National Institute of Standards and Technology
U.S. Department of Commerce

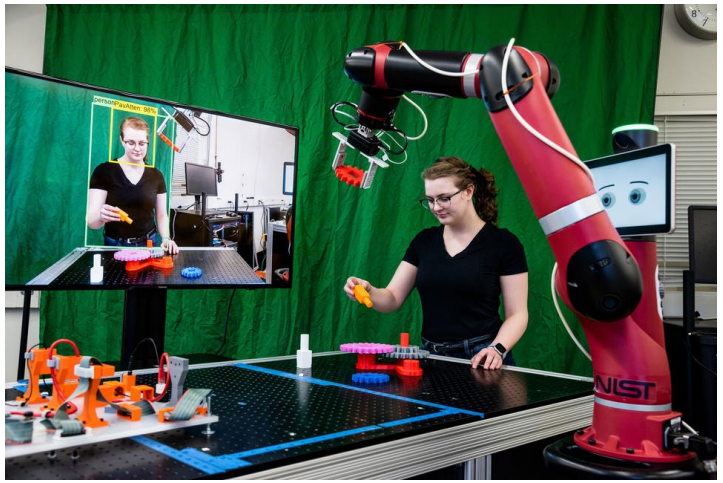
NIST Budget Update

NIST Budget

A very fluid and dynamic situation:

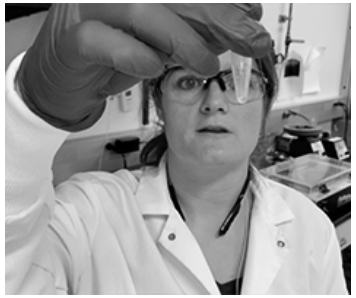
- Currently on a CR until Dec 3rd
  - CR did provide $22M for NIST Surfside Investigation
- Reconciliation debate is primary focus of Congress
  - Potential new funding for NIST uncertain as Bill's topline number is negotiated
- Funding for CHIPS Act not yet finalized

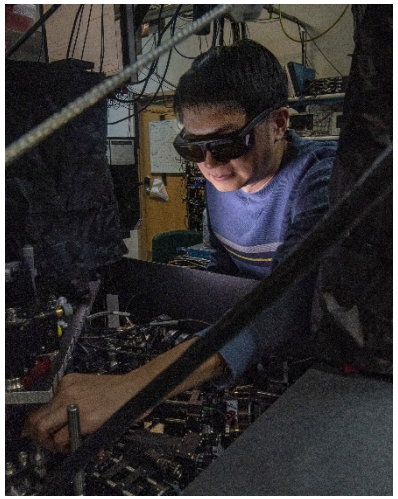
NIST: Aligned with the Administration's Priorities



Manufacturing USA®

MEP National Network™





BALDRIGE Performance Excellence Program

NIST role includes:

- Supporting national manufacturing networks, workforce development
- Driving discovery in emerging technologies - AI, quantum science, synthetic biology, and more
- Securing the supply chain through new research, measurements, standards and other tools
- Highest credibility source for science-based standards and tools for climate measurements, resilience, and clean energy

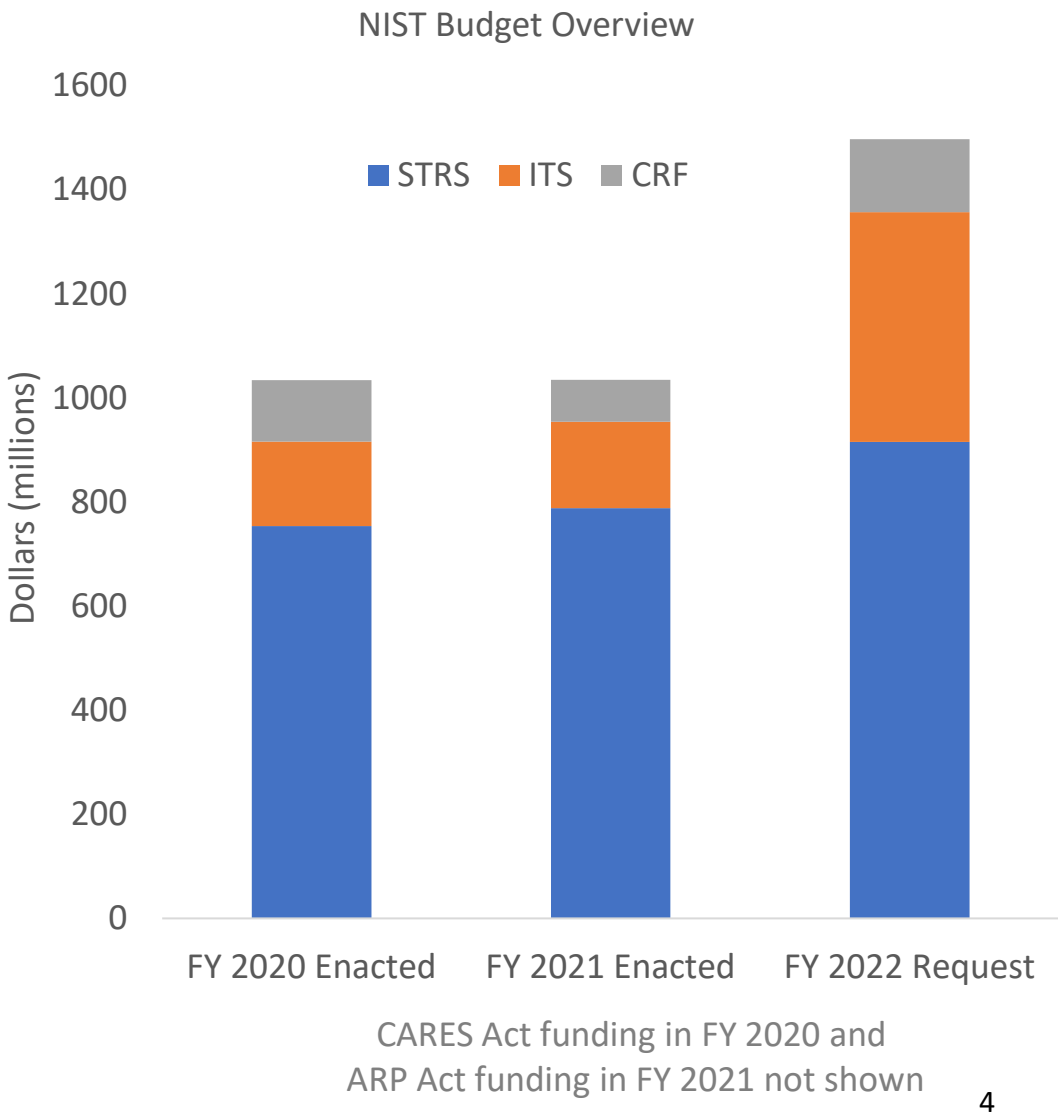
NIST 2022 Budget Summary

The FY 2022 budget request is an increase of **$462.8 M** over FY 2021 enacted levels to fully fund inflationary adjustments to current programs, grow funding for nationally critical mission areas, and expand NIST's manufacturing programs.

- A **44.7% increase** from current funding

This increase positions NIST to address critical national priorities:

- Advanced Communications/5G
- Advanced Manufacturing & Semiconductors
- Artificial Intelligence
- Biotechnology
- Climate, Environment, & Energy
- Cybersecurity and Privacy
- Internet of Things
- Quantum Science
- Racial Equity
- Standards Leadership



New Efforts to Ensure U.S. Leadership in Key Areas

Climate & Energy +$20 M

Resources to predict, measure, and manage the changing climate, and innovations for resilient energy infrastructure and intelligent buildings

Quantum Science +$15 M

New quantum networking grand challenge will build on NIST world-leading science, while NIST expands the Quantum Economic Development Consortium

Artificial Intelligence +$15 M

Leading efforts to prioritize and address key AI issues while developing training and testing tools for research domains

Bioeconomy +$14 M

Living Systems Foundry for safe, predictable design and control of biological systems

Advanced Communications +$12 M

Measurements to support wide deployment of 5G wireless and public safety leadership and engagement in standards development

Microelectronics +$10 M

Measurements and research to support semiconductor and microelectronics innovations

Circular Economy +$5 M

Measurements and research to efficiently recover plastics and other materials in the supply chain

Equity and Diversity in the Workforce +$5.1 M

Developing pipelines for the next generation of measurement scientists

Increase Core Funding to MEP Centers

With a 30-year track record of serving small and medium-sized manufacturers, MEP is uniquely positioned to implement the measures necessary to unlock the economic potential of manufacturing.

Image Credit: Pixabay

Challenges:

- MEP Centers lack resources to serve all the needs of manufacturers in their region
- Proposed infrastructure investments demand even greater U.S. manufacturing to secure products made by American manufacturers

MEP funding increase will:

- Provide direct support that enables U.S. manufacturers to:
  - adopt new technologies
  - fortify cybersecurity
  - improve processes
  - expand training
  - respond to external shocks
- Reach more manufactures regardless of geographic location
- Leverage more manufacturing stakeholders across government, industry, and academia

Impacts:

MEP Centers will provide more services to at least 25% more manufacturers.

More materials and products will be made in America by American manufacturers.

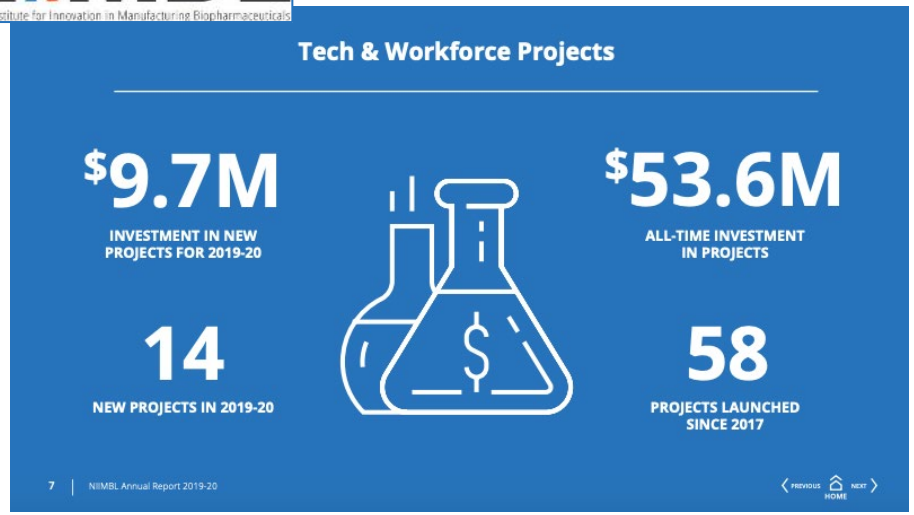
The American manufacturing economy will be stronger and more resilient.

Manufacturing USA $166.7 M (+$150.2 M and 5 Positions)

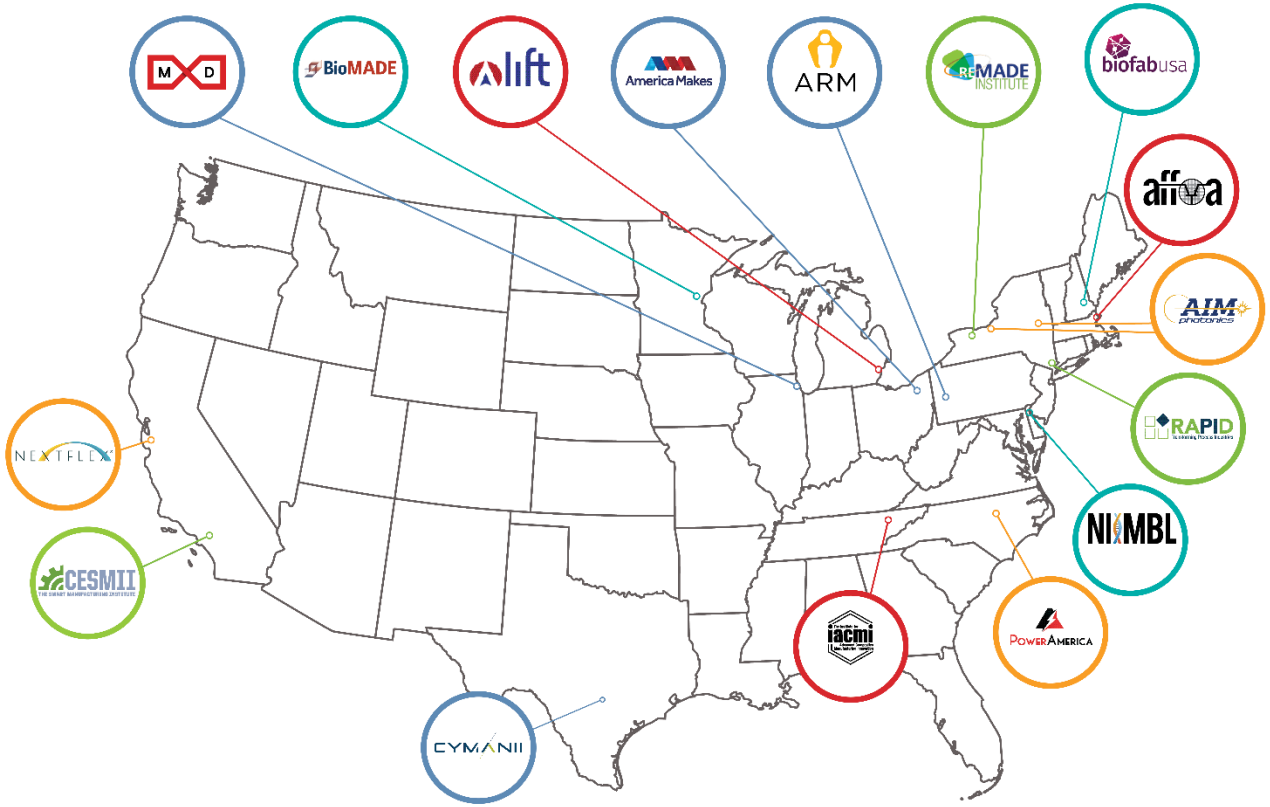
NIST coordinates the nationwide Manufacturing USA network of 16 innovation institutes

- $150 million will fund two additional Manufacturing USA Institutes in FY 2022
- $16.7 million continues base support for coordination, technology roadmaps, and sponsorship of the current NIST/DOC institute NIIMBL

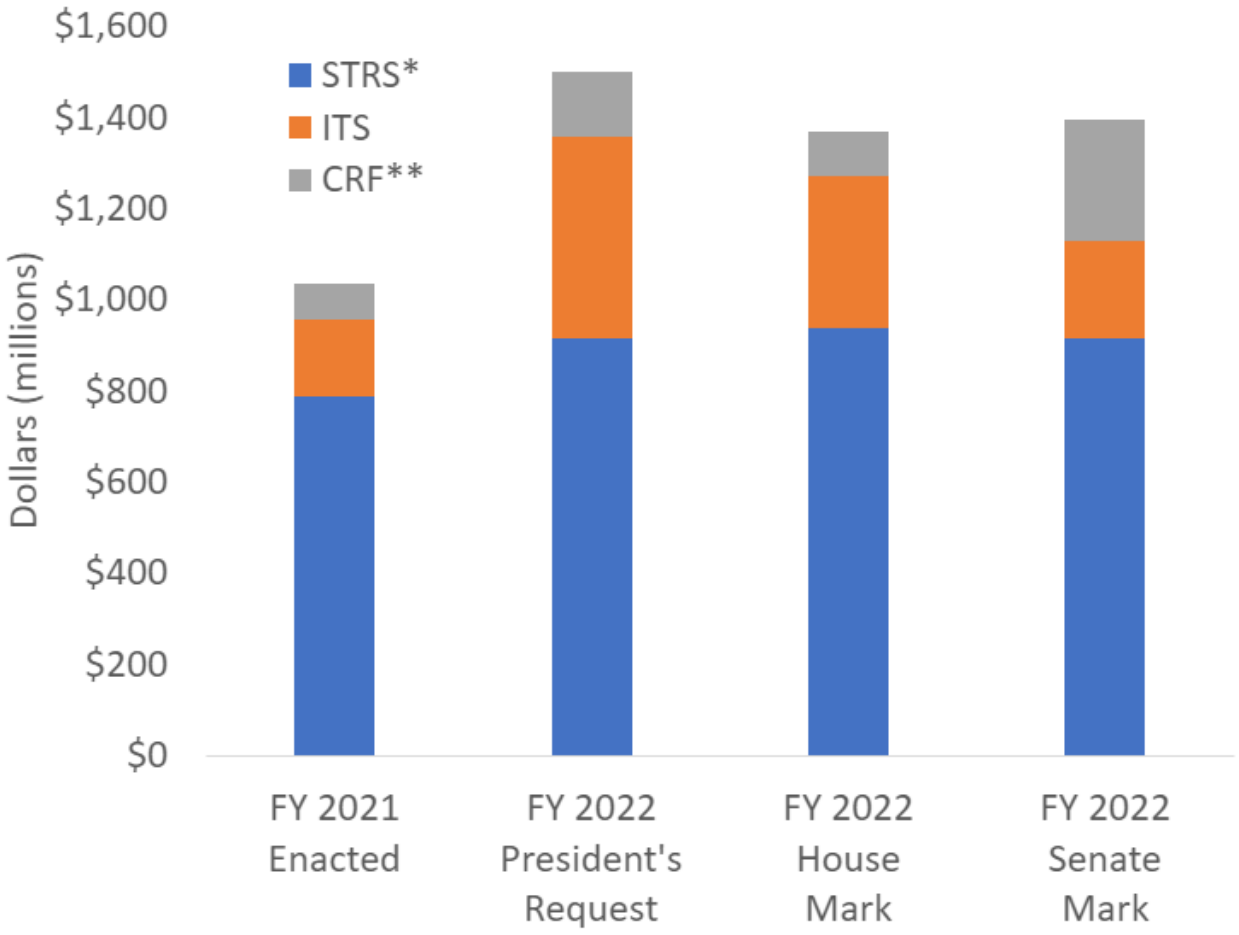
NIIMBL
The National Institute for Innovation in Manufacturing Biopharmaceuticals



Manufacturing USA



Updated Situation



House Mark -- $334M Increase over 21 (32%)

- $149.5M Increase for STRS (more than Presidents Request (PR))
- $125M increase for MEP (equal to PR)
- $40M increase for Manufacturing USA (less than PR)
- $100M for CRF (Less than PR)

Senate Mark – Released by Senate Majority -- $359.6M increase (35%)

- 125M Increase for STRS over FY21 (slightly less than PR)
  - STRS – contains $37.6M of external projects
- $25M increase for MEP (less than PR)
- $22M increase for Manufacturing USA (less than PR)
- $188.6M increase for CRF over 21
  - CRF contains $125.5M of extramural construction

CHIPS Act Funding Status

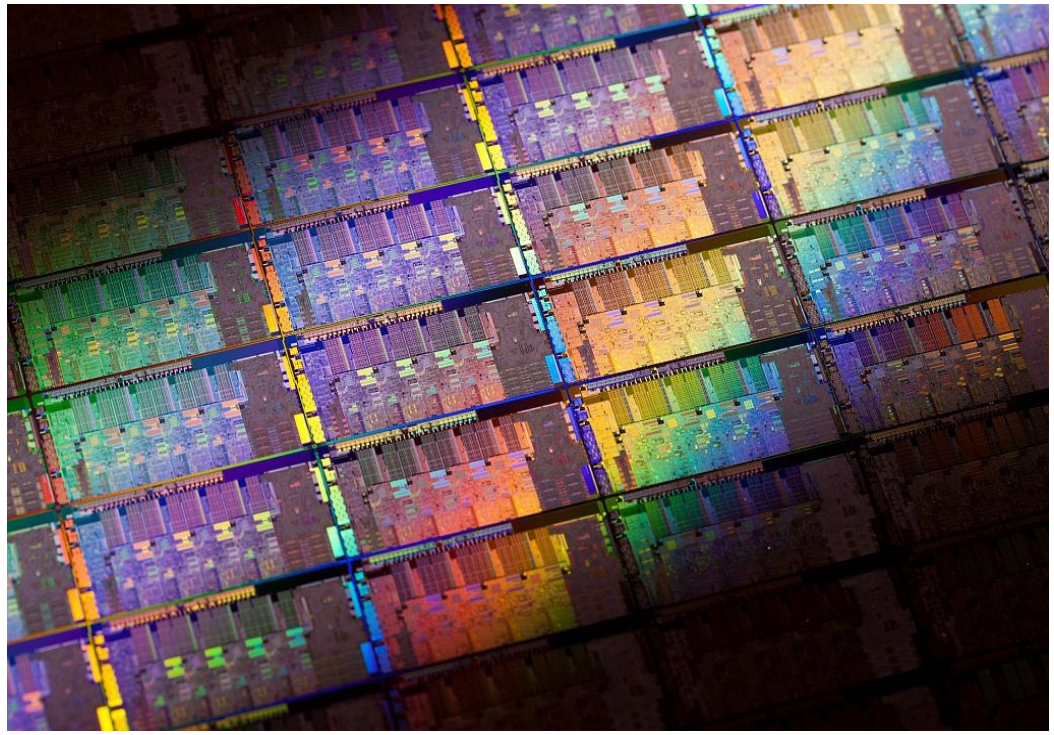
USICA Proposes $52B in appropriations for programs

DOC CHIPS Act Programs	FY 2022	FY2023	FY2024	FY2025	FY2026
Section 9902 Incentives Program	19	5	5	5	5
Section 9906 c National Semiconductor Technology Center	2	2	1.3	1.1	1.8
Section 9906 d Advanced Packaging Program	2.5				
Section 9906 e NIST Metrology Program	0.5				
Section 9906 f Manufacturing USA Institute					

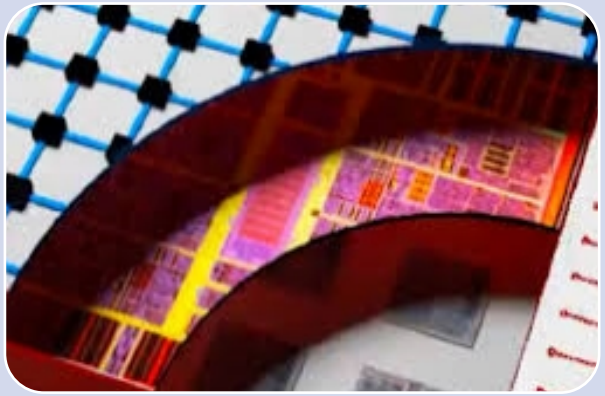
CHIPS Act Planning for Implementation

Several Cross NIST, DOC, Interagency and WH Teams are developing plans for Implementation when funds are appropriated for the implementation of the CHIPS Act R&D Programs

- 9902 – Incentives Program
- 9906 c – National Semiconductor Technology Center
- 9906 d – Advanced Packaging Manufacturing Program
- 9906 e – NIST Metrology Program
- 9906 f – Manufacturing USA Institute



Goals for CHIPS Act



Protect and extend US semiconductor technology leadership

Ensure a secured supply of chips for critical sectors

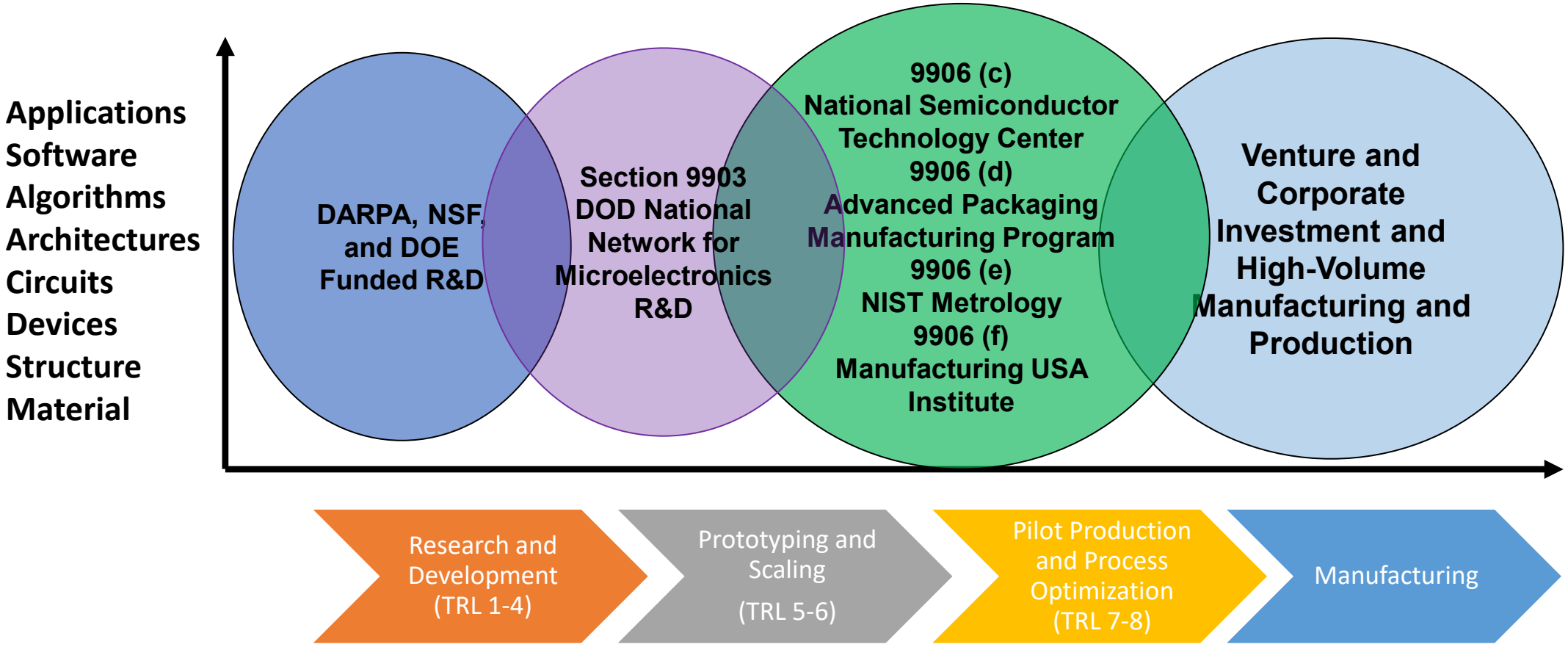
Promote long-term economic viability of US industry in R&D, manufacturing, and other critical parts of the semiconductor value chain.

Incentives Program High-level Goals

- **Increase US share of world's leading-edge chip production**
- **Ensure transparent and reliable chip supply for critical sectors**
- **Protect and extend US semiconductor technology leadership**
- **Support legacy fabs for critical sectors with strong demand**
- **Stabilize US memory chip supply while maintaining viability**

Overview: CHIPS Act R&D Programs

CHIPS Act R&D programs address gaps in the U.S. ecosystem and provide the infrastructure necessary to capture the outputs of early-stage research and provide a path to scale up and production



Common Areas of Focus Across Programs in NDAA SEC. 9906

NSTC

"To conduct semiconductor advanced test, assembly, and packaging capability in the domestic ecosystem …".

Materials characterization, instrumentation and testing for next generation microelectronics.

Virtualization and automation of maintenance of semiconductor machinery.

Metrology for security and supply chain verification.

"…to incentivize and expand participation in graduate and undergraduate programs, and develop workforce training programs and apprenticeships, in advanced microelectronic design, research, fabrication, and packaging capabilities."

Advanced Packaging

"…strengthen semiconductor advanced test, assembly, and packaging capability in the domestic ecosystem"

NIST Internal R&D

Measurement Science

Standards

Material Characterization

Testing

Manufacturing capabilities

M- USA

CREATION OF A MANUFACTURING USA INSTITUTE

Research to support the virtualization and automation of maintenance of semiconductor machinery.

Development of new advanced test, assembly and packaging capabilities.

"…developing and deploying educational and skills training curricula needed to support the industry sector and ensure the United States can build and maintain a trusted and predictable talent pipeline."

Cross-cutting

Advanced test, assembly and packaging capabilities.

Characterization and instrumentation

Manufacturing

Workforce Development

Questions