

Mr. Mike Brown (Director, Defense Innovation Unit, Former CEO of Symantec Corporation)



Michael Brown is the Director of the Defense Innovation Unit (DIU) at the U.S. Department of Defense. DIU, established in 2015, fields leading-edge commercial capabilities to the military faster and more cost-effectively than traditional defense acquisition methods. With offices in Silicon Valley, Boston, Austin, and at the Pentagon, DIU is embedded in key innovation ecosystems across the country and builds direct relationships with organizations that strengthen our national security innovation base.

Previously, Michael served two years (2016-2018) as a White House Presidential Innovation Fellow at DoD. He is the co-author of a Pentagon study on China's participation in the U.S. venture ecosystem, a catalyst for the Foreign Investment Risk Review Modernization Act (FIRRMA). FIRRMA was signed into law in August 2018 and provided expanded jurisdiction to the Committee on Foreign Investment in the United States (CFIUS).

Additionally, he led the initiative for a new Defense Department-sponsored investment vehicle, National Security Innovation Capital (NSIC) to fund dual-use hardware technology companies.

Through August of 2016, Michael was the CEO of Symantec Corporation, the global leader in cybersecurity and the world's 10th largest software company with revenues of \$4 billion and more than 10,000 employees worldwide. Michael served as a member of Symantec's Board since its merger with Veritas in 2005. During his tenure as CEO (2014-2016), Michael led a turnaround developing a strategy focusing on its security business, sold its Veritas storage software business, hired a new executive leadership team and improved operating margins 300 basis points. Additionally, he led the articulation of a new company culture fostering innovation.

Michael is the former Chairman & CEO of Quantum Corporation (1995-2003), a leader in the computer storage industry. As CEO of Quantum, the company achieved record revenues of \$6 billion as the world's leader in disk drives for personal computers and the world's largest tape drive business. He joined Quantum in 1984 and served on its Board from 1995 until 2014.

After leaving Quantum, Michael served as Chairman of EqualLogic, a storage array company. Dell acquired EqualLogic in 2008 for \$1.4 billion, the largest all-cash deal for a venture-backed company up to that time.

He has been a member of the Board of Trustees of the Berklee College of Music in Boston since 2013 and previously served on the President's Advisory Council.

Michael received his BA degree in economics from Harvard University in 1980 and his MBA degree from Stanford University in 1984.



DEFENSE ★ ★ ★ ★ ★
INNOVATION UNIT
CELEBRATING 5 YEARS

**Preparing the U.S. for a
Superpower Marathon with China**

Michael Brown
Director

TECH DOMINANCE IS THE NEW GLOBAL BATTLEGROUND



Success no longer goes to the country that develops a new technology first, but rather to the one that better integrates it and adapts its way of fighting.

2018 National Defense Strategy

Game Changing Technologies

- AI
- Quantum
- Hypersonics
- Cyber
- Biotechnology
- 5G
- Space
- Autonomy



CHINA - THE PACING THREAT

Competing with the U.S. today—economically, geopolitically, ideologically, and militarily

Transforming its economy through advanced technology

- Leading in key strategic industries (MiC 2025)
- Acquiring foreign technology and know-how
- Fostering indigenous innovation
- State-sponsored projects
- National champions
- Using tech for political & societal control
- Civil-military fusion

A blue-tinted photograph of Xi Jinping, the President of China, sitting at a table during a meeting. He is wearing a dark suit and a patterned tie, looking down at a document on the table. A microphone is positioned in front of him. The background is slightly blurred, showing other people in suits.

China should establish itself as one of the most innovative countries by 2020 and a leading innovator by 2030, and become a leading global S&T power by the 100th anniversary of the founding of the People's Republic of China in 2049.

Xi Jinping, May 2016

DIMENSIONS OF THE CHINA THREAT



ECONOMIC

- Techno-nationalism
- Industrial policies
- WTO rules abuses

GEOPOLITICAL ALIGNMENT

- Belt and Road Initiative
- Economic coercion
- Asia by Asians



MILITARY

- Increased spending
- Overmatch neutralized
- Military-civil fusion

IDEOLOGICAL

- Authoritarianism
- Opposition to Western ideas
- Propaganda | Soft Power



U.S. AND CHINA: NOT A NEW COLD WAR

Compete where we Must, Cooperate where we Can

What is different from the Cold War?

1. China's economic scale
2. U.S. - China - Global economic integration
3. China's utilization of global institutions (i.e. WTO, IMF, World Bank, etc.)
4. China's pursuit of civil-military fusion

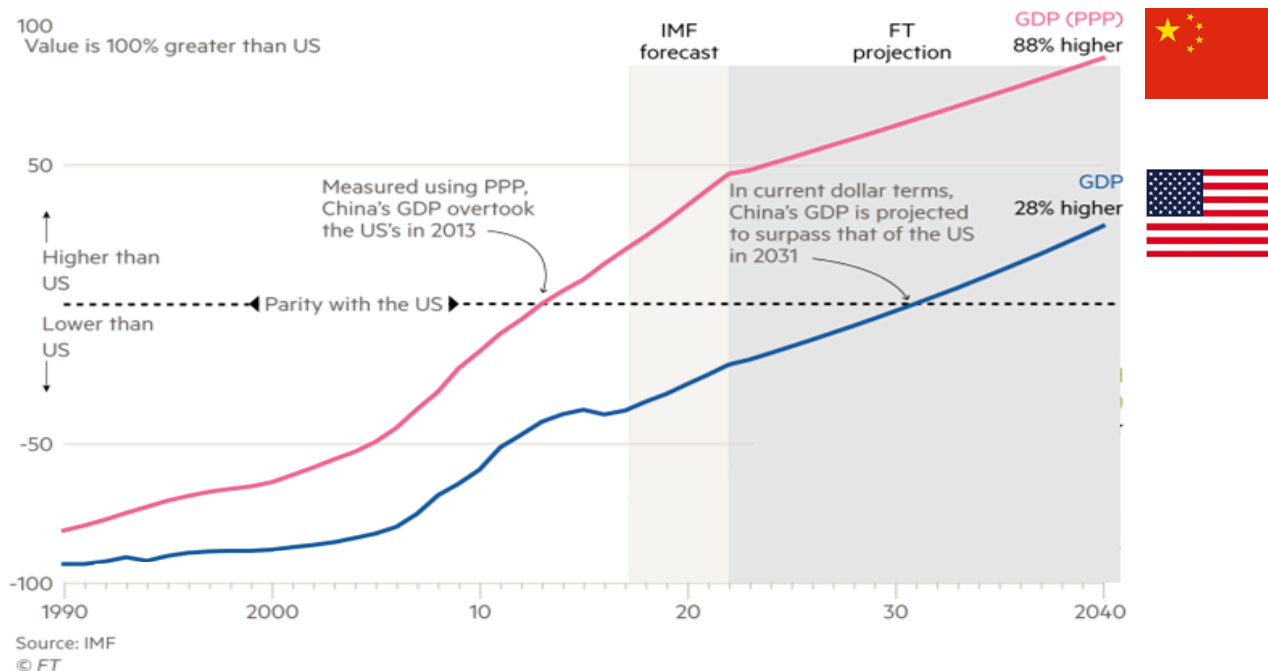


ECONOMIC CAPACITY

Primary Determinant of National Security

China's GDP and GDP per head

Percentage difference to US GDP at current dollars and PPP dollars



Disclaimer: The views, opinions, and assumptions expressed in this presentation are those of the authors and do not reflect the official policy or position of any agency of the U.S. government.

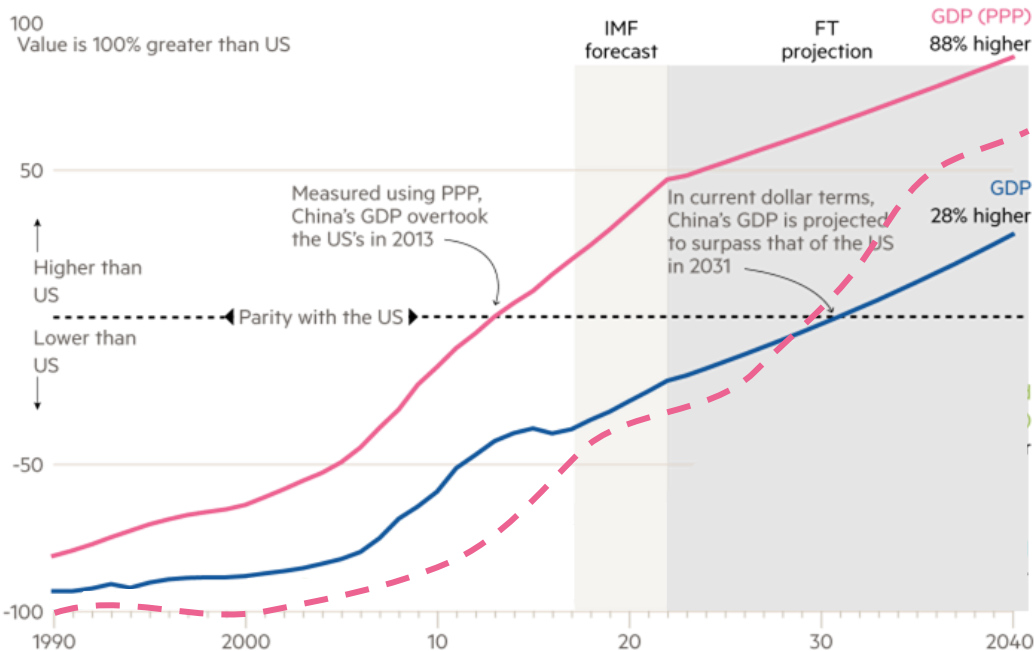
RELATIVE NATIONAL SECURITY STRENGTH

- Relative technology advantage
– multiplier to economic capacity
– indicates future economic growth
- Relative national security strength can change faster than economic capacity

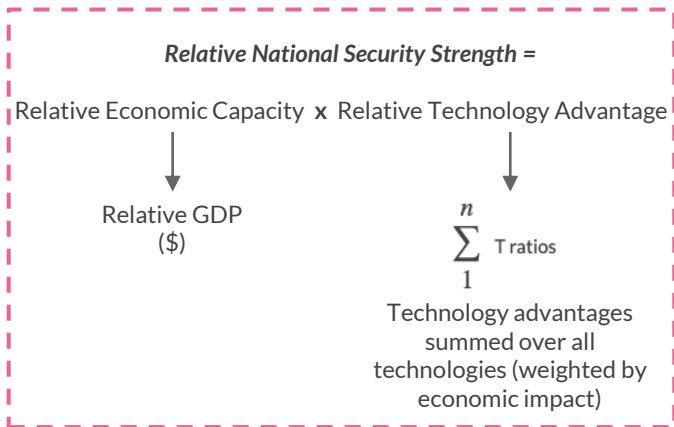


China's GDP and GDP per head

Percentage difference to US GDP at current dollars and PPP dollars



Relative National Security Strength



Source: IMF © FT

TECHNOLOGIES CURRENTLY AT RISK

Technologies Where China Leads the U.S. Today



Cryptocurrency
Small Drones
E-Commerce (700 million users)
Electric (Li-ion) batteries
Electric vehicles
Facial recognition software
Genetic data: genomics & medical histories
High-speed rail
Hypersonics
Mobile device manufacturing
Quantum communications (Micius)
Solar energy
Telecommunications – 5G Deployments
Ultra high-voltage electricity transmission
Wind energy

Technologies Where China is Challenging the U.S. Lead



Artificial intelligence
Biotechnology
Pharmaceuticals
Rocket launches into space
Quantum computing
Quantum sensors
Supercomputing

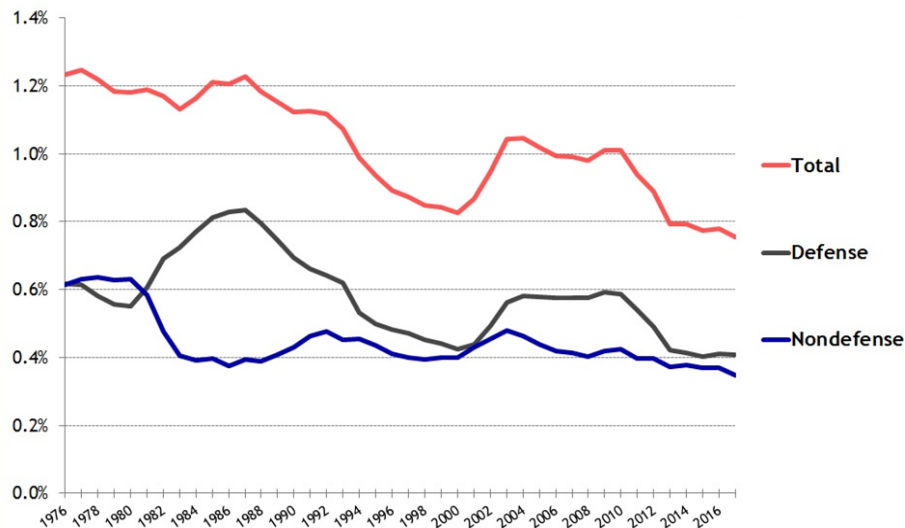
Commercial Implications



U.S. FEDERAL R&D IS DECLINING

Trends in Federal R&D

As a percent of GDP



Source: AAAS analyses of historical budget and agency data and the FY 2017 request. GDP figures from OMB. R&D includes conduct and facilities. © AAAS

Implying:

- Fewer Breakthrough Innovations
- Fewer Economic Spillover Effects

- Google Search Engine (NSF)
- GPS (DARPA, Navy, DoD)
- Supercomputing (DoD, National Labs)
- Internet (DARPA, NSF, UCLA)
- Smartphones - semiconductors, touch screens (NASA, USAF, DARPA-SEMATECH, NSF, SBIC)
- Shale Gas Hydraulic Fracturing (DOE, National Labs)
- 3D and 4D seismic imaging (DOE; MIT)
- LED Technology (DOE, USAF)
- MRI (NIH, NSF)
- Prosthetics (DARPA, VA)
- Human Genome Project (NIH, DOE)

At 0.7% of GDP, **U.S. is behind** China, Japan, Korea, Finland, Sweden, Denmark, and Germany

PREPARING THE UNITED STATES FOR THE SUPERPOWER MARATHON WITH CHINA

1. Bolster investment in basic R&D
2. Attract and develop human capital in STEM fields
3. Develop integrated U.S. economic statecraft
4. Increase long-term focus in U.S. capital markets and businesses





**ACCELERATING COMMERCIAL
TECHNOLOGY FOR U.S. NATIONAL
SECURITY**

U.S. SHARE OF GLOBAL R&D FUNDING IS DECREASING

1960s

Technologies funded or sponsored by USG and then transitioned to commercial sector:

- Microelectronics
- Touch screen
- GPS
- Space launch
- Satellite imagery

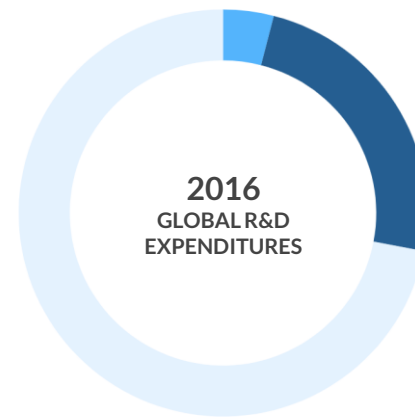


- U.S. Defense Related (36%)
- Other U.S. & USG (33%)
- Rest of the World (31%)

2010s-Now

Technologies developing in the commercial sector rather than by USG:

- Biotechnology
- AI
- Mobile payments
- **5G**
- Quantum computing
- Batteries & Power Systems



- U.S. Defense Related (4%)
- Other U.S. & USG (24%)
- Rest of the World (72%)



WHY COMMERCIAL

\$70.5B

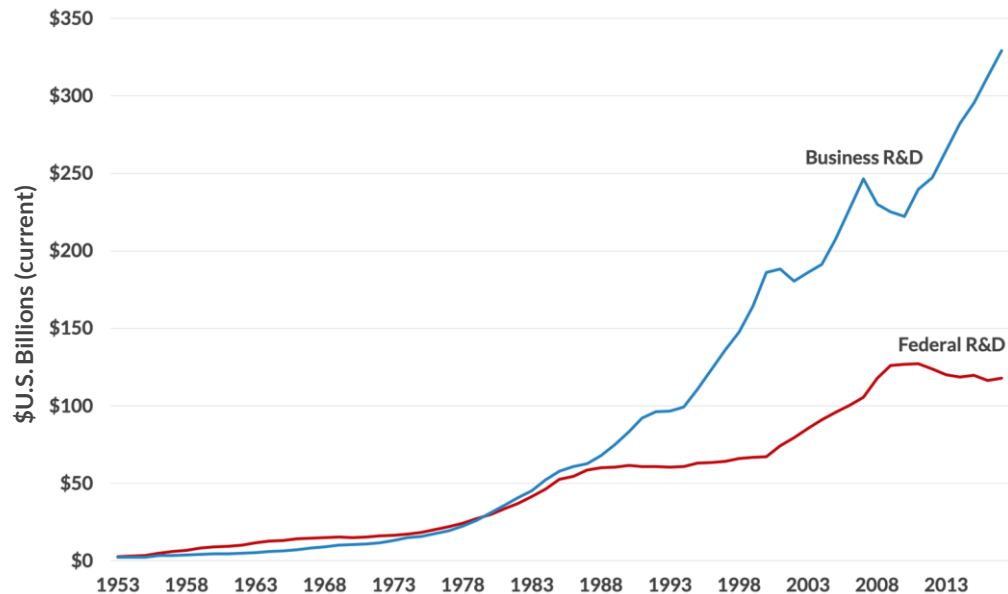
Top Tech Companies Outspend Primes 11x in R&D

\$6.2B

Facebook
Alphabet
Microsoft
Amazon
Apple

Lockheed Martin
Raytheon
Northrop Grumman
General Dynamics
Boeing

U.S. R&D Expenditures by Source: 1953 - 2017



Source: National Science Foundation, National Patterns of R&D Resources: 2016-17 Data Update.



ALIGNED DEFENSE INNOVATION EFFORTS: Core DIU, NSIN, and NSIC

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

→ ACCELERATE

DoD adoption of commercial technology

→ TRANSFORM

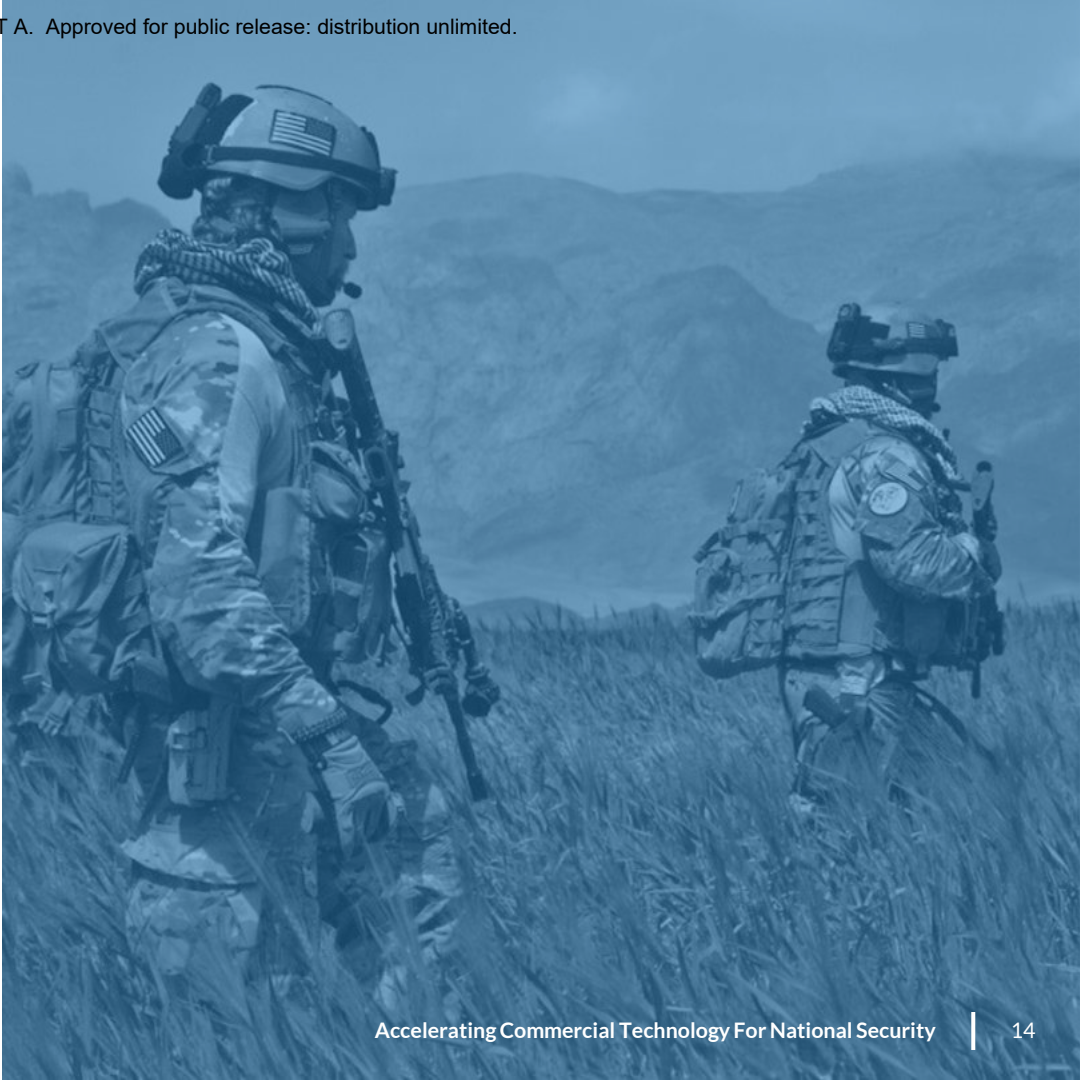
Military capacity and capabilities

→ STRENGTHEN

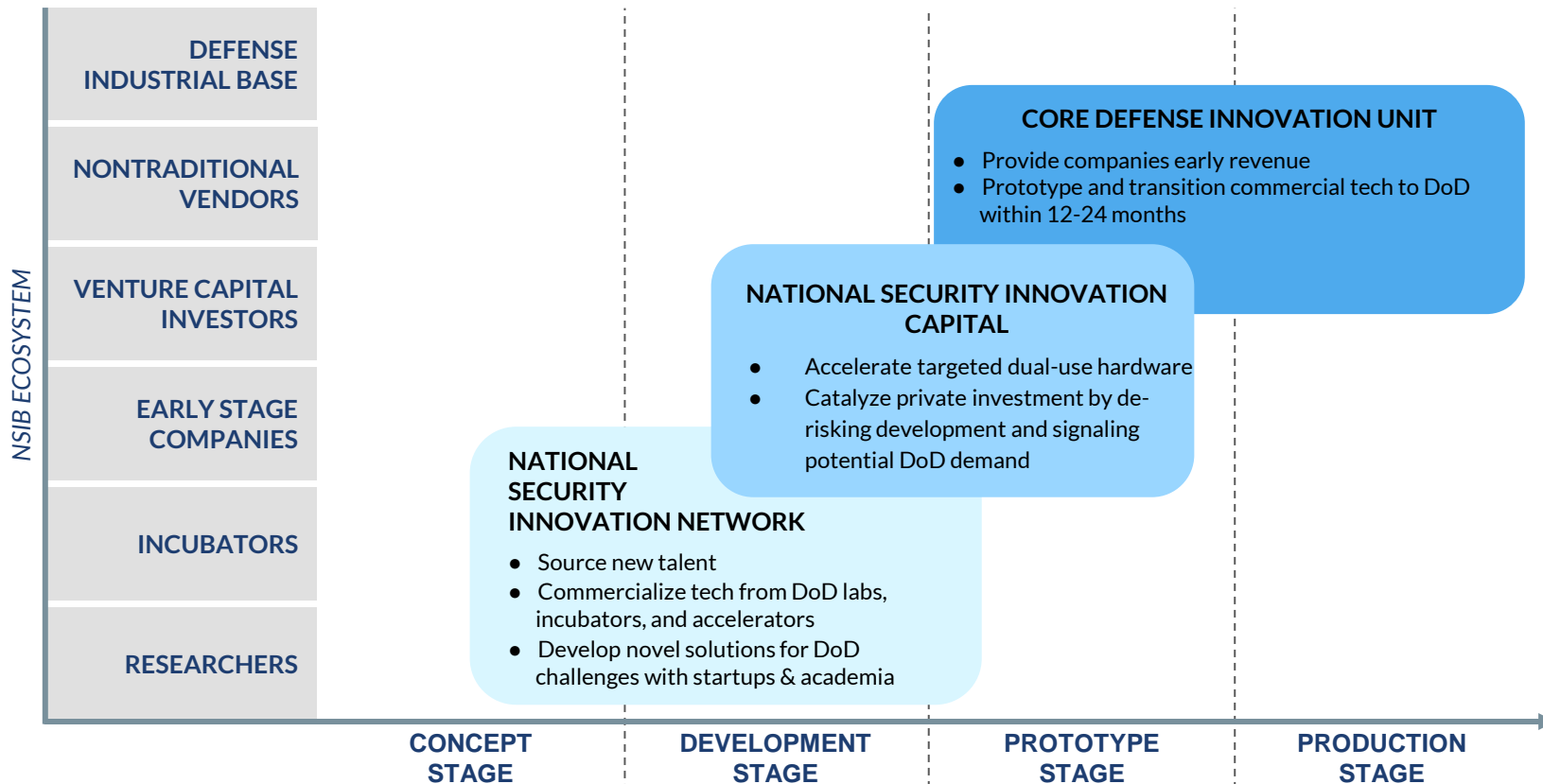
The national security innovation base

National Security Innovation Network: Builds networks of innovators that generate new solutions to national security problems

National Security Innovation Capital: National Security Innovation Capital: Accelerates development of dual-use tech and stimulates private investment



THREE ORGANIZATIONS COMPRISE DIU: ALL GROWING THE NATIONAL SECURITY INNOVATION BASE



WE FOCUS ON CRITICAL TECHNOLOGY AREAS

Where the Commercial Sector is in the Lead



Advanced Energy
& Materials



AI/ML



Autonomy



Cyber



Human Systems



Space



BEST COMMERCIAL TECH TO DOD



DIU, with DoD partners,
competitively selects the best technology to
prototype, transition, and scale solutions.



Department of Defense

- Knowledge of and access to leading technologies
- Competitive prototype process-->proven solutions
- Delivery of capabilities in 12-24 months
- Solutions at commercial cost to save taxpayer \$



Commercial Technology

- Simple process and fast time to award
- Access to large volume defense contracts
- Opportunity to solve high-impact national security problems



DIU TRANSFORMATIVE PROJECT: BLUE sUAS INITIATIVE

Creating Viable Alternatives to Chinese Drones

Solution

- **Standardize product:** Enables units throughout the joint force to field large numbers of sUAS (refreshing tech frequently).
- **Aggregate USG buying power:** Create viable U.S. and friendly-nation industrial base to produce best in class capabilities and achieve scale economies for vendors.



DoD Partners

- Army PEO Aviation
- Navy/USMC PMA-263
- USAF SAF/CN
- GSA
- DHS/CBP



Commercial Vendors

- Altavian
- Parrot
- Skydio
- Teal
- Vintage Robotics



Blue sUAS leverages the Army's Short Range Reconnaissance (SRR) Program of Record

- Use the same drones, but integrate open architecture with a ground control system that fits the needs for each particular user base while ensuring iterative upgrades.
- Align requirements, resources, development, testing, and user experimentation across DoD from the start.
 - NDAA/TAA compliant with DoD cyber validation
 - Configurations available in ISM/DoD frequency bands
- Make systems available through production OTs and on the GSA schedule for DoD and other federal agencies to purchase, sending a strong demand signal to the U.S. industrial base.



WORK WITH US

www.diu.mil

CONTACT US

www.diu.mil/contact-DIU

FOLLOW US



THE DIU PROCESS: FAST AND COMPETITIVE

VENDOR TIME COMMITMENT

OF VENDORS

		PROBLEM CURATION	Receive, understand, curate, and evaluate warfighter requirements.	NONE	
		DILIGENCE	Confirm a commercial market exists to address the DoD partner's challenge.	30-60 MINS	
60 - 90 DAYS	COMMERC. SOLUTIONS OPENING (CSO)	PHASE 1	Solicit digital submissions in response to a curated problem set on DIU website.	2-8 HOURS	30-100+
		PHASE 2	Invite merit-based short list of bidders to F2F pitches.	2-8 DAYS	10 - 20
		PHASE 3	Select prototype contract awardee(s) and negotiate agreement	60-90 DAYS ELAPSED	1 - 5
		PROTOTYPING	Develop and/or integrate commercial solutions into a pilot project.	1-2 YEARS ELAPSED	1-5
		TRANSITION	Deliver and scale successful projects to the DoD partner and beyond.		1-2

