vulnerable large convoys. The solution applies Cybernet's mature modular appliqué autonomy kit to a Government-furnished Heavy Expanded Mobility Tactical Truck (HEMTT) A4 tanker or comparable fuel-distribution platform. A HEMTT A4 tanker can carry approximately 2,500 gallons, exceeding the Cornerstone Initiative Request requirement to deliver at least 1,000 gallons over 100 nautical miles. Mission planning will support redundant deliveries over independent routes and schedules so that the overall delivery objective can be met even with losses of individual platforms. The autonomy kit adds vehicle-specific drive-by-wire control for steering, service braking, emergency stop, transmission and engine functions, lighting, and vehicle-status reporting. It integrates lidar, radar, cameras, and position, navigation, and timing sensors to support obstacle detection and avoidance, vehicle localization, and operation on roads or unimproved terrain. The tanker will retain manual driving capability, while the autonomy system will also support teleoperation and planned autonomous missions. A networked command-and-control capability will allow personnel to monitor vehicle status and mission progress through available terrestrial IP radio or low-Earth-orbit satellite communications. Each vehicle will retain its mission plan and continue appropriate mission execution when communications are intermittent or temporarily unavailable. Phase I will establish detailed mission and system requirements with the Government, select and assess the target fuel vehicle configuration, tailor the autonomy kit and control station, and conduct preliminary and critical design reviews. Cybernet will procure and assemble the kit, integrate it with the selected vehicle, and conduct factory and field functional and safety testing, including testing at Camp Grayling, Michigan, as appropriate. The effort will culminate in a Government demonstration of the operational configuration and delivery of the kitted vehicle, Technical Data Package, and production scale-up plan. The proposed solution builds on Cybernet's experience integrating autonomy kits with military and commercial forklifts, tow tractors, container handlers, graders, vans, and the Assault Breacher Vehicle. It uses mature components and a scalable Detroit-area automotive supply chain to provide a practical path from a demonstrated tanker configuration to production of autonomous fuel-delivery vehicles at Government-required volumes.

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3

Hollocraft

Quad-Wing: Autonomous Attritable Aerial Fuel Distribution

Abstract: Hollocraft is a contested logistics company building autonomous systems that keep forces supplied where convoys and traditional aircraft cannot safely reach. Military fuel resupply today depends on ground convoys and a small number of high-value logistics aircraft — concentrating risk in exactly the assets an adversary is most incentivized to target. Hollocraft's Quad-Wing system removes that concentration by disaggregating fuel delivery across a swarm of small, low-cost, autonomous aircraft, so that the loss of any single vehicle degrades a mission gracefully rather than defeating it. The Quad-Wing airframe is a tailsitting vertical takeoff and landing (VTOL) aircraft: it launches and recovers vertically from unimproved sites with no runway or launch infrastructure, then transitions to efficient fixed-wing cruise for long-range flight, combining the basing flexibility of a multicopter with the range and efficiency of a fixed-wing aircraft, at a fraction of the cost and acoustic signature of either heavy-lift multicopters or cargo helicopters. The airframe is compact, stowable, and stackable for dense transport by truck, ship, or aircraft. At the center of the system, literally, is a modular fuel-body cassette. Two or four Quad-Wing aircraft can attach to it, scaling lift capacity to match mission demand. This lets a single aircraft family cover a wide range of delivery scenarios while keeping the fleet attritable. Swarms are autonomously coordinated, with delivery tasks reassigned in flight if any aircraft is lost. Hollocraft is partnered with Harmony Aeronautics, a propulsion and autonomy technology firm, bringing quiet propulsion and flight autonomy expertise to the platform. Together, the team is maturing this system from flight-demonstrated tailsitter aircraft toward a fielded capability for contested logistics — supporting distributed and expeditionary operations where reliable, low-signature resupply is a limiting factor for the force.

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Neya Systems Division, Applied Research Associates

Large Scale Autonomous Fuel Distribution

Abstract: Neya Systems and its partners Textron Systems and AM General propose an integrated system of autonomous, attritable unmanned ground and surface vehicles (UGVs/USVs) for reliable large-scale fuel distribution in challenging environments that span hundreds of miles. Fuel distribution missions are currently achieved via large convoys that are prime targets for attack that lead to casualties and costly losses of critical supplies. This solution builds upon existing high TRL capabilities and commercial vehicles that allows a single operator to oversee and manage a decentralized fleet with minimal intervention while reducing the risk of loss associated with larger vehicles and convoys. The associated image provides an overview of the proposed Concept of Operations. Neya's Mission Planning and Management System is used to orchestrate a fleet of Textron USVs and AM General UGVs, each equipped with auxiliary fuel tanks. The USVs are loaded with fuel at the depot and autonomously navigate routes with ranges exceeding 100 nautical miles to a shore transfer station. The fuel is then transferred to multiple UGVs to provide redundancy in case of attrition. From there, the N-Drive Autonomy Kit can navigate the toughest ground environments to deliver the fuel to the tactical edge. The Neya Team will cap the project with a real-world demonstration of the fuel distribution system, leveraging sites such as Rock Island Arsenal. This real-world mission will show the efficacy of the pre-production prototype and its readiness to scale into full production and deployment.

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