
Hosted by
Office of Senator Thom Tillis
Office of Senator Ted Budd
Fayetteville Technical Community College (FTCC)
North Carolina Military Business Center (NCMBC)
North Carolina Defense Technology Transition Office (DEFTECH)

# Welcome Remarks

**Scott Dorney**
Executive Director
North Carolina Military Business Center

# Welcome Remarks

**Dr. Mark Sorrells**
President
Fayetteville Technical Community College

# Welcome Remarks

**Dr. Jeff Cox**
President
North Carolina Community College System

# Morning Keynote

**United States Senator Thom Tillis**
North Carolina

**Major General Patrick B. Roberson**
Deputy Commanding General
US Army Special Operations Command

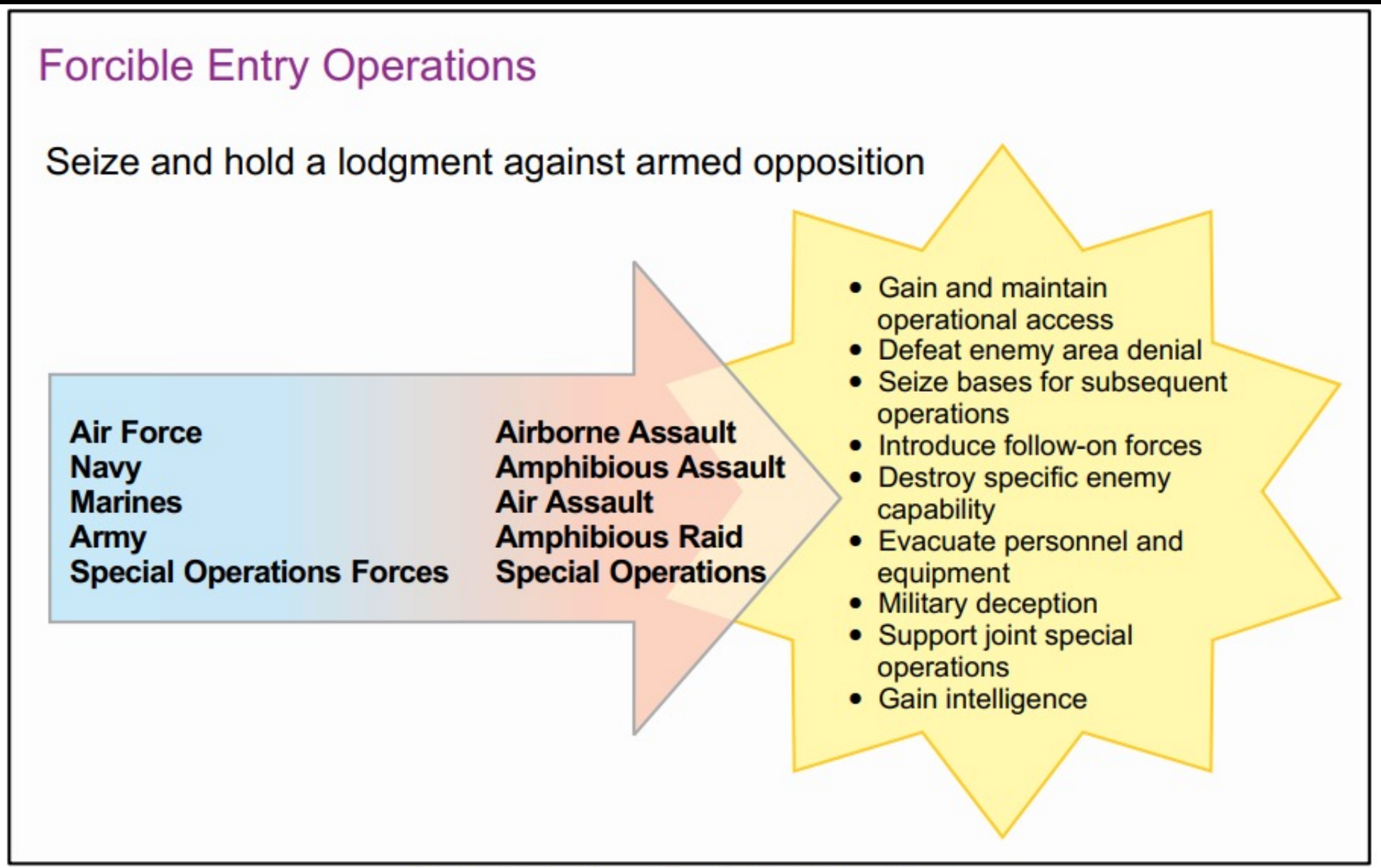



**Figure I-1. Forcible Entry Operations**

# Forced Entry in a Complex Environment – Is it a valid option? If so, what tech is needed to address:

- Anti-Access & Area Denial
- Real time commercial means to track aircraft & troop movement, i.e. Limits surprise
- Enemy long range fires with sensors & data –generated targeting
- The tyranny of distance
- Communications (Joint All Domain Command and Control)…denial, interruption, trust
- Autonomous systems
- Contested logistics *(Ukraine loses 10,000 UAVs a month!)*
- Medical Treatment & Evac
- AI and developing Algorithms at the Edge…trust and links to data
- Force projection installations that can be monitored by commercial means and disrupted with kinetic and or cyber means
- An adversary with similar capabilities as the US working today to achieve OODA Loop Dominance (Observe, Orient, Decide, Act)

*"U.S military strength is only as secure as its core technological strength."*

*current National Security Strategy*

# Roundtable 1:
# Forced Entry in a Complex Environment

- Colonel John Wilcox, Garrison Commander, Fort Liberty, North Carolina
- Colonel Daniel Kearney, Commander, 1st Brigade Combat Team, 10th Mountain Division
- Jock Padgett, Chief Technology Officer, XVIII Airborne Corps
- Gene Ebersole, Squadron Commander for Technology Development, US Army Special Operations Command
- Tom Earnhardt, Force Development Planner, Joint Special Operations Command

# Technology Mini-Brief


**UNCC Controls Optimization Autonomy and Robotics Lab**

**Arman Pourghorban**


# SCOUT CARD

# Resilient Autonomy for Tactical Behaviors

Controls Optimization Autonomy and Robotics Lab
POC: Arman Pourghorban
apourgho@charlotte.edu, 704-687-8590

## Tactical Engagement with Intelligent Adversaries in Complex Environments

### Problem

- Autonomous Robots in Army Missions
- Intelligent Adversaries
- Complex Environments

### Our Objective

**To make autonomous warfighters capable of resilient decision-making** that can leverage opponent's resource constraints to be deceptive, create windows of opportunity and eliminate windows of vulnerability.

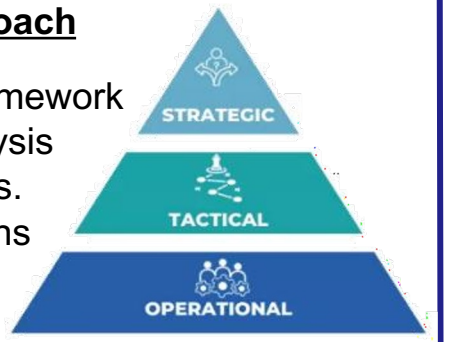
## Solution Specifics

### How do you solve the problem?

- Formulate a **hierarchical decision-making** framework
- Utilize mathematical tools from **game theory and Control theory** to analyze the mission outcome and robustify the algorithms
- Use **sensing technologies** to gather and analyze data and use **AI/ML** to build a team situation awareness
- Utilize the **concepts from our ongoing Army Research Lab project** on Risk-aware Tactical Team behaviors.

## TRL: 4 Technical Approach

- A **scalable hierarchical decision-making** framework
- A **novel game theoretic** formulation and analysis
- Resilient and trustworthy **AI and ML** algorithms.
- Novel **geometric and optimal control** solutions




### What is the Impact of your Solution?

- Enhanced situational awareness against intelligent opponent
- Autonomous and resilient mission execution in contested environment
- Theoretical guarantees on the proposed algorithms
- Identifying and exploiting windows-of-opportunity
- Resilient data driven AI/ML models for tactical engagement

### End-user payoff/expected operational value/new capability:

- Enhanced situational awareness and mission success rate
- Ability to handle intelligent adversaries and complex environments
- Ability to design deceptive strategies and take counter deception measures

### Dual-Use (Commercial / Military) applications for the technology solution:

- Enhance mobility of autonomous robots in cluttered environments
- Collaborative robot navigation, positioning and timing
- Law Enforcement Surveillance and patrolling of neighborhoods

# Technology Mini-Brief

**SWIR Vision Systems**

Robert (RJ) Stewart

# SCOUT CARD

# SWIR Sensors for Tagging, Tracking, and Locating Devices

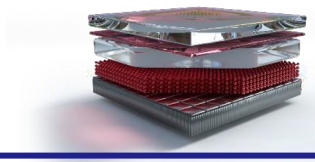
**SWIR Vision Systems**
Robert Stewart
(919) 248-0033
rstewart@swirvisionsystems.com

## Problem

SOCOM needs **low detectability**, **small form factor communications** for **technical surveillance** and **tracking**

SWIR beacons can be used for covert detection of assets, especially in the eSWIR region

Legacy SWIR technology (InGaAs) is high-cost, low-resolution, inflexible, and requires cryogenic cooling for eSWIR detection

## Solution Specifics

- Quantum dot (QD) sensor manufacturing is simplified and compatible with CMOS chip manufacturing, reducing costs drastically
- Spin-coating process provides flexibility for resolutions (as large as one 8” wafer) and sizes (<3µm to 25mm pixels)
- Uncooled detector capability in the eSWIR region
- Broadband spectral sensitivities from 200-2000nm+ enable more advanced technologies in the battlefield
- Currently industrial products; cameras are being evaluated by aerospace and defense customers

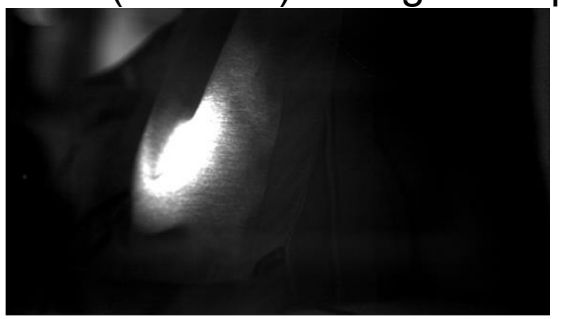
## Impact and Technical Approach

**TRL: 5**

Low SWaP-C eSWIR sensors with event detection for pulses

Flexible form-factor, low-detectability eSWIR pulsing beacon

**Example**: SWIR beacon (1550nm) through backpack



## Performance

**End user expected operational value:**

- Low-cost SWIR sensors with event detection for mass adoption
- Next-gen covert capabilities with uncooled eSWIR

**Dual use apps with 5 years of commercial sales:**

- Inspecting lasers and chips for the largest domestic handset manufacturer
- Surveillance in DVEs
- Telecommunications

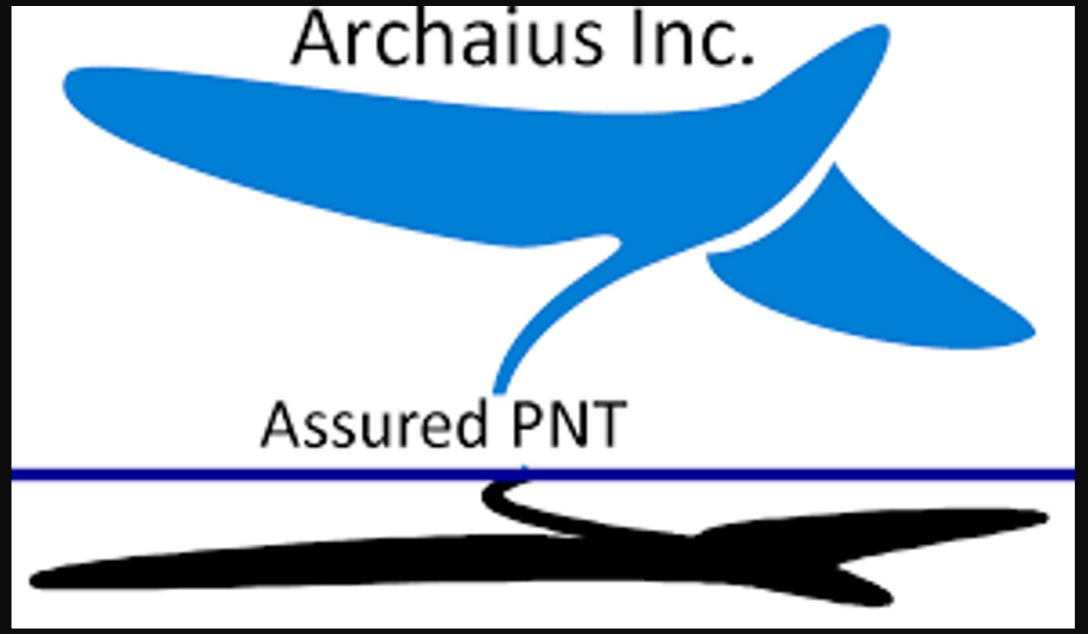
# Roundtable 2: Emerging Technologies – Examining the Latest Innovations in Defense

- Dr. Stephen Lee, Chief Scientist, US Army Research Office, US Army Research Laboratory
- Colonel Tyler E. Harris, MD, FAAOS, Surgical Specialty Advisor, Army Medical Central Simulation Committee and Orthopaedic Hand Surgeon, Womack Army Medical Center
- Dr. Blake Bextine, Program Manager, Biological Technologies Office, Defense Advanced Research Project Agency
- Justin Helton, Science Advisor, II Marine Expeditionary Force, Office of Naval Research
- Keith Wheeler, Executive Director, Office of National Security and Industry Initiatives, East Carolina University

# Technology Mini-Brief

**Archaius, Inc.**

**Rick Vosburgh**



# SCOUT CARD

# Assured PNT for Loitering Munitions

**Archaius Inc.**
**PoC**: Rick Vosburgh
919-414-9374; rick@Archaius.net

Prior Gen. - TRL 5
(JDAM SBIR)

- **The Problem: GPS Vulnerability**
  - C-UAS defeat sUAS missions
- **The Solution: A-J for GPS, Wi-Fi; very low SWAP**
  - >50 dB deep Nulls; Jammer Agnostic
  - Cancellation Bandwidth: >M-code waveform

## Solution Specifics

- **GAD:** deterministic GPS Anti-Jamming technology
  - 20 dB better than CRPA w/low SWAP
  - Wide & deep nulls; no spatial planking
  - Signal Agnostic – Jammer/SOI waveform
  - Microseconds response
- Gen2 ASIC will support even lower SWAP-C
- Capability can be de-rated for nondefense markets

## Impact and Technical Approach

**TRL**: TRL 6 in Oct. 2023; update of TRL 4/5 SBIR Ph.2

- **Impact**: Defends the value of loitering munitions
  - Defeat Jamming; C-UAS, other sources
  - Accurate navigation and remote piloting
  - Low SWAP: preserve mission duration
- **Technical Approach**
  - Deterministic algorithm; COTS components
  - 100x better, much lower SWAP-C
  - Tunable Cancellation Bandwidth

## Performance

- **End User Payoff**

- GPS guidance in extreme RF environments
- Reliable delivery on target
- Sustain mission effectiveness

- **Dual Use Application**

Commercial aviation/shipping, self-driving cars
Synchronize grid/cell towers/pipelines Other Links –
SATCOM, 5G, WAN, DAS

# Technology Mini-Brief

IngateyGen

Hortense Dodo, PhD

SCOUT CARD

# Human Performance Optimization

Hortense Dodo | 256-479-8686 | hdodo@ingateygen.com

## PROBLEM

**Feeding Soldiers during training operations in extreme cold or hot weather**

- **During extreme cold or hot weather military operations, Soldiers burn 6,000 cal/day but only consume 3,000.**
- **This results in calorie deficit  muscle and weight loss  decrease in physical and cognitive performance  decrease in Soldier's readiness.**
- **Up to 1,000 cal can be added in ration but there is a limit to the volume of food a Soldier can consume.**

## SOLUTIONS

**A tasty high protein, essential-amino-acid enriched, calorie-dense, allergy-free peanut to support Soldiers' optimal performance**

- **Increase peanut protein levels by 30%.**
- **Increase all essential amino acids.**
- Resulting product is a high-calorie, nutrient-dense bar or meat alternative.
- To improve muscle recovery, repair, overall performance, and maintain Soldier's readiness.

## TECHNICAL APPROACH AND IMPACT

**TRL: 3-4**

**NSF-SBIR-Ph2**


- **CRISPR Genome Editing Technology to increase protein and amino acid contents in peanuts**
- Can provide up to 6,000 cal/day
- **Is tasty, shelf-stable, portable, low vol, low weight and can be incorporated into existing rations.**

## PERFORMANCE

- **End User Pay Off**: Soldier's Optimum Performance
- **Dual Use**: Can be consumed as a high-density nutritious food during **Disaster and Emergency Relief Zones.**
- Can **help combat child & elderly malnutrition.**

# Lunch Remarks

**Denny Lewis**
Director
North Carolina Defense
Technology Transition (DEFTECH) Office

# Welcome Remarks

**United States Senator Ted Budd**
North Carolina

Video Recording

# AUSA Remarks

**Brigadier General (Ret)**
**John “Jack” Haley**
Vice President, Membership & Meetings
AUSA National

# Gold Sponsor

**Erik M. Berdy**
Partner, Government & Public Affairs
Chair, Defense &
National Security Practices

# North Carolina
# Defense Technology Transition Office
# (DEFTECH)

What

?????

Why

WWW.DEFTECH.NC.GOV

*Scout, Identify, Educate, Inform, Assist, Facilitate, Connect*

# NC DEFTECH

**INNOVATION, SCIENCE, TECHNOLGY**
**SIMPLIFIED ACQUISTION PROCEDURES**
**SBIRs – RAPID PROTOTYPING - COTS**

ncmbc CONNECTING BUSINESS AND MILITARY

## Rapid Prototyping

*Other Trans Auth (OTA)*

DIU AFWERX

SOFWERX VULCAN

XTECH SEARCH AFC

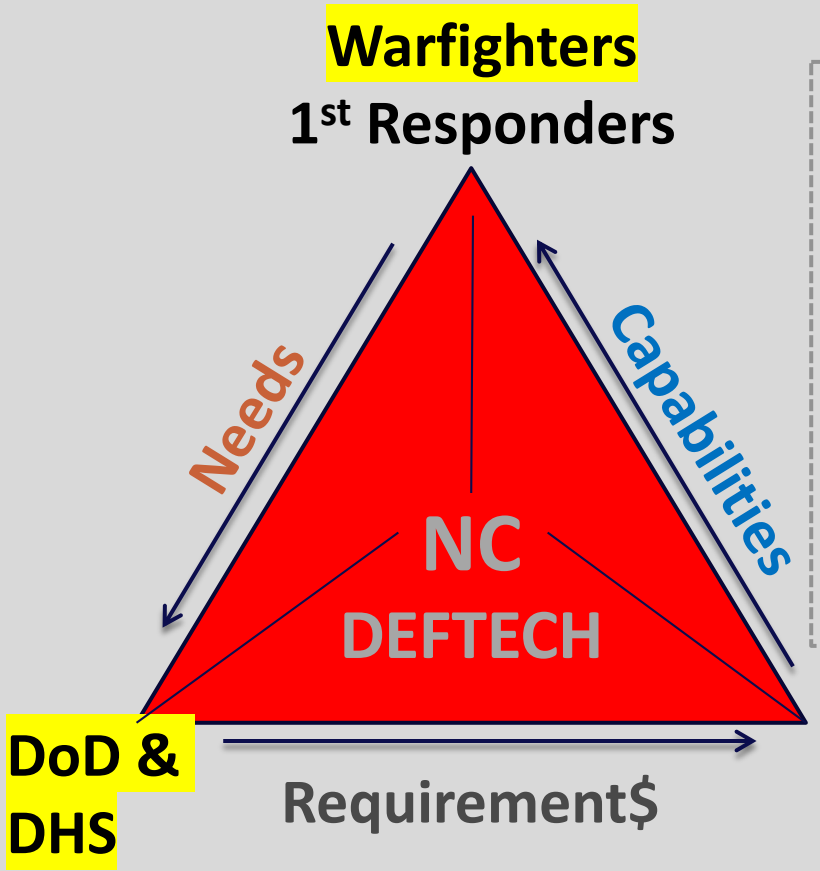
NAVALX MCWL

NASA DOE DHS SVIP

Service LABS DARPA

11 Department

SBIR Offices




NC BUSINESSES ACADEMIA

PUBLIC PRIVATE DEF ORGS

NC MILITARY BASES

NC GOVT INVESTORS

**NC+ Innovation Ecosystem**

Companies, Academe, Organizations, Military

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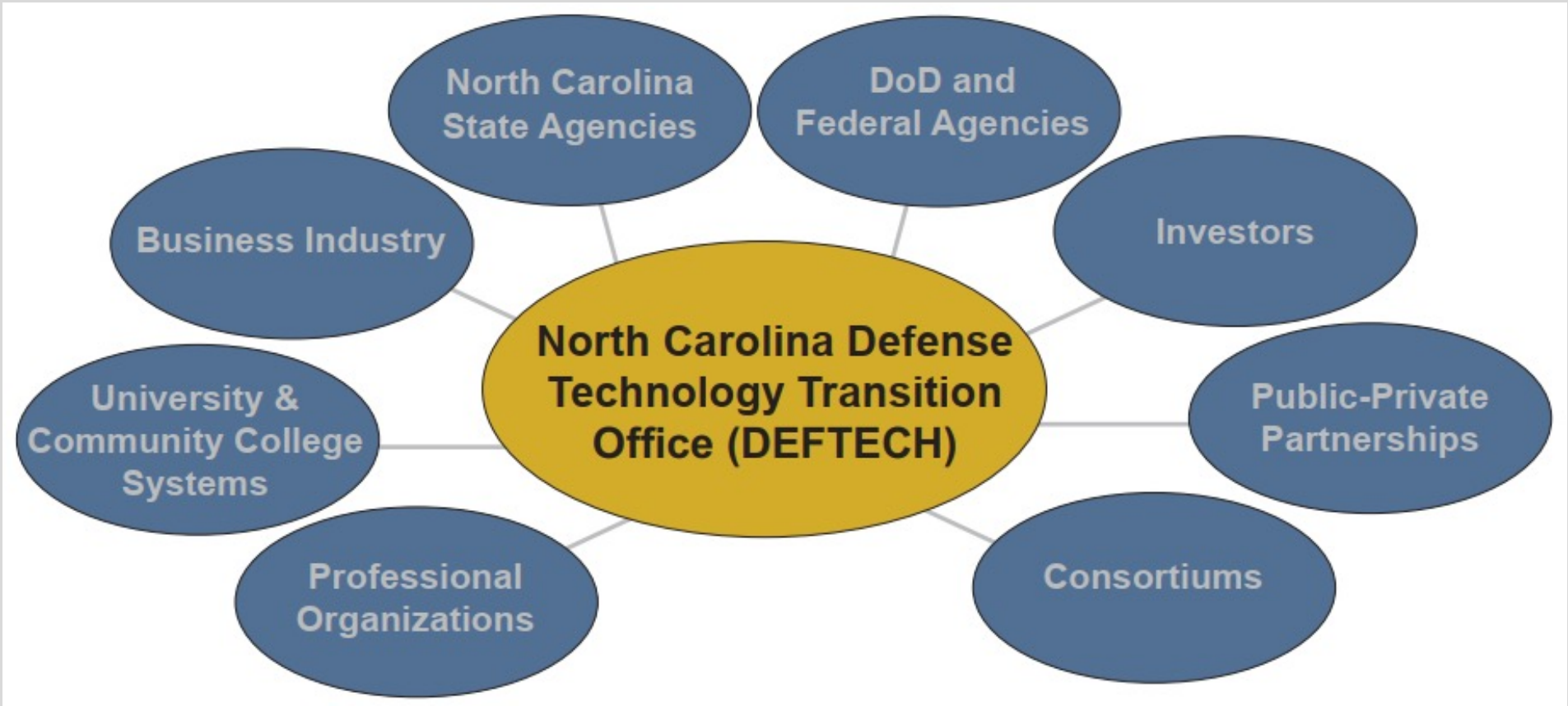
*Scout, Identify, Educate, Inform, Assist, Facilitate, Connect*

# Innovation Ecosystem



**OSD:** DARPA | Defense Innovation Marketplace | Defense Innovation Unit | DreamPort | DEFENSEWERX | DoD Labs | Doolittle Institute | ERDCWERX | MGMWERX | National Security Innovation Capital | National Security Innovation Network | Other Transaction Consortia | Rapid Innovation Fund | Rapid Reaction Technology Office | SOFWERX

**Air Force:** AF Techstars Accelerator | Air Force Research Lab | AFWERX | Allied Space Accelerator | Catalyst Accelerator | DAF MIT AI Accelerator | Hyperspace Challenge | Starburst Accelerator | STRIKEWERX | T3 Accelerator

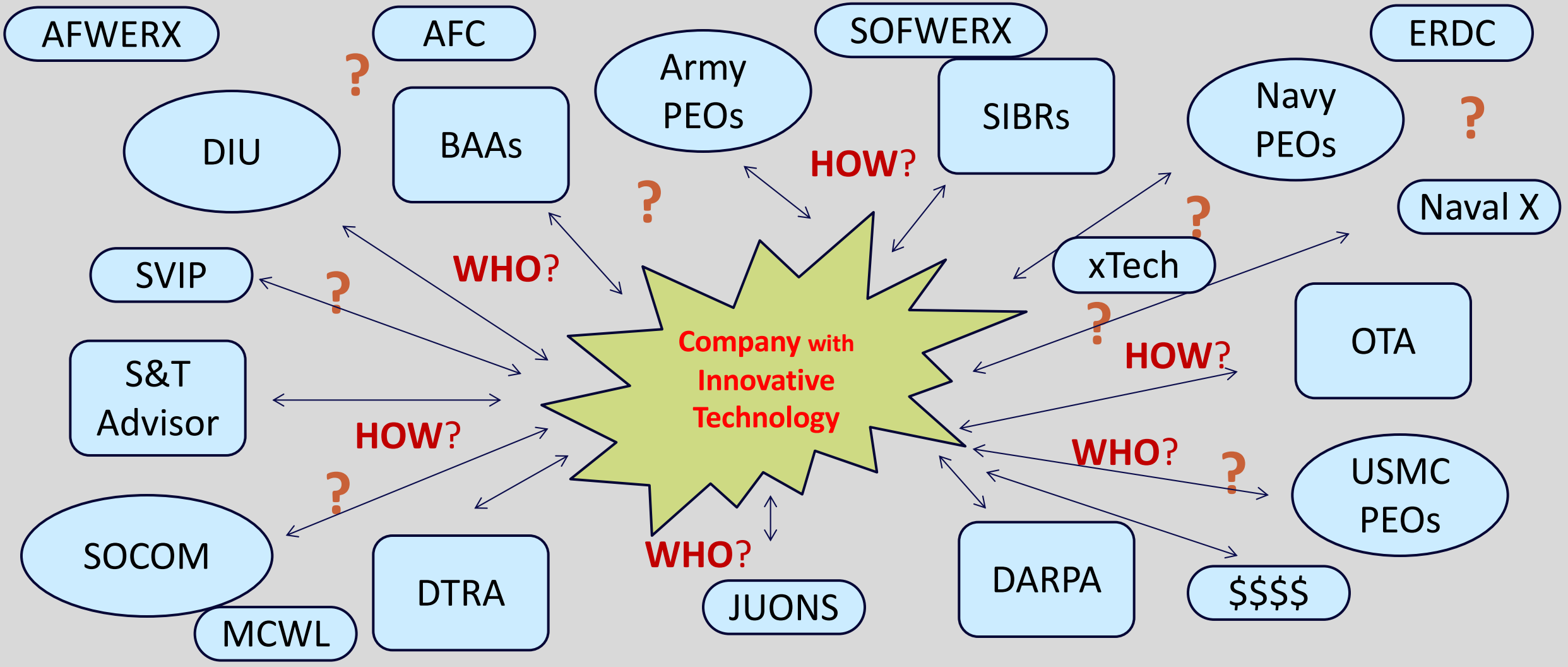
**Army:** Army Applications Lab | Army Research Lab | Army SBIR/STTR | xTechsearch

**Navy:** Marine Innovation Unit | Naval Research Lab | NavalX | Navy SBIR/STTR |
**Non-DoD:** Challenge.gov | IQT
**DHS:** SVIP
30+ DoD OTA Consortia
SBIRs/STTRs

# NC Industry Challenge

*suspicion* *IP* *cost to pursue*

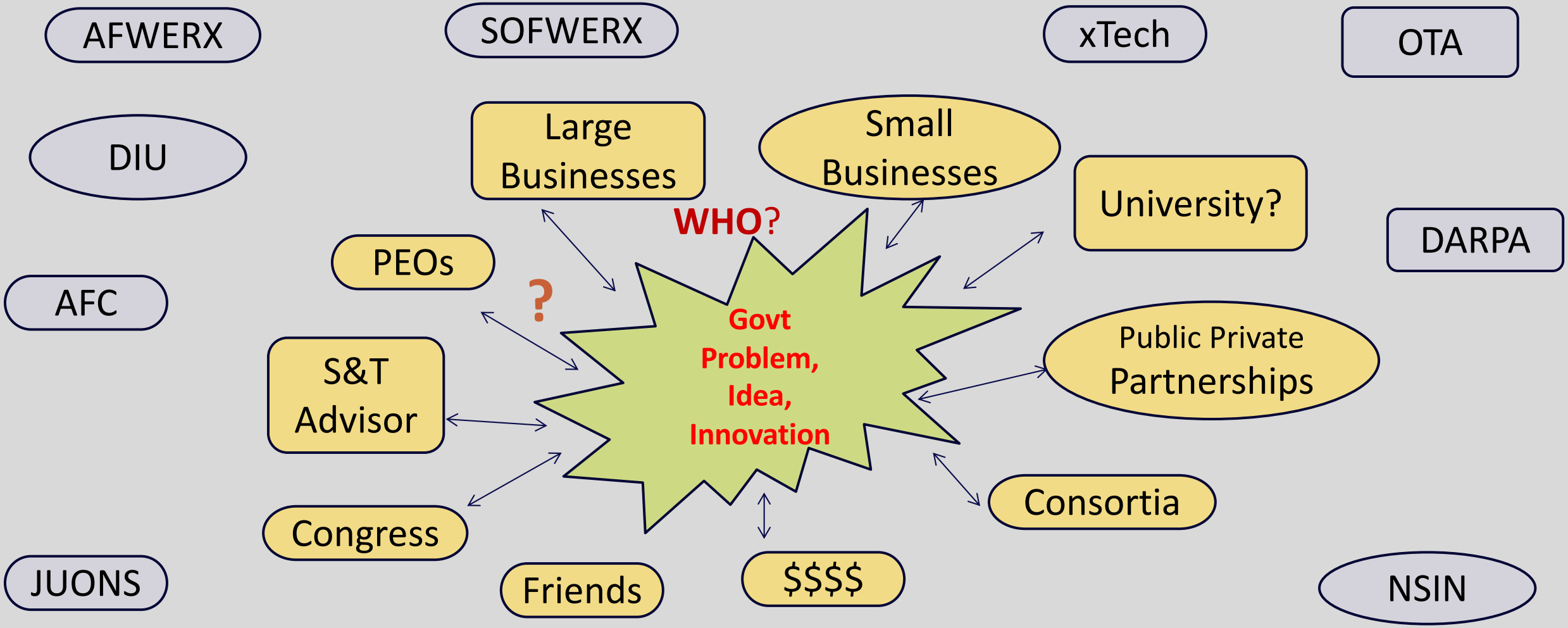
*distrust* *time* *ROI* *Pwin*



# NC Warfighter Innovator Challenge

*Time* *IP* *DFARS*

*Distrust* *Funding* *Legal?*



NC DEFTECH

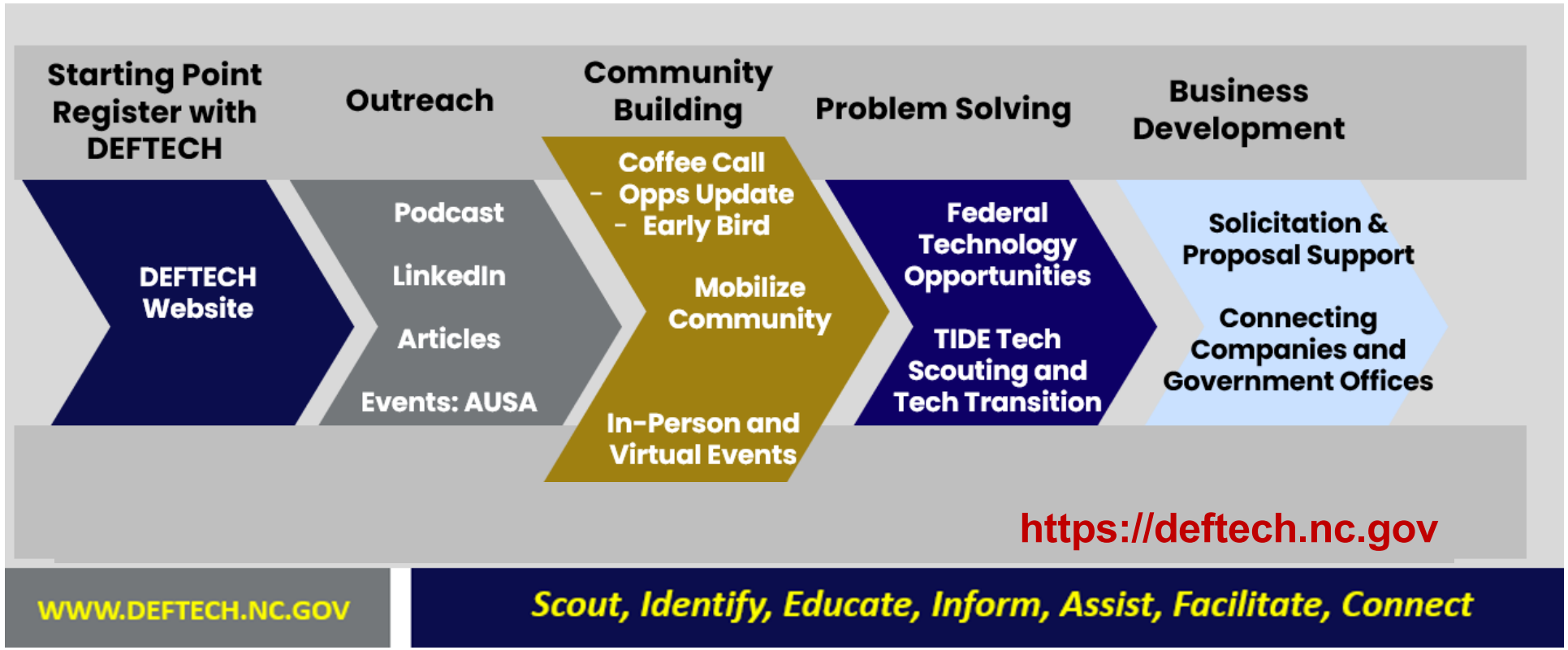
***INNOVATION, SCIENCE, TECHNOLGY***
***SIMPLIFIED ACQUISTION PROCEDURES***
***SBIRs – RAPID PROTOTYPING - COTS***

ncmbc
CONNECTING BUSINESS AND MILITARY

The North Carolina Defense Technology Transition Office (DEFTECH) is a **state funded** entity of the **North Carolina Military Business Center**. DEFTECH **enables** elements of **the NC Innovation Ecosystem (NCIE) to address complex** national security **problems**.

- **Scouts** the state for breakthrough technologies
- **Coaches** industry to identify defense applications for their technologies
- **Communicates and connects** federal technology needs
- **Assists** in positioning businesses to meet requirements
- **Represents** North Carolina to federal customers
- **Conducts** emerging technology forums
- Serves as the North Carolina *liaison* to DoD and federal innovation offices

# DEFTECH Value Proposition



# NC DEFTECH

ncmbc
CONNECTING BUSINESS AND MILITARY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*703-217-3127*



*Bob Burton*
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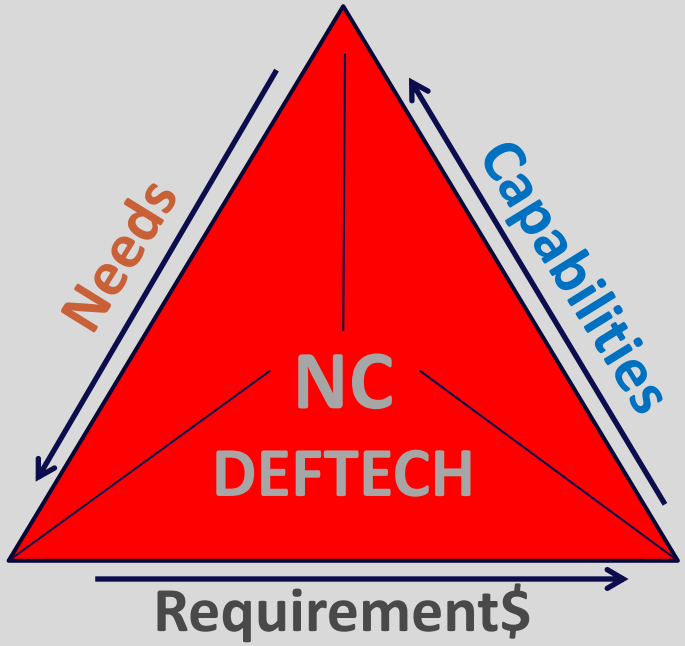
*Rob Robinson*
*AI/ML & Robotics*
*robinsonr@ncmbc.us*


**Warfighters**
**1st Responders**




**DoD & DHS**

**NC Innovation Ecosystem**
**Companies, Academe, Organizations, Military**

**WWW.DEFTECH.NC.GOV**

***Scout, Identify, Educate, Inform, Assist, Facilitate, Connect***

# Lunch Keynote

**Mike Madsen**

Senior Advisor and Former Deputy
Director, Defense Innovation Unit (DIU)

DEFENSE INNOVATION UNIT

NATIONAL SECURITY INNOVATION NETWORK

NSIC

**NC DefTech**
**July 2023**

Michael Madsen Senior Advisor, DIU

# TECHNOLOGY DOMINANCE IS THE NEW GLOBAL BATTLEGROUND

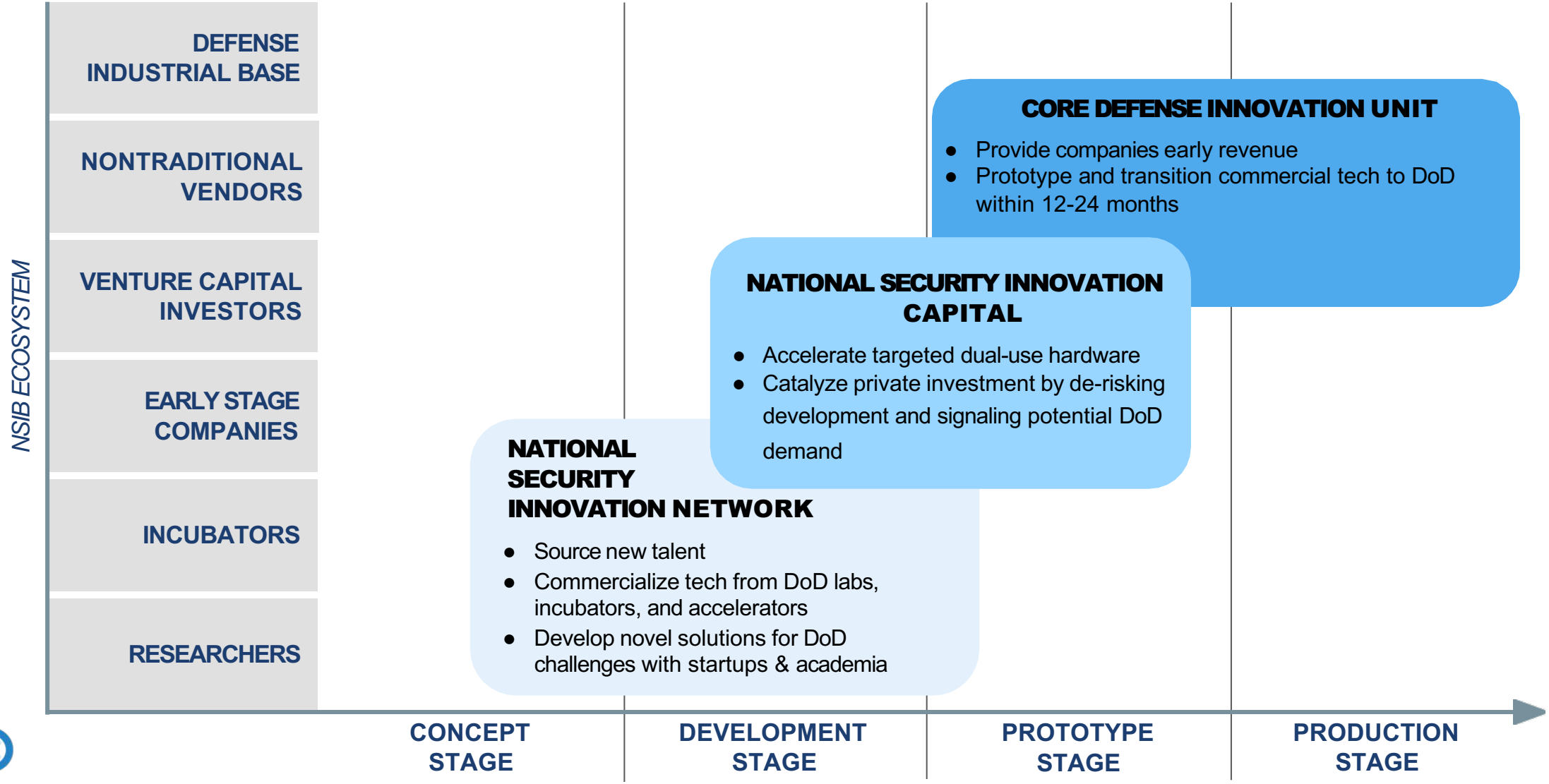
**"[The United States] will be a fast-follower where market forces are driving the commercialization of militarily-relevant capabilities… and [DoD] will speed their delivery to the warfighter."**

**2022 National Defense Strategy**

*Photo credit: Rocket Lab*

# INCREASING ADOPTION OF COMMERCIAL TECH & GROWING THE NSIB

## 3 COMPONENTS OF DIU



# DIU MISSION

**DIU is a fast-moving, cross-DoD organization focused exclusively on commercial companies to solve national security problems.**

### Elements of our Mission

**Accelerate** DoD adoption of commercial technology

**Transform** Military capacity and capabilities

**Strengthen** the national security innovation base

### Key Differentiators

**Unique project lifecycle** from curation to transition

**Joint force** & mandate to scale value across DoD

Broad and deep **integration** into key tech ecosystems

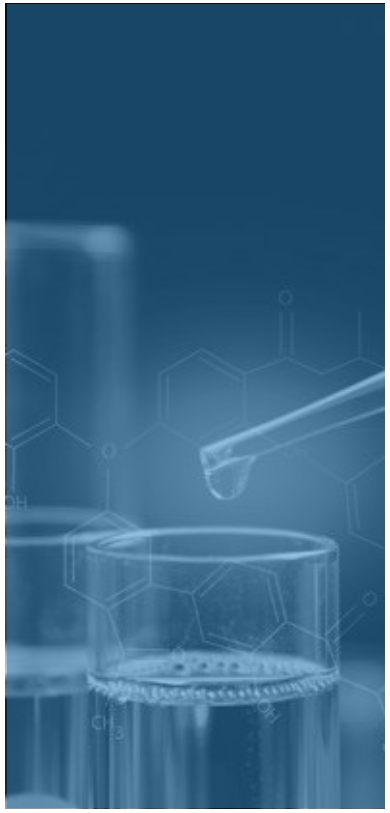
# TECHNOLOGY FOCUS AREAS

## Where the commercial sector is in the lead

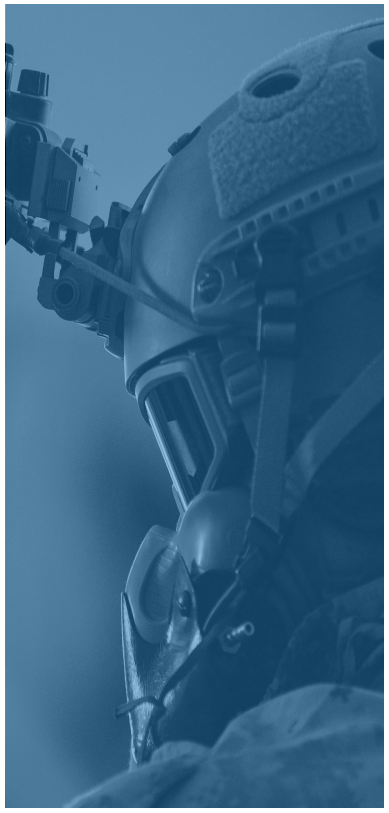
**AI/ML**

**Autonomy**

**Cyber**



**Energy**



**Human Systems**

**Space**

# DIU GENERATING OUTSIZED IMPACT

**Expanded Capacity: 110 ongoing + 66 completed projects**

**>$30.7B**
In private investments leveraged since time of award; **>$90B** to date

**60-90 days**
Goal: from closing solicitation to vendor(s) on contract

**6,200+**
in vendor submissions

**129**
First time DoD vendors

**47%**
Cumulative transition rate

**389**
Prototype OT contracts awarded

**288**
Non-traditional vendors

**23**
New projects started in FY23

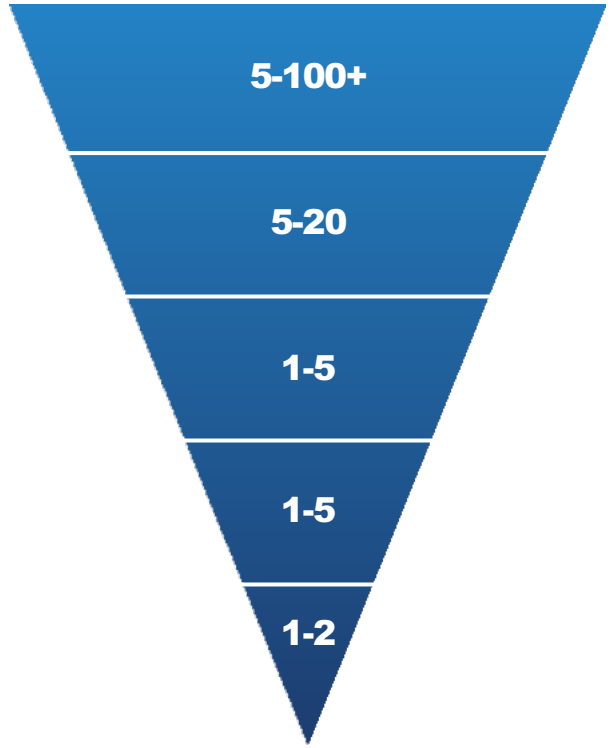
**$1.3B**
DoD funds obligated

*Most data from June 1, 2016 - March 31, 2023*

# UNIQUE PROJECT LIFECYCLE - FAST & COMPETITIVE

| | | | |
|---|---|---|---|
| **Problem Curation & Diligence** | | • Receive, understand, and evaluate DoD partner problem<br>• Confirm commercial market exists to address problem | No Requirements |
| **Commercial Solutions Opening (CSO)** | **Phase 1** | • Solicit digital proposals in response to a problem statement | ~10 business days |
| | **Phase 2** | • Evaluate proposals and invite a short list of bidders to pitch | 60-90 days to contract award (goal) |
| | **Phase 3** | • Select contract awardee/s and negotiate agreement | |
| **Prototyping** | | • Execute prototype project | 12-24 months |
| **Transition** | | • Award non-competitive agreement to successful performers<br>• Deliver & scale solution to transition partner/s | No Recompete<br>FAR Not Req'd |

**Approximate Number of Vendors Participating**



# DIFFERENTIATED CAPABILITY: COMMERCIAL ENGAGEMENT TEAM

## Unlocking real value within non-traditional tech ecosystems

### Lines of Effort

- BUILD DEEP ECOSYSTEM RELATIONSHIPS
- PROVIDE INDUSTRY EXPERTISE TO DIU
- VET COMPANIES, TECH & VENTURE FIRMS
- SUPPORT SMOOTHER PROCUREMENT EXPERIENCE
- GENERATE MORE PRODUCTION CONTRACT OPPORTUNITIES

**6,200+ Companies Responded to DIU Solicitations**

- **45** per AOI in FY22 (47% increase v. FY21)

**388 Companies Received $1.2B in Prototype Awards**

- **>$30B** in private investment leveraged since time of award; **>$90B** to date

**50 Companies Received $4.9B in Production Awards**

- **13** unicorns - valuation of $1B+
- **Backed by 13 of top 58** global venture firms (Forbes Midas List)

**$1.5B+ in Additional Follow-On Contracts (Non-DIU)**

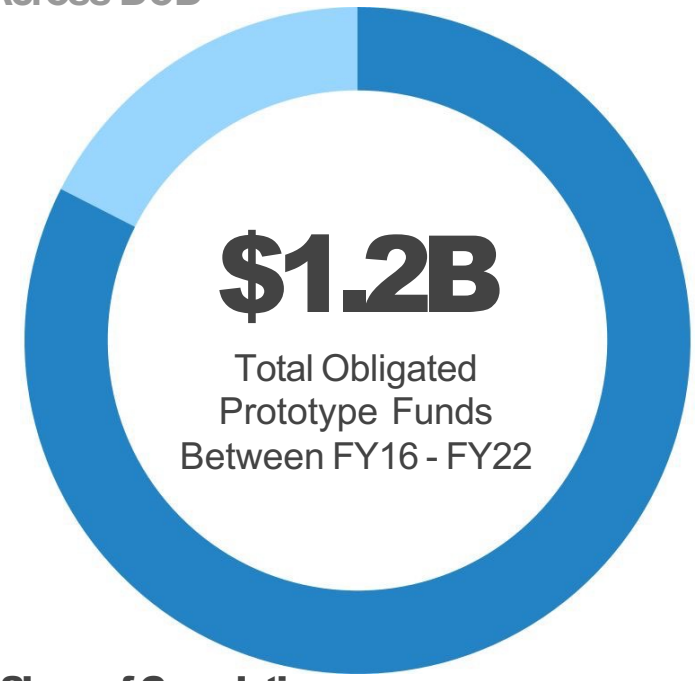
*Unless otherwise specified, data shown here represents DIU awards from June 2016 - March 2023*

# TRANSFORM MILITARY CAPABILITIES & CAPACITY

## Joint Force & Mandate to Scale Value Across DoD

### Defense Engagement Team

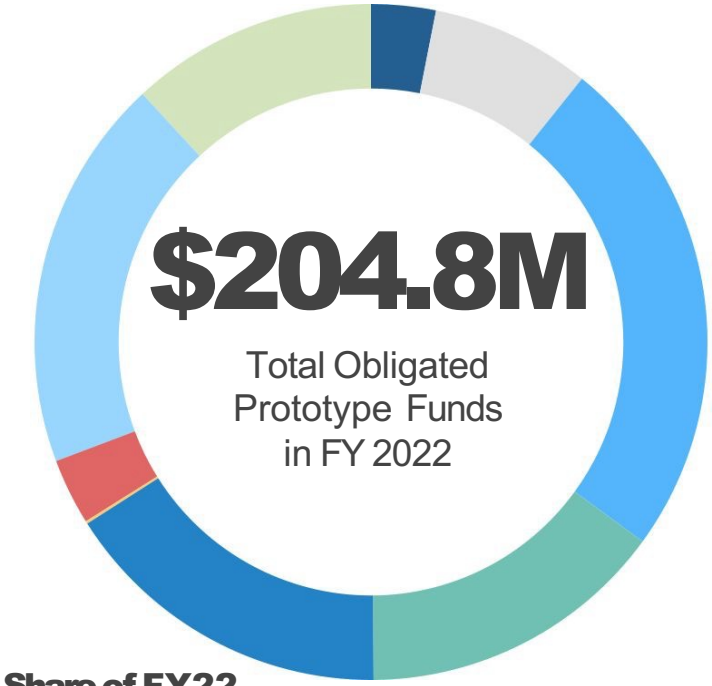
- ALIGNS DIU PRIORITIES WITH DOD LEADERSHIP
- SERVES AS BRIDGE BETWEEN DIU AND PROGRAM OFFICES
- COORDINATES TRANSITION PATHS
- IDENTIFIES JOINT-LEVEL PRIORITIES AND SCALING OPPORTUNITIES




**Share of Cumulative Prototype Funding**

FY 2022

FY16 - FY21

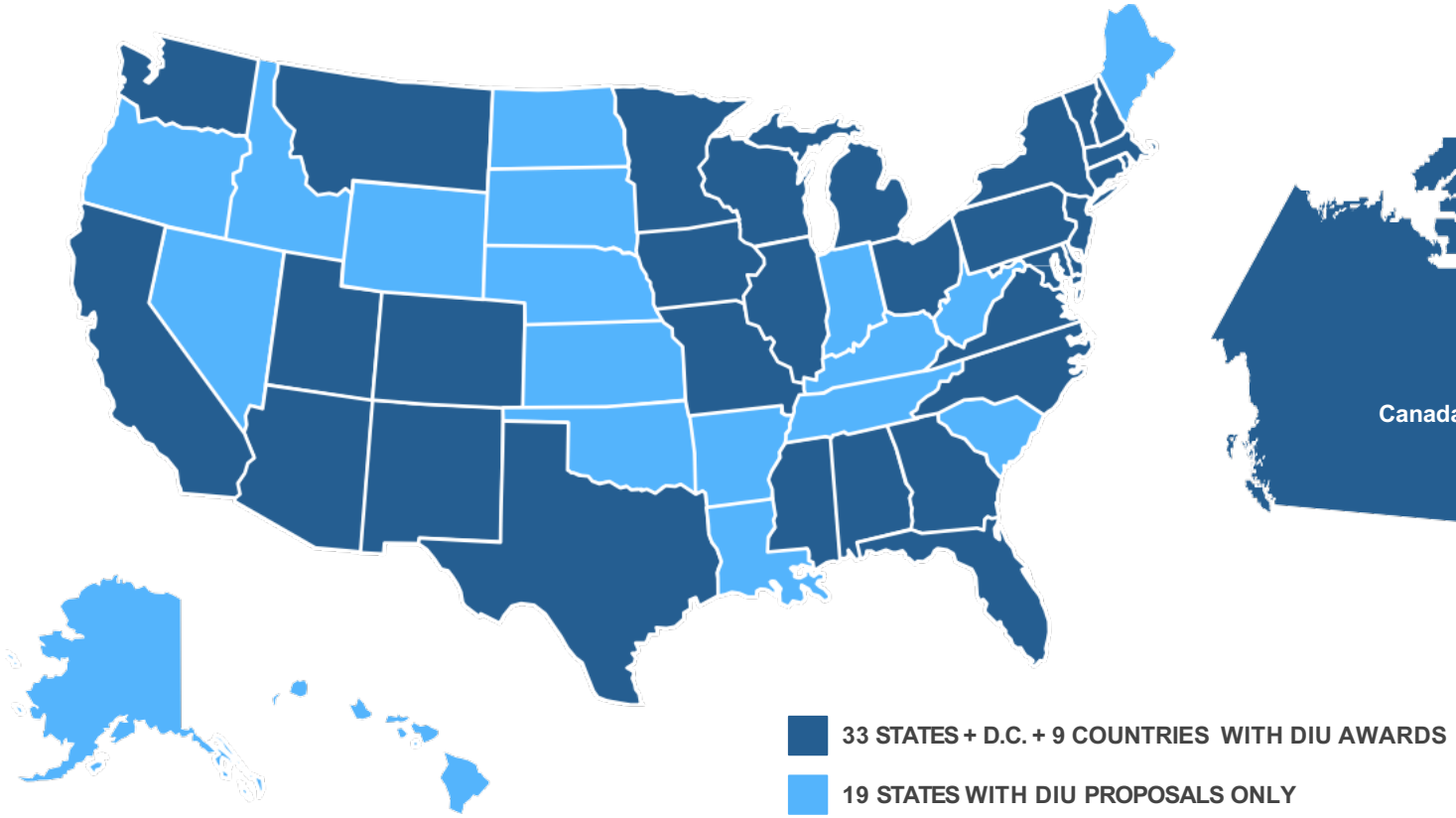



**Share of FY22 Prototype Funding**

OSD & Other
Combatant Commands
Coast Guard
Army
Defense Innovation Unit
Marine Corps
Navy
Air Force
Space Force

# STRENGTHEN THE NATIONAL SECURITY INNOVATION BASE

## United States Awards by Company Location




## International Awards by Company Location


*Data period: June 1, 2016 - September 30, 2022. Does not include U.S. Territories.*

# National Security Innovation Base in North Carolina

## $2.6M Prototype Awarded

to NC companies
Supports 3 projects

## 3 unique NC companies

awarded DIU contracts

- **1** to first-time DoD vendors
- **3** to nontraditional vendors
- **3** to small businesses
- **2019** first prototype contract

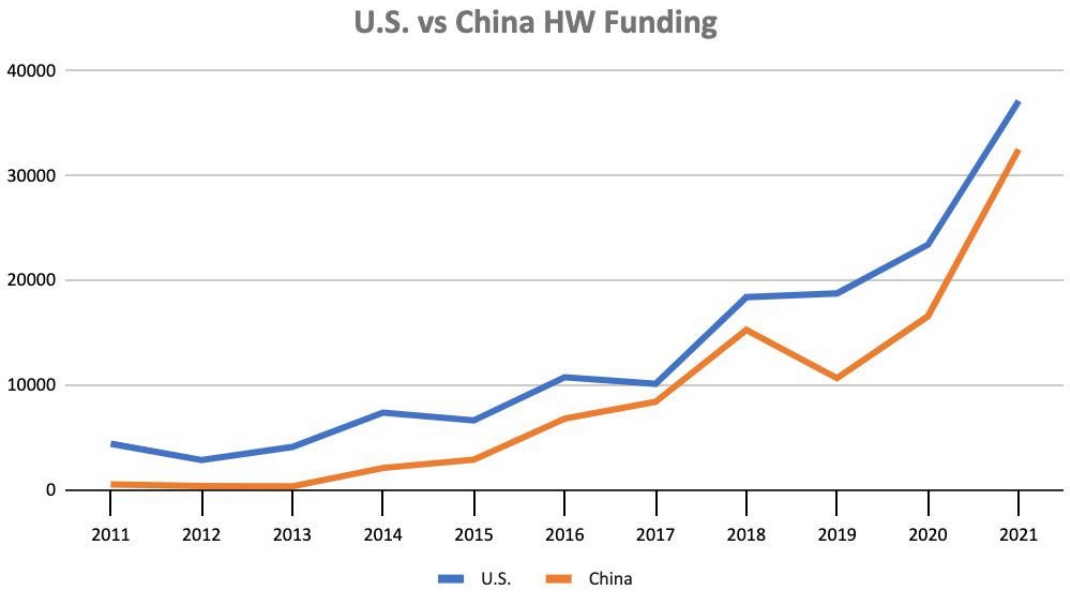
## Some Partners Based in NC

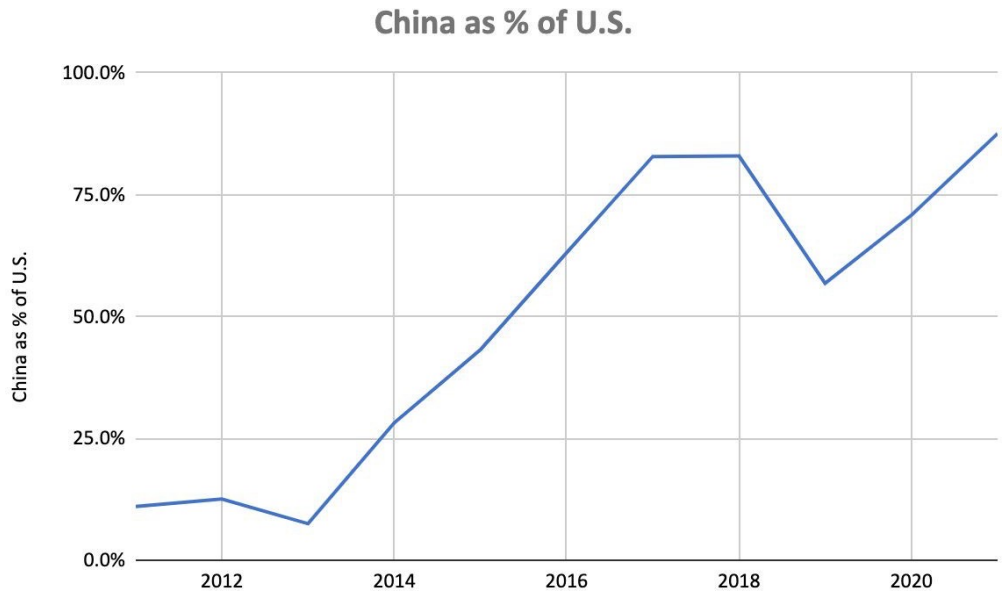
- Advanced Materials Manufacturing
- Integrated Tactical Technologies
- MyDefence North America
- Sensefly

# National Security Innovation Capital (NSIC)

# China is Catching Up with the U.S.

## China VC invests almost as much in its HW startups as U.S. VC invests in U.S. HW startups

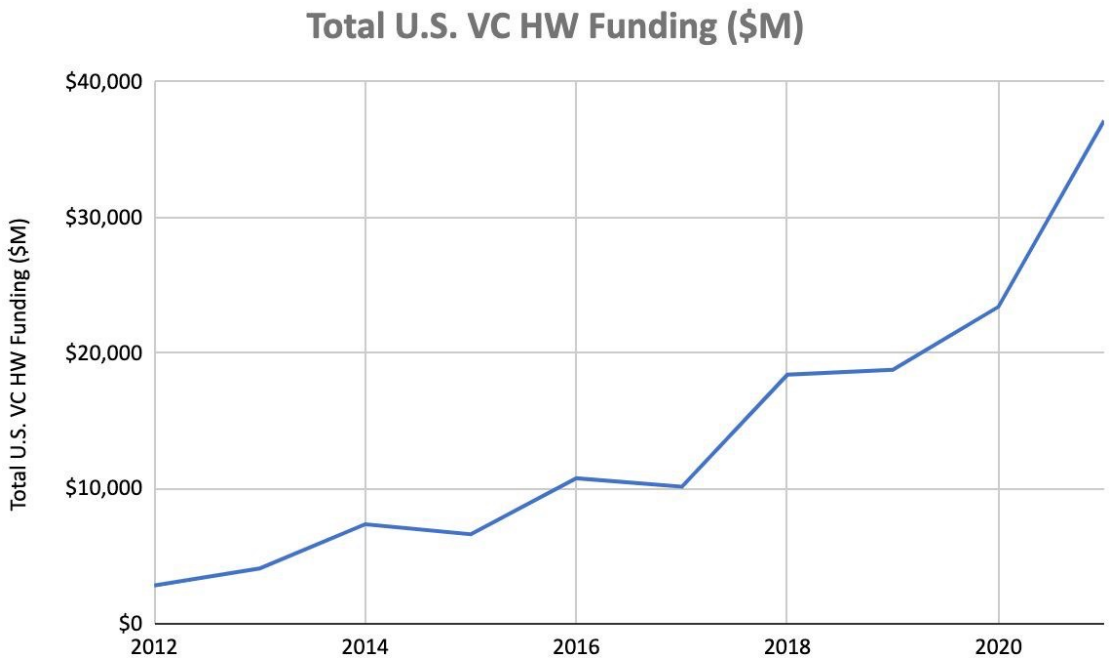


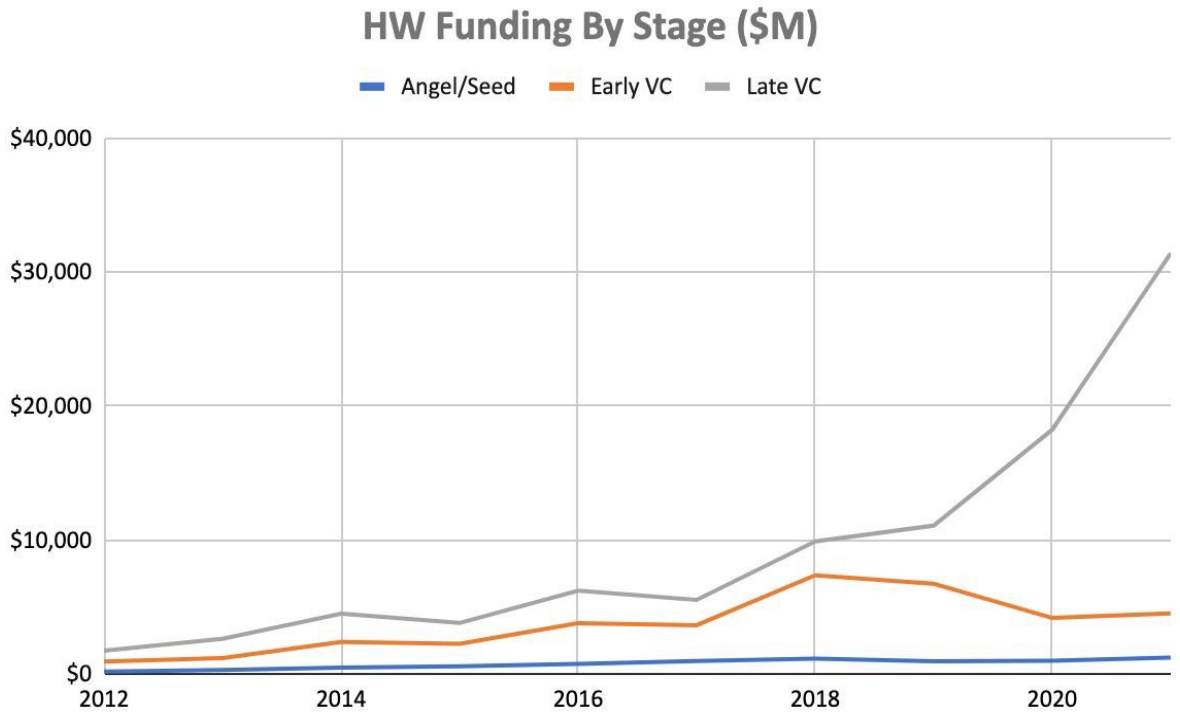




*NSIC Analysis of Pitchbook Data*

# U.S. VC Funding of U.S. Hardware Startups Growing Rapidly

## But most of that growth is going to later stage companies



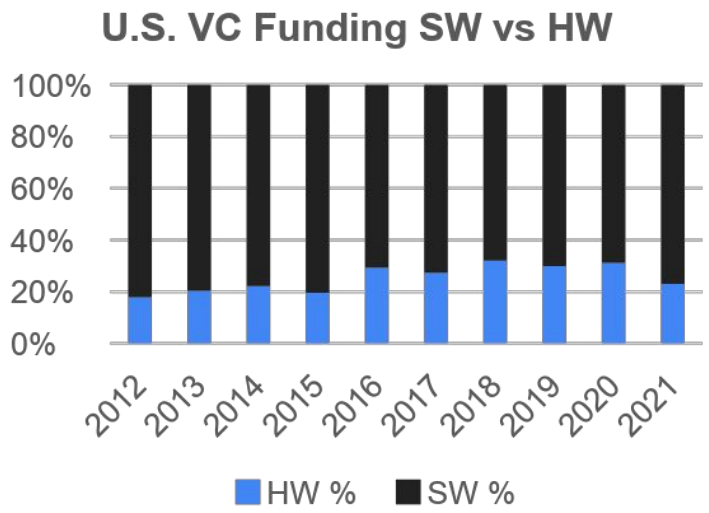




*NSIC Analysis of Pitchbook Data*

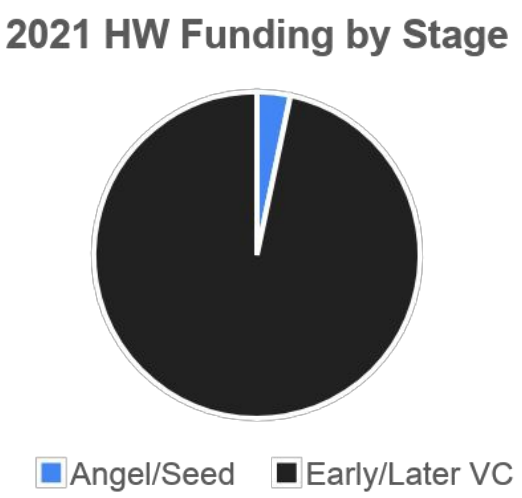
# U.S. VC Under Invests in Early-stage Hardware Companies

**Limiting the number of U.S. suppliers and creating openings for adversaries.**

**U.S. VCs invest <30% of total capital in hardware**



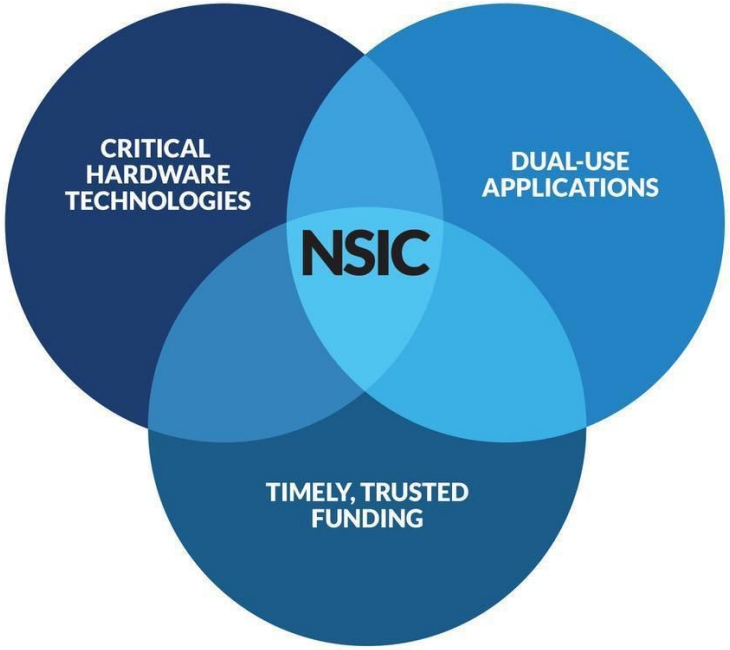

**And < 4% of those funds go into the earliest stage, highest risk companies**




U.S. Venture funding of domestic hardware startups
*NSIC Analysis of Pitchbook Data*

# NSIC - Accelerating Hardware Product Development

**DoD effort that enables early-stage, dual-use hardware startups to advance key milestones in their product development by addressing the shortfall of private investment from trusted sources**




**FOCUSED ON:**

- Accelerating critical and emerging hardwar
- Driving commercial & defense applications
- Stimulating private VC investment through
  - Reduces technology risk & accelerates de
  - Signals potential future DoD demand
  - Provides due diligence base
- Blocking adversarial investment

**COMPLEMENTARY TO:**

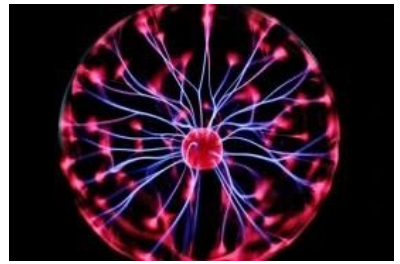
- SBIRs
- R&E Capability Prototyping
- Other DoD innovation programs
- OSC

# Technology Focus Areas

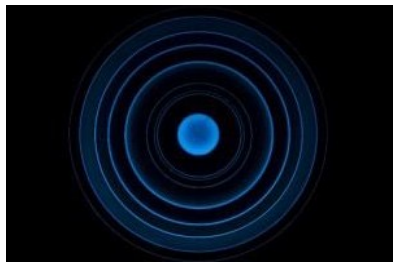
**Technologies at the edge, have mobility, and work across domains (land, sea, air, and space):**

**AUTONOMY**

**COMMUNICATIONS**



**POWER**



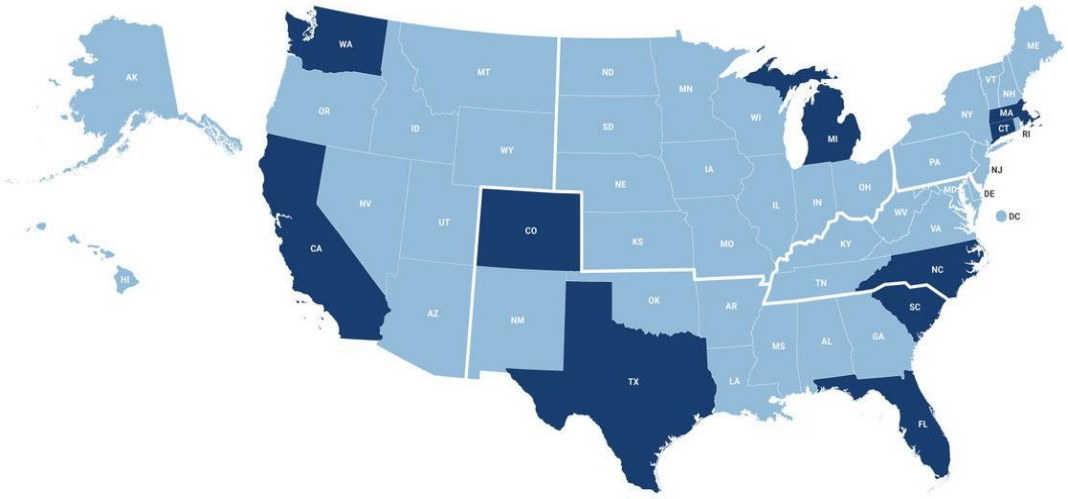
**SENSORS**

**SPACE**

# Accelerating Technology Development

**After 30 months of operation, NSIC has funded 17 companies totaling ~$35M**

*Geo Distribution*
*Ten states across the country*




**Topic of Interest Distribution:** Multiple companies relevant to more than one ToI

**Project Performance:** 3 companies completed work, others on track. (As of end of Q2 FY23)

**Adversarial Capital Identified:** 3 resolved; vetting all for subsequent private rounds

**Private Capital:** 3+ companies raised new private funding at up to 3.4X prior valuation.

# DOD NEEDS TO UNLOCK MEANINGFUL DEMAND TO ACCELERATE MARKETS

## MINDSET CHANGES

- ⇨ Capabilities not requirements
- ⇨ Fast Follower: more buy, less build

## ACQUISITION CHANGES

- ⇨ Broader use of "new" tools (OTA)
- ⇨ Incentives, training and rewards

## PPBE CHANGES

- ⇨ Capability Program Executive Offices (PEOs)
- ⇨ Fewer Program Elements (PEs)
- ⇨ Reprogramming flexibility

## INNOVATION ORG CHANGES

- ⇨ DoD capital applied at the right time


*Image Source: Center for a New American Security*

# HOW CAN WE SUPPORT YOU?

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# Roundtable 3: The Future of Warfare – Preparing for Emerging Threats

- Lieutenant Colonel Alex “STOIKY” Goldberg, Strategic, Defense and Commercial Engagement Lead, Texas Regional hub, Defense Innovation Unit
- Brance Hudzietz, Director of Corporate Ventures, Army Applications Lab
- Ian Clowes, Government Stakeholder Lead, AFWERX, a technology directorate of the Air Force Research Laboratory (AFRL)
- John Whiteaker, Regional Engagement Principal (Carolinas), National Security Innovation Network (NSIN)

# Technology Mini-Brief

Baebies, Inc.

Dr. Susan Wilhelm

SCOUT CARD

NCDEFTECH

# FINDER: Point of Care Clinical Diagnostics

Baebies, Inc.
POC: Dr. Susan Wilhelm
swilhelm@baebies.com
919-824-0039

## Problem


- Diagnostic tools for blood disorders and infectious disease **span across multiple devices** which only accept a single sample type.

- FINDER is a **multifunctional diagnostic platform** for rapid testing of numerous clinical conditions at the point of care.

## Solution Specifics

- FINDER harnesses the power of **digital microfluidic technology**, accepts low-volume sample types (blood, urine, swab samples, etc.), and yields a rapid time-to-result (<15 minutes).
- The key advantage of FINDER is demonstrated through **rapid multifunctional syndromic testing**, where diagnostic testing of various clinical conditions within a single cartridge can occur through additional assay development (molecular, chemistry, immunoassay, hematology, etc.).

## Impact and Technical Approach

- **TRL 6:** FINDER is a toaster-sized instrument that is FDA-cleared for point of care testing of G6PD deficiency. Other assays/clinical use cases are in development.
- FINDER is a single platform that multiplexes several assay formats on a variety of sample types for use in the military clinic, field hospital, or pre-/hospital settings

- A palm-sized platform (KEEPER), harnessing the same multifunctional technology as FINDER, for field use is in concept phase (TRL 2).

## Performance

- FINDER provides a point of care platform for **rapid diagnosis of multiple conditions** relevant to military personnel (blood disorders, infectious disease, sepsis), facilitating rapid clinical action and improving outcomes in various joint forcible entry operations.
- The platform is applicable to service personnel, military families, and civilians.
- Development of a palm-sized platform, KEEPER, will ensure the technology is suitable in austere environments.

# Technology Mini-Brief

**Overmatch, Inc.**

**Jeff Ruediger**

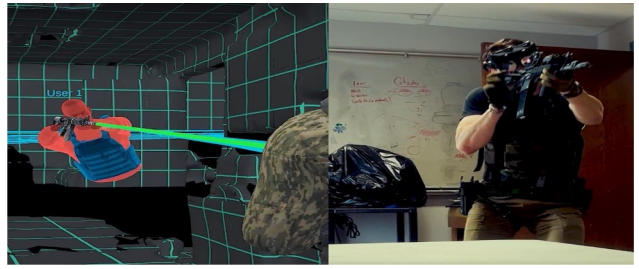
# SCOUT CARD

# Revolution

Overmatch, Inc.
POC: Jeff Ruediger
jeff@overmatch.com

## Problem

Live training exercises are **time and resource intensive**, **site-specific**, provide **limited iterations**, and lack data-driven performance tracking. Current M&S- and VR-based solutions lack realism and training transfer.



"Revolution" allows Warfighters to **collectively train** and prepare for realistic **dynamic scenarios**, using their own equipment at any point of need.


## Solution Specifics

Combine **Digital Twins** with:

- Biometric Sensor Data
- Warfighter-centric **Authoring Tools**
- Generative AI
- **Dynamic Occlusion**
- Object Tracking
- **IoT** Integrations
- Realistic Assets
- Remote Participants
- **Distributed** Multi-Site Simulation

## Impact and Technical Approach

- **TRL-7:** Standalone XR platform in continuous development.
- Open Architecture
- **Unlimited Reps and Sets**
- Extensible Ecosystem
- **Instant AAR**
- Provides JFE Warfighters a **life-size mission rehearsal** and AAR utilizing known mission sets

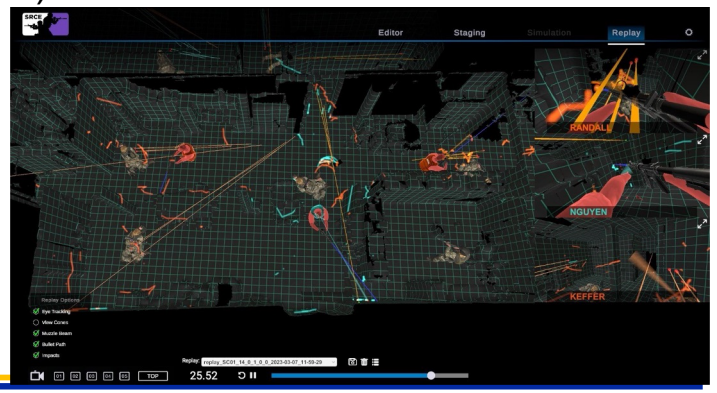
User Created Scenario

## Performance

Increases trainee **throughput**, reps and sets, and insights (via performance tracking and AAR)

Dual-Use:

- Law Enforcement
- Medical
- Sports Training
- Maintenance
- Education
- Urban Planning



# XVIII Airborne Corp's Innovators

**Captain Shawn Cooper**
Innovation Officer
XVIII Airborne Corps

# Closing Remarks

**Lieutenant General**
**Christopher Donahue**
Commander
XVIII Airborne Corps and
Fort Liberty, North Carolina

# WE VALUE YOUR FEEDBACK

Please take our short survey.