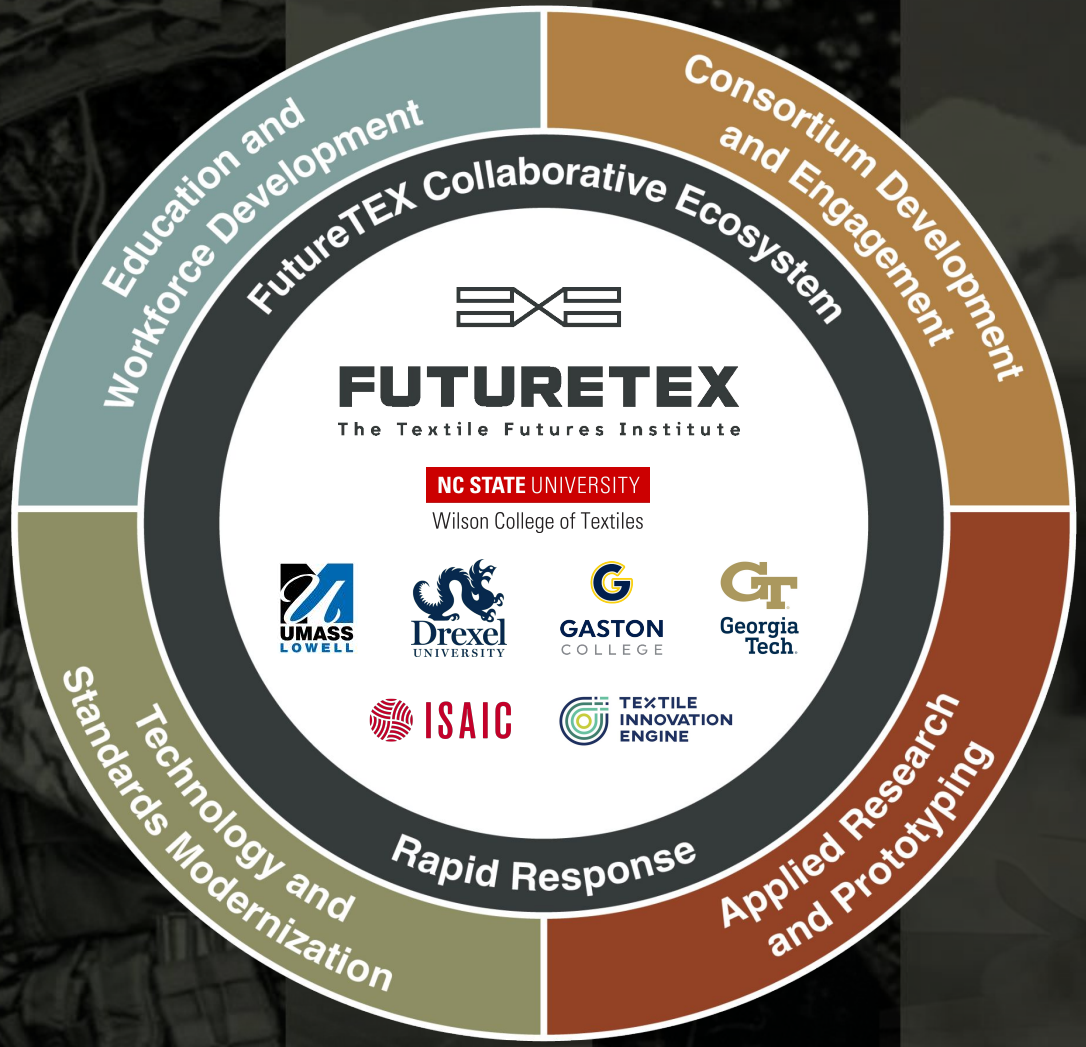
FUTURETEX

The Textile Futures Institute

BUILDING AMERICA'S TEXTILE INNOVATION ECOSYSTEM

One **collaborative ecosystem** connecting education, engagement, applied research, modernization and **rapid response**.



FutureTEX MISSION ALIGNMENT

FutureTEX MISSION

FutureTEX rapidly accelerates and de-risks innovation and high-performance textiles to expand America's textile supply chain, national security and economy, and grow an agile workforce.

Domestic textile manufacturing competitiveness	Advanced materials and textile innovation
Technology transition and manufacturing readiness	Defense and national security priorities
Workforce development and talent pipeline creation	Circular textile manufacturing
Digital manufacturing translation	Commercialization of emerging technologies
Supply chain resilience and traceability	Regional and national economic development

FutureTEX expands this mission through digital manufacturing, AI-enabled production systems, automation, manufacturing modernization, cybersecurity and advanced workforce development.



FIBERS AND TEXTILES ARE CRITICAL IN MULTIPLE ADVANCED MATERIALS INDUSTRIES / MARKETS

DoW Technology Needs	
UAV Composites	Aerospace
Signature Management	Cold Weather Protections
Chem-Bio Defense	Smart Fibers
Parachutes	Warfighter Gear

FUTURETEX

Commercial Markets	
Protective Gear	Composites
Automotive	Geotextile
Medical	Footwear
Aerospace	Apparel

Strong Commercial Capability = Strong Defense Supply.

FutureTEX INDUSTRY SUPPORT CAPABILITIES (existing)

MATERIALS & TEXTILES

- **Applied Research & Discovery**
  Drexel, Georgia Tech, NC State, UMass Lowell
- **Advanced Materials**
  Drexel, Georgia Tech, NC State, UMass Lowell
- **Polymer Development**
  Gaston College, NC State, UMass Lowell
- **Fiber Development**
  Gaston College, NC State, UMass Lowell
- **Yarn Development**
  Gaston College, NC State
- **Fabric Development**
  Drexel, Gaston College, NC State

ADVANCED / DEFENSE SYSTEMS

- **Smart Textiles & Systems**
  Drexel, Georgia Tech, NC State
- **Wearable Systems & ExoSkin**
  Drexel, Georgia Tech, NC State
- **Biomedical Textiles**
  Drexel, NC State, UMass Lowell
- **Defense Textiles**
  Drexel, Georgia Tech, NC State, UMass Lowell

DIGITAL & AUTOMATION

- **Digital Engineering & Digital Twins**
  Drexel, Georgia Tech, NC State
- **Digital Manufacturing**
  Drexel, Georgia Tech, ISAIC
- **AI Manufacturing**
  Drexel, Georgia Tech

SCALE & WORKFORCE

- **Manufacturing Readiness**
  Gaston College, Georgia Tech, NC State, UMass Lowell
- **Pilot Manufacturing**
  Drexel, Gaston College, ISAIC, UMass Lowell
- **Factory Modernization**
  Gaston College, Georgia Tech, ISAIC
- **Workforce Development**
  Drexel, Gaston College, Georgia Tech, ISAIC, NC State, UMass Lowell
- **Education Pipeline**
  Drexel, Gaston College, Georgia Tech, NC State, UMass Lowell

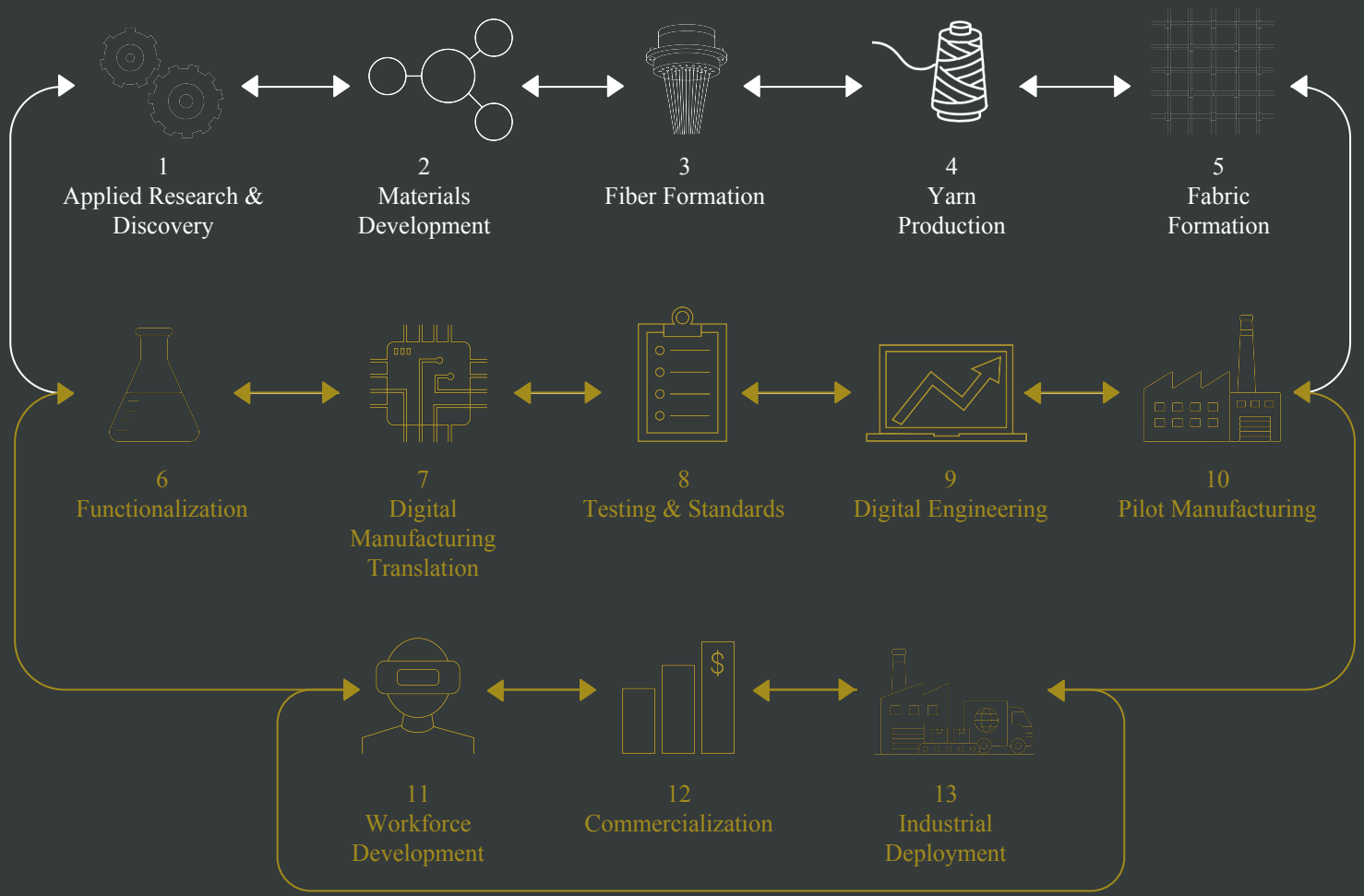
SUPPORTED BY

250,000+ SQ FT
INFRASTRUCTURE

$150M+
FACILITIES & EQUIPMENT

NATIONAL
PARTNER NETWORK

WHAT MAKES FutureTEX DIFFERENT?



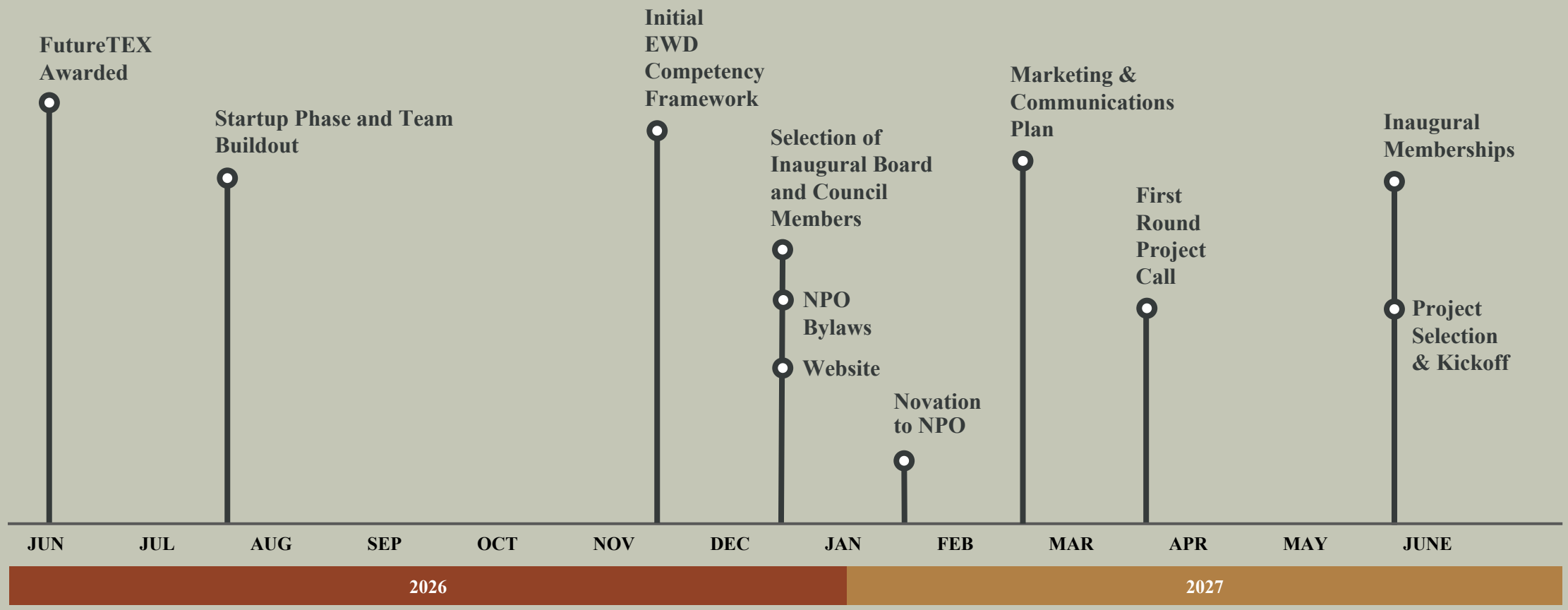
FutureTEX brings together leading applied research, testbed and innovation institutions to support the full MRL 4-7 innovation process for the textile industry.

NC STATE UNIVERSITY · GASTON COLLEGE · Drexel UNIVERSITY · Georgia Tech · UMASS LOWELL · TEXTILE INNOVATION ENGINE · ISAIC

FutureTEX brings together key industry trade associations.

AAPN · SEAMS · AATCC · American Textile Machinery Association · INDA Association of the Nonwoven Fabrics Industry · Global Electronics Association · THE NONWOVENS INSTITUTE · spesa · Southern Textile Association Organized 1896 · SYFA Synthetic Yarn and Fabric Association · NALA · ATA

Year 1 Implementation Plans



DoW ManTech Program

MISSION

Anticipate and close gaps in manufacturing capabilities for affordable, timely, and low-risk development, production, and sustainment of defense systems.

DoW ManTech carries out its mission through programs in the Military Departments, participating Defense Agencies, and OSW

DoW Manufacturing Innovation Institutes are executed out of OSW with support from the Services

America Makes

M D

lift

AIM PHOTONICS

NEXTFLEX

FUTURETEX
The Textile Futures Institute

biofabusa

ARM

BioMADE

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Department of War Manufacturing Technology Program
Overview

For over 68 years, the DoW ManTech Program has reinforced America's world-class manufacturing base to meet joint force needs rapidly and affordably across the defense system life cycle.

The DoW ManTech Program furthers national security by:

- developing and applying emerging manufacturing processes and technology,
- strengthening **joint planning and coordination**,
- implementing **advanced manufacturing** within the organic industrial base for sustainment
- fostering outreach and communication with the defense industrial base, and
- recruiting and **training the manufacturing workforce**.

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DoW ManTech Program Foundation & Purpose

For over 60 years, the DoW Manufacturing Technology Program has been the War Department's investment mechanism for staying at the forefront of defense-essential manufacturing capability.

- **Congressionally Mandated Mission**
  - Created in 1956 as a congressional mandate, written into 10 U.S. Code § 4841.
  - Responsibility for ManTech Program activities is assigned by a Department of Defense Directive (DoDD 4200.15)
  - Crucial transition link between technology invention and industrial applications
  - Program looks beyond the normal risk of industry
  - Key to affordable and timely acquisition and sustainment of weapon systems and components
  - Broad R&D investment portfolio focused on cross-cutting, multi-system benefit to Defense Industrial Base
- **Key Metrics**
  - Increased affordability, producibility, reliability, and predictability of performance
  - Decreased cycle time, manufacturing cost, system life cycle cost

MISSION

ManTech anticipates and closes gaps in manufacturing capabilities for affordable, timely, and low-risk development, production and sustainment of defense systems.

DoD ManTech executes its mission through programs in the Military Departments, participating Defense Agencies, and OSD

The Department's Formal Relationship with the DoD MIIs

- **Program Office:** The Office of the Secretary of Defense Manufacturing Technology Program (OSD ManTech) oversees DoD's relationship with the institutes. The DoD Manufacturing Innovation Institutes (MIIs) are considered an integral part of the wider DoD Manufacturing Technology Program.

- **Legislative Authorities:** 10 U.S.C. § 4841

- **Partnership Mechanism:** Cooperative Agreements or Technology Investment Agreements

- **Program Management:**

  - The U.S. Army, Navy, and Air Force provide program managers and subject matter experts committed to helping the DoD MIIs meet Department-wide needs while equipping the Warfighter

  - The Joint Defense Manufacturing Council conducts formal evaluations of each DoD MII every five years.

  - The Joint Defense Manufacturing Technology Panel regularly engages with the DoD MIIs by funding government-directed projects, participating in institute events, and collaborating with institutes to support subpanel priorities.

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DoW Manufacturing Programs Existing Authorities are Broad

Dow Manufacturing Technology Program* - 10 USC Sec. 4841

- Emerging and Advanced manufacturing technologies and processes
- Novel applications of traditional manufacturing technologies and processes (e.g. LIFT adapted automotive industry welding techniques on Navy ships to solve long-term Navy problem)
- Education and Workforce Development in support of the manufacturing workforce
- Executed via OSW, Military Services, Defense Logistics Agency, & Missile Defense Agency

Industrial Base Analysis and Sustainment (IBAS) – 10 USC Sec. 2508

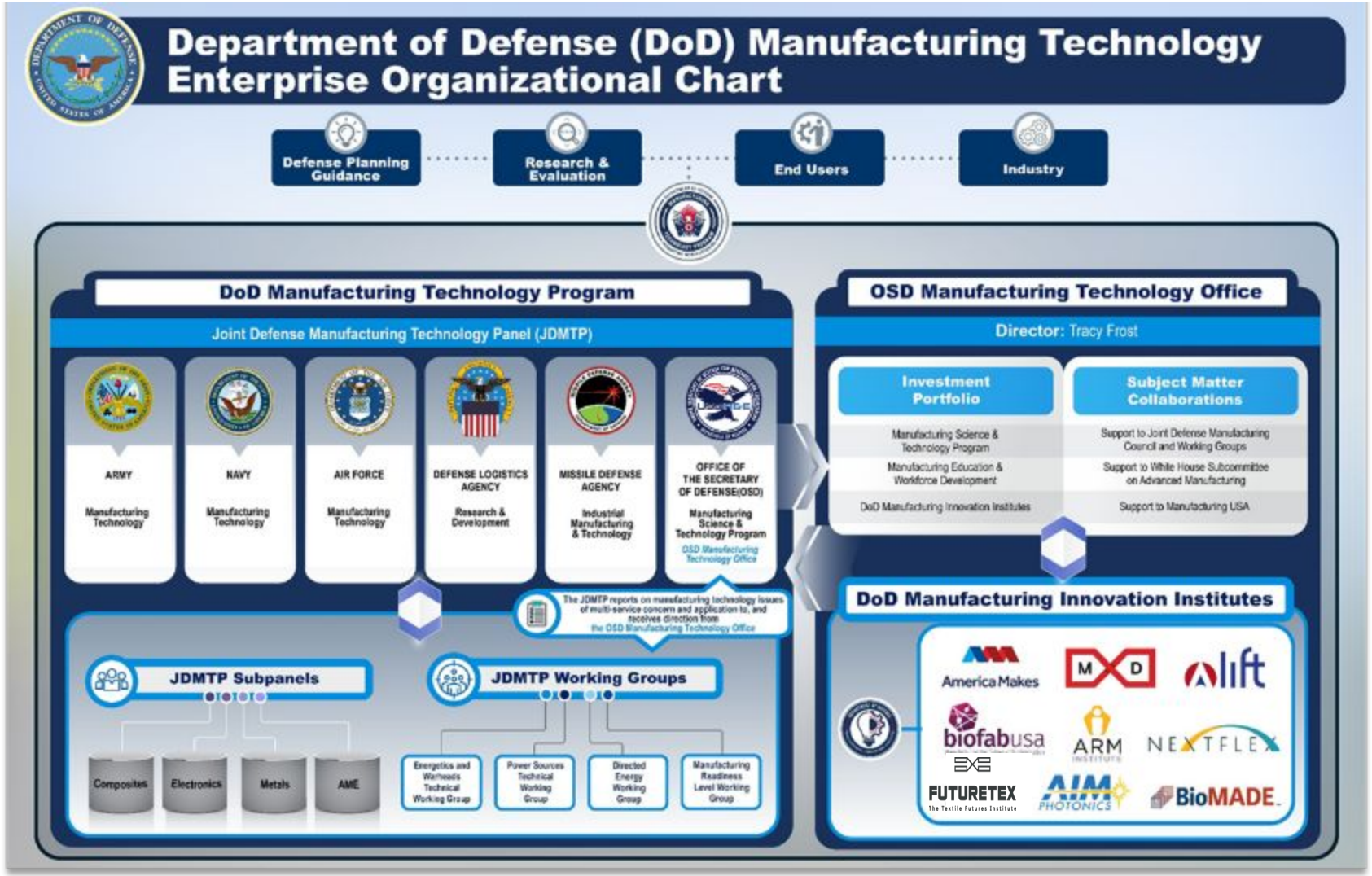
Avoiding reconstitution costs for capability after a Defense procurement hiatus on major investment programs or critical supply chain products (where affordable and innovative mechanisms are available to work with the producers in the interim.)

Defense Production Act (DPA) Title III – 50 USC Sec. 55

“. . . develop, maintain, modernize, and expand the productive capacities of domestic sources” for critical components essential to national security”

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DoW ManTech Program



DoW MII Mission and Vision
Business Model Overview and Tenets

MISSION

Catalyze the establishment, effective operation and integration of industry-led public-private research partnerships that connect and develop people, ideas and technology in ways that accelerate the transition of new capabilities into defense products and systems.

Regional Hubs with National Impact to U.S. Ecosystem	Led by non-profit acting as "honest broker," accountable for viability	Industry-led, DoW-informed technical roadmapping
Industrially relevant, DoW oriented Research and Development (R&D) to "Bridge-the Gap" [TRL/MRL 4-7]	Access to shared assets for U.S. companies: IP and infrastructure	Education and training for sufficient, skilled manufacturing workforce
Significant initial federal investment ($70-$120M) over 5-7 years	Leverage minimum of 1:1 cost share from non-federal sources	Formal evaluation prior to continued DoW engagement and funding

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DoW MII Mission and Vision
Chartering Principles

Advancing Research & Technology	Establishing & Growing Manufacturing Ecosystems	Securing Human Capital
Partner with industry to invest in applied research and industrially-relevant manufacturing technologies	Establish regional manufacturing hubs and ecosystems for long-term, national impact	Develop manufacturing-specific education and workforce development resources to ensure innovative technology is manufacturable

- Industry driven, public-private partnerships are a resource for the entire DoW and other Federal Agencies
- Principles support the OSW ManTech congressionally-mandated mission to support the Warfighter while enhancing the U.S. manufacturing base capabilities, expertise, and intellectual property (IP)

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THE FUTURE OF TEXTILES STARTS HERE.

INNOVATE. COLLABORATE. TRANSFORM.

- Strengthening U.S. manufacturing.
- Accelerating technology transition.
- Building the workforce for what comes next.

LET'S BUILD THE FUTURE TOGETHER.

