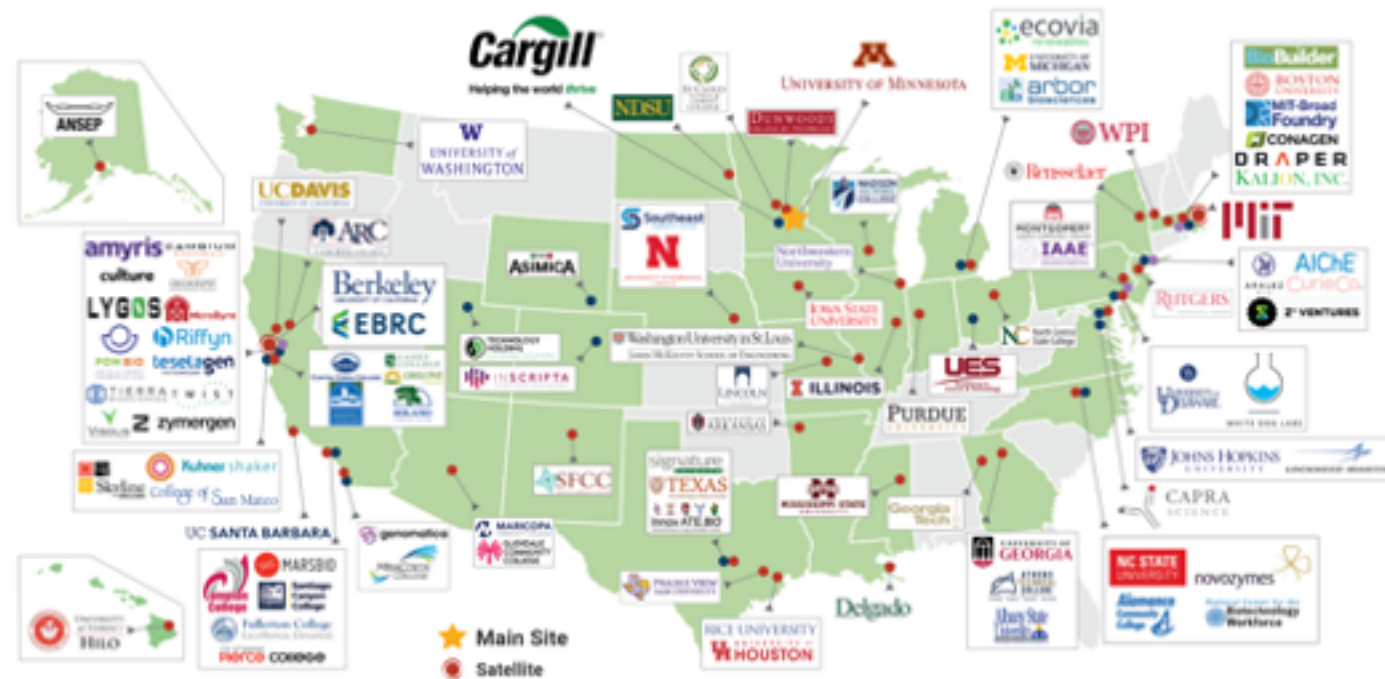




Bioindustrial Manufacturing And Design Ecosystem

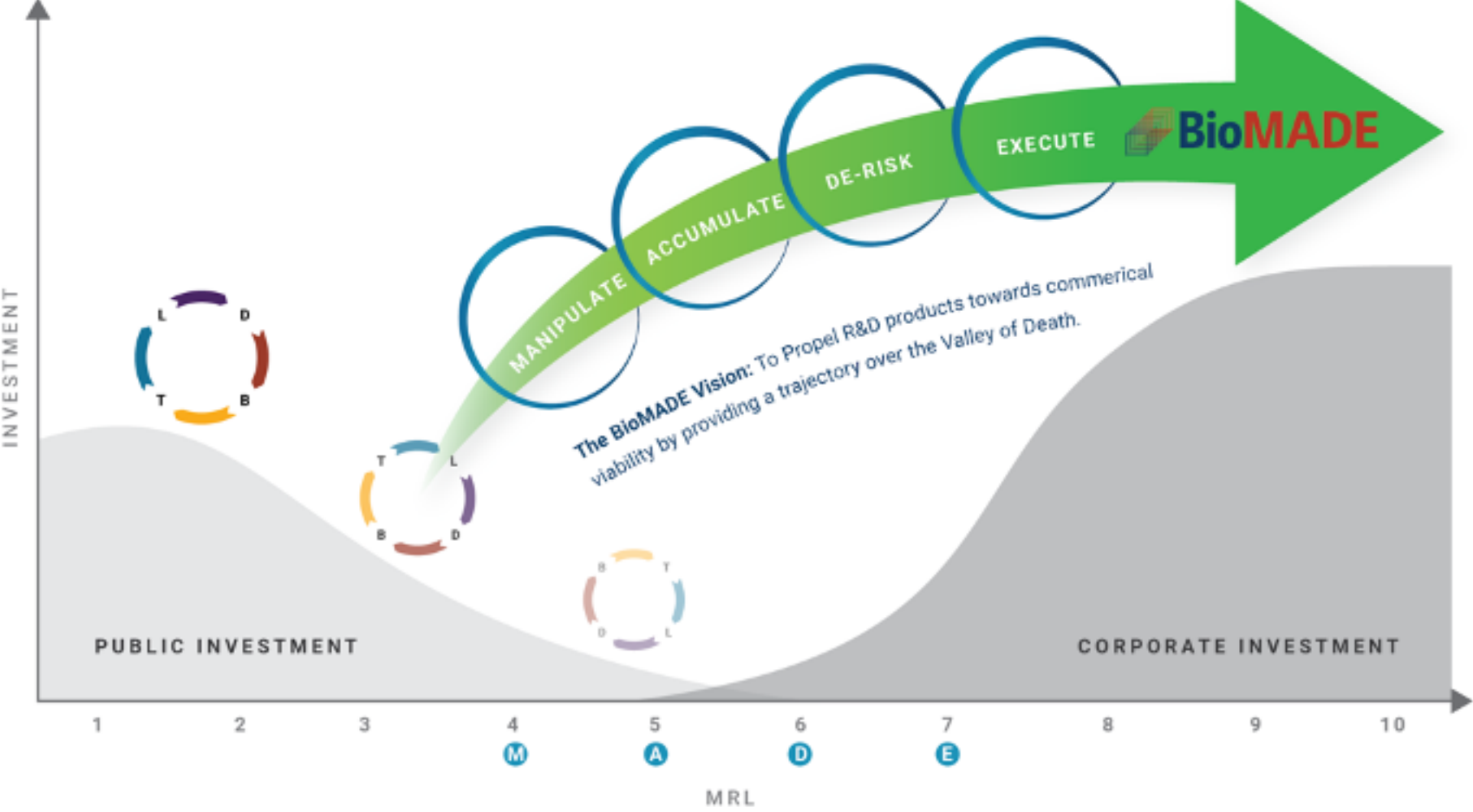
- Newest **DoD-led Manufacturing USA** Institute
- An **independent nonprofit, public-private partnership** sponsored by the U.S Department of Defense.
- **Initial investment of \$275M**, including \$87M from the Department of Defense.
- A vision to build a **sustainable, domestic end-to-end bioindustrial manufacturing ecosystem**.
- HQ & forthcoming **state-of-the-art pilot R&D facility** on the campus of the University of Minnesota. Satellites at UC Berkeley & MIT.
- Established by the EBRC and a nearly **100 organization proposal team** across industry, academia, and nonprofits.

Learn more and subscribe to updates at:
www.BioMADE.org



The BioMADE mission is to enable domestic **bioindustrial manufacturing** at all scales, **develop technologies** to enhance U.S. bioindustrial competitiveness, **derisk investment** in relevant infrastructure, and expand the **biomanufacturing workforce** to realize the **economic promise of industrial biotechnology**.

Network will Focus on Manufacturing Readiness Level (MRL) 4-7 and serve as a reliable bridge from MRL 1-3 to MRL 8-10.

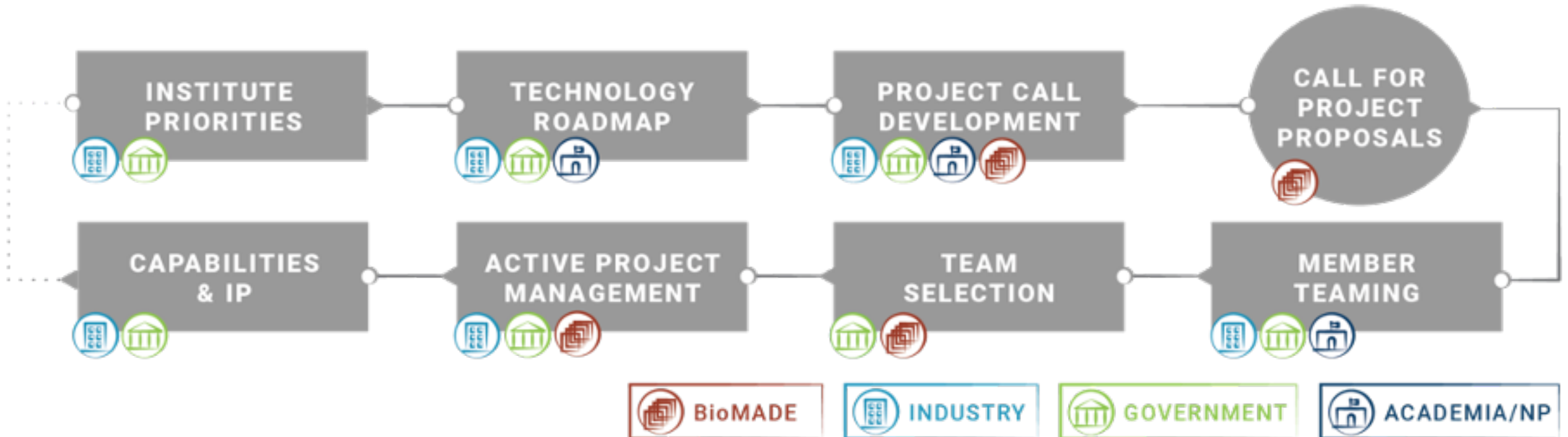


The BioMADE VISION:
To propel R&D products towards commercial viability by providing a trajectory over the Valley of Death.

BioMADE creates an end-to-end Operational EcoSystem (OES) that integrates industrial strain design, scale-up production (SUP) and downstream processing (DSP) to drive industry-relevant innovations and coordinate the infrastructure necessary for reliable production of bioproducts at scale.

Pathway to Innovation

Leverage diversity and partnerships for the strongest, purpose-built teams from across the network to perform and support the work of the Institute.



signature
culture

T W I S T
BIOSCIENCE

POW.BIO
INTELLIGENT
FERMENTATION

CAPRA
SCIENCE

UES
Excellence in
Science & Technology

INSCRIPTA
The Digital Genome Engineering Company

Riffyn

teselagen
BIOTECHNOLOGY

Kuhner shaker

Foundational &
Supporting Technologies

Cargill
Helping the world thrive

novozymes

CAMBIVM
BIOMATERIALS™

TECHNOLOGY
HOLDING
SUSTAINABLE SOLUTIONS

LOCKHEED MARTIN

genomatica

Industrial Manufacturing

WHITE DOG LABS

VISOLIS
CARBON NEGATIVE MATERIALS

TIERRA
BIOSCIENCES

KALION, INC.

zymergen

CurieCo.

amyris

LYGOS

CHECKERSPOT
DESIGNED MATERIALS INNOVATION

ARALEZ
BIO

CONAGEN

ecovia
renewables

arbor
biosciences

ASIMICA

MicroByre

Synthetic Biology

Z VENTURES
Finance

MARSBIO

BioMADE

EBRC AICHE

IAAE®
International Academy of
Automation Engineering

BioBuilder

National Center for the
Biotechnology
Workforce

Innov ATE BIO
National Biotechnology Education Center

DRAPER®
Nonprofit

Fullerton College
Excellence. Elevated.

DUNWOODY
COLLEGE OF TECHNOLOGY

ANSEP

College of San Mateo

CONTRA COSTA COLLEGE

LANEY COLLEGE

Alamance
Community College

St. Cloud
TECHNICAL &
COMMUNITY COLLEGE

ARC

SFCC
SAN JOSE COMMUNITY COLLEGE

MERRITT COLLEGE

Santiago Canyon
College

Southeast
COMMUNITY COLLEGE

LOS ANGELES
Pierce COLLEGE

MADISON
AREA TECHNICAL
COLLEGE

MIRA COSTA COLLEGE

MONTGOMERY
COUNTY COMMUNITY COLLEGE

OHLONE
COLLEGE

GLLENDALE
COMMUNITY COLLEGE

SOLANO
COMMUNITY COLLEGE

LINCOLN
UNIVERSITY

Delgado
TECHNICAL COLLEGE

ATHENS
TECHNICAL
COLLEGE

Albany State
University

Training

MARICOPA
COMMUNITY COLLEGES

Academia

ILLINOIS

UNIVERSITY OF MINNESOTA

Berkeley
UNIVERSITY OF CALIFORNIA

BOSTON
UNIVERSITY

UC SANTA BARBARA

UNIVERSITY
of HAWAII

HILO

UNIVERSITY OF
ARKANSAS

IOWA STATE
UNIVERSITY

NSF Engineering Research
Center for Biorenewable Chemicals

MIT Northwestern
University

CLEMSON
UNIVERSITY

UNIVERSITY OF
HOUSTON

PRAIRIE VIEW
A&M UNIVERSITY

THE STATE UNIVERSITY OF NEW JERSEY
RUTGERS

Rensselaer

Georgia
Tech

UNIVERSITY OF
MICHIGAN

UNIVERSITY of
WASHINGTON

UNIVERSITY OF NEBRASKA-LINCOLN

Research

TEXAS
The University of Texas at Austin

UC DAVIS
UNIVERSITY OF CALIFORNIA

NDSU

MIT-Broad
Foundry

WPI

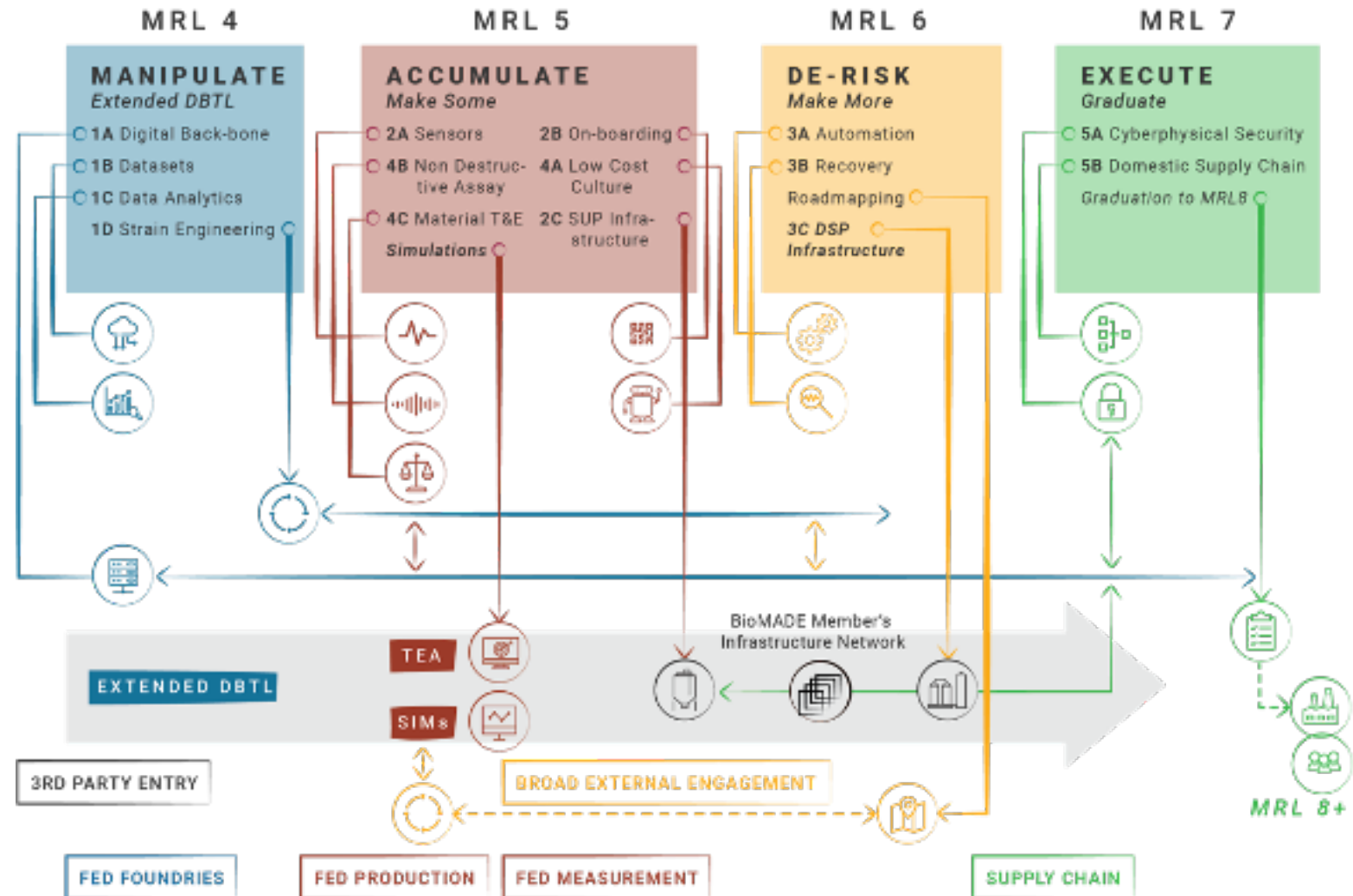
UNIVERSITY OF
GEORGIA

Washington
University in St. Louis

RICE

Will use four core functions to propel engineered strains from the lab to manufacturing scale:

- **Manipulate** reimagines strain engineering with a focus on production needs.
- **Accumulate** drives into scale-up production for testable amounts of bioproducts.
- **De-risk** innovates in downstream processing producing at pre-manufacturing scale.
- **Execute** wraps the production package for transition, including supply chain, ethical/legal considerations, and workforce.



Innovating EWD and ELS²I

Education & Workforce Development (EWD)

BioMADE will augment its technological advances with strong EWD to advance America's biomanufacturing workforce.

- Close and consistent **engagement with industry** to ensure that the training meets the need.
- Develop concepts, essential knowledge, and project specific **educational modules and materials** for use in a variety of training environments.
- **Outreach and communications** activities to promote understanding and awareness of careers and opportunities in bioindustrial manufacturing.
- **Coordination** with a national network of educational entities to maximize impact and minimize redundancy.

Ethical, Legal, Social, and Security Implications (ELS²I)

ELS²I will be incorporated as an integral part of BioMADE's innovation plan, and integrated into EWD efforts.

- Foster engagement between technical, social science, and policy communities.
- Considered at the BioMADE roadmapping, call development, and project execution phases.

Biosecurity

- Biosecurity Advisor as a voting member of committees.
- Biosecurity innovation in manufacturing as a priority.

Bioethics

- Bioethics Advisor as a voting member of committees.
- Representation on and incorporation into Technical Committee.
- Resource for DoD and Members.

Policy Engagement

- Identify regulatory and other challenges facing bioindustrial manufacturing.
- Develop relationships with relevant USG regulators and policy makers.
- Policy development activities as defined by the Leadership Council.

Membership Engagement

Membership Principles

For Industry, Small Business and FFRDC:

- provide an opportunity for companies of all sizes to participate
- provide IP rights and governance roles to organizations based on their membership tier
- ensure cross-sectoral representation in governance
- lead to a sustainable innovation institute.

For Academic & Non-Profit Institutions:

- be inclusive to leverage our national innovation ecosystem
- maintain a fair, transparent, and predictable cost-share structure
- play a role in institute governance
- value diversity of institution type, size, region, and focus.

Member Benefits

The following tables outline the benefits for a given level including:

- Representation in Leadership Committees, and development of Technology Roadmap process and priority setting
- Access to BioMADE's Network and Approach to Innovation
- Engagement with the U.S. Government, FFRDCs, and other MIIIs
- Institute Projects: include U.S. Government funding and are guided by the BioMADE Roadmap,
- Directed Projects: provide a mechanism by which large companies may fund projects directly through the institute.
- Access rights to BioMADE's IP portfolio: C-NERF = Commercial Non-exclusive, royalty free license | NERF (R&D) = Non-exclusive, royalty-free license for R&D purposes only Project-based = IP rights associated with projects in which the entity leads.

Industry: Top tier (platinum) members will have access to a monthly CEO's Roundtable for frequent, direct engagement with BioMADE.

Academic/ Non-Profit: "Preferred Site" member designation may be given for institutes meeting criteria for certain types of projects. These sites will be given additional points and some project calls may be open only to teams with a Preferred Site member, increasing collaborative opportunities.