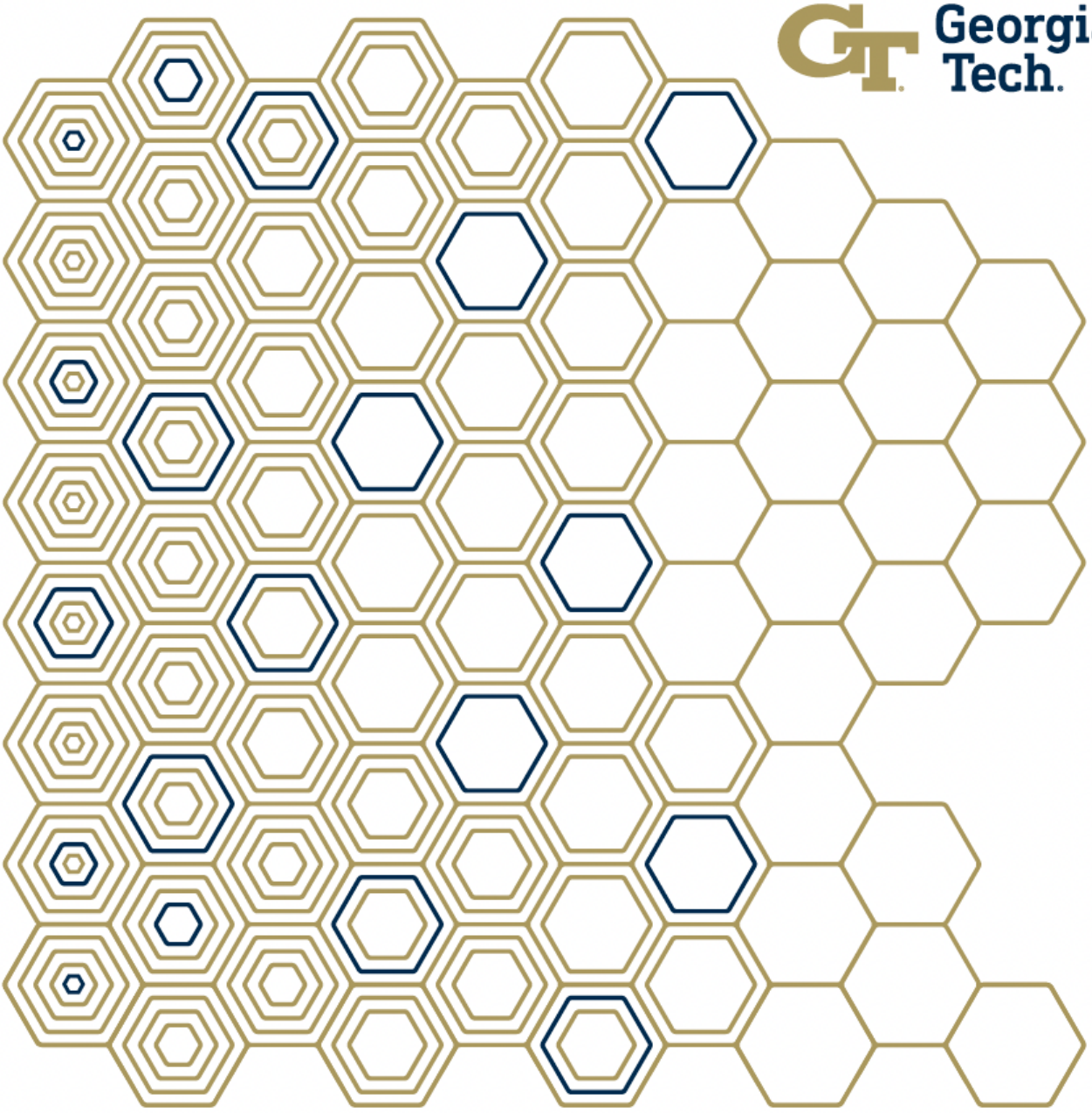
Georgia Tech



Best Practices Guide

Building Research Impact:
Georgia Tech's Research Structures and Best Practices for Industry Engagement

Prepared by the Office of Corporate Engagement

Focus: Research Structures

Including Research Labs, Research Centers, Consortia and Translational Facilities

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EXPANDING YOUR RESEARCH IMPACT: BEST PRACTICES FOR INDUSTRY ENGAGEMENT

Dear Georgia Tech Researchers and Faculty,

This guide is designed to support faculty and researchers at various stages of developing your long-term research plans, with a particular focus on industry-supported structures. This resource offers a practical overview of the most common research structures at Georgia Tech. It distills proven strategies, real-world examples, approaches to leveraging industry partnerships, and general best practices from across the Institute and peer institutions to help you evaluate your options and make informed decisions about how to grow your research enterprise through industry-focused structures.

Why Now?

In today's evolving funding landscape—where federal budgets are tightening and industry partnerships are increasingly essential — diversifying funding sources and aligning your research efforts with the most effective strategies and structures is more important than ever.

Getting Started

To help you navigate the landscape, this guide reviews four research structures, with strong industry opportunities, commonly pursued by Georgia Tech faculty.

- Research Labs
- Research Centers
- Consortia
- Translational, Pilot, and Scale-Up Facilities

For consistency, these are referred to throughout the guide as research structures.

Your Research, Your Strategy

Let this guide be a catalyst for expanding your impact, building strong collaborations, and shaping the future of your research at Georgia Tech:

- Define your research growth goals and align them with the most suitable structures.
- Evaluate diverse pathways, each offering unique benefits and challenges.
- Learn from case studies that illustrate successful scaling strategies.
- Understand funding and business models.
- Anticipate challenges and plan for long-term success.

Georgia Tech's Research Enterprise

Empowering Innovation and Industry Impact

Georgia Tech's research enterprise is built on a strong foundation of academic rigor, institutional support, shared core facilities, collaborative infrastructure, and a deep commitment to engaging with industry through collaborative and sponsored research. As the research environment continues to evolve—shaped by shifting federal priorities, emerging technologies, and increasing expectations for measurable outcomes—Georgia Tech remains focused on enabling faculty to advance research that is aligned with strategic priorities and industry needs.

- Georgia Tech ranks among the top U.S. research institutions, with over $1.4 billion in annual expenditures—including $94 million from industry (NSF HERD FY2023).
- Research structures—labs, centers, consortia, and translational facilities—serve as platforms for innovation and industry partnership.
- Institutional structures provide strategic coordination, shared infrastructure, and cross-campus collaboration, amplifying the impact of industry-focused research.

Federal and Industry Funding: A Dual Engine

Georgia Tech faculty regularly pursue competitive federal grants from agencies such as NSF, NIH, DOE, and DOD—aligning proposals with national priorities and leveraging institutional infrastructure to demonstrate capacity for scalable research. At the same time, industry partnerships play an increasingly important role for driving research, offering opportunities to address real-world challenges, accelerate commercialization, and connect with talent pipelines.

Interdisciplinary Collaboration and Strategic Infrastructure

Interdisciplinary collaboration is a cornerstone of Georgia Tech's research strategy. Faculty, students, and researchers work across disciplines to address global challenges, supported by a robust ecosystem of research entities and industry support, including the robust IRI infrastructure.

The Role of the Georgia Tech Research Institute (GTRI)

GTRI serves as the applied research division of Georgia Tech, collaborating closely with academic units and external partners. With 8 specialized research laboratories, GTRI plays a pivotal role in translating academic research into practical, real-world solutions—particularly in areas such as aerospace, cybersecurity, and systems engineering.

The Expanding Strategic Role of Industry Engagement

Over the past two decades, the relationship between academia and industry has evolved into a model of strategic, long-term collaboration. While discovery-driven research remains central, there is increasing emphasis on applied and translational work that bridges academic inquiry with real-world solutions.

How to Use This Guide

This guide is a practical, step-by-step resource for Georgia Tech faculty and researchers seeking to expand their research impact through industry engagement. It is designed to help you navigate the process of exploring, evaluating, and implementing research structures that foster strategic growth and collaboration with industry partners.

The following provides a quick overview of highlights included in this guide. Use the Table of Contents to quickly locate specific topics and page numbers.

Introduction & Research Enterprise Overview (p. 2)
Discover the purpose of the guide, the importance of industry-focused research, and the broader Georgia Tech research ecosystem.

Research Structures & Industry Engagement (p. 5)
Compare the four primary research structures: Research Labs, Research Centers, Consortia, and Translational/Pilot/Scale-Up Facilities. Learn how each structure supports industry engagement.

Structure Details & Examples (p. 7)
Dive deeper into each structure with concise descriptions, real-world examples, and special considerations for industry collaboration at Georgia Tech and peer institutions.

Best Practices & Lessons Learned (p. 30)
Review distilled best practices and lessons learned from successful research structures. Gain insights into leadership, funding, scaling, and effective industry engagement strategies.

Selecting & Aligning Your Structure (p. 33)
Use guiding questions and strategic considerations to select and align with the structure that best supports your industry engagement objectives.

Institutional Resources & Structures (p. 36)
Explore additional institutional models, including Interdisciplinary Research Institutes (IRIs), core facilities, GTRI labs, and strategic partnerships.

Key Contacts (p. 38)
Access a listing of key contacts for proposal support, industry engagement, intellectual property, and compliance.

Appendix (p. 39)
Find supporting materials, templates, and additional resources referenced throughout the guide to assist with planning, outreach, and implementation.

- **Sample Industry Structure Materials (p. 39)**
  Access sample documents that illustrate best practices and industry-focused examples.
- **References (p. 53)**
  Review a list of institutional, federal, and peer sources cited throughout the guide.

GT RESEARCH STRUCTURES FOR INDUSTRY ENGAGEMENT

Research Labs, Research Centers, Translational Centers, and Consortia

This document focuses on Research Structures at Georgia Tech, including Research Labs, Research Centers, Consortia, and Translational Facilities that offer unique opportunities for faculty and researchers to engage with external industry partners. We examined these based on an Industry-Focused lens.

Although the research structures at Georgia Tech support a wide range of research goals, including federally-funded initiatives, interdisciplinary collaborations, and academic exploration, this section is not intended to review the full spectrum of research models at Georgia Tech. Rather, it sets the stage by defining the foundational structures that frequently underpin industry-supported research and broader strategic initiatives. The following is a comparison chart of the various characteristics of these structures from an industry perspective.

CATEGORY	RESEARCH LABS	RESEARCH CENTERS	CONSORTIA	TRANSLATIONAL FACILITIES (Also referred to as Pilot and Scale-Up Facilities)
Purpose	Focused on specific research topics or scientific questions.	Broader in scope, often interdisciplinary, addressing complex issues.	Alliances among multiple institutions to address large-scale or complex challenges.	Bridge the gap between lab-scale innovation and industrial application; support prototyping, testing, and scale-up.
Structure	Led by a principal investigator (PI), often a faculty member.	Directed by one or more faculty members, sometimes with administrative staff.	Governed by a board or steering committee with representatives from member institutions.	Managed by research staff with oversight from academic and industry stakeholders; includes IP-protected zones.
Scale	Typically smaller in scale, includes graduate students, postdocs, and assistants.	Medium to large scale, may include multiple labs, faculty affiliates, and collaborators.	Large-scale, often regional, national, or international in scope.	Infrastructure-intensive; supports pilot-scale production and real-world testing environments.
Funding	Funded through research grants from government agencies or private foundations.	May have institutional support, endowments, and external collaborators.	Supported by pooled resources, multi-agency grants, foundations, and partnerships.	Supported by membership fees, sponsored research, state and institutional support, and grants.
Industry Engagement	Limited direct engagement, primarily through publications and conferences.	Moderate engagement, often through partnerships and collaborative projects.	High engagement, focused on collaborative research and shared resources.	High engagement; provides access to equipment and facilities for startups, faculty, and industry partners.

BEST PRACTICES EXAMPLES FOR INDUSTRY ENGAGEMENT

Best Practices Review: Research Labs, Research Centers, Consortia, and Translational Facilities

The Office of Corporate Engagement conducted a comprehensive review of internal and external labs, centers, consortia, translation centers and core facilities to better understand best practices, operational structures, and strategic approaches at Georgia Tech and peer institutions.

Methodology:

The team engaged with leaders from various labs, centers, consortia, and pilot facilities through structured interviews. These discussions explored key operational dimensions and strategic insights. The findings are synthesized in a summary table at the conclusion of the next section, with detailed reports provided in the Best Practices Summary provided below this section.

Each Structure was examined across the following dimensions:

A. Best Practices Overview
B. Mission and Vision: How They Got Started
C. Purpose of the Expanded Research
D. Scaling the Lab, Center, Consortium
E. Leadership Structure
F. Types of Funding
G. Equipment and Facilities (If applicable)
H. Corporate Engagement
I. Pricing and membership, pricing, and meeting samples available in the Appendix

Best Practices Industry Structures

Drawing from both Georgia Tech and peer institutions, the sample structures listed below are highlighted in the next section, outlining diverse approaches to structure, funding, collaboration, and impact. Each case illustrates how thoughtful design, strategic alignment, and operational excellence can lead to sustainable, high-impact research programs. Additional interviews with industry-engaged research entities are planned to further deepen our understanding of effective practices.

Labs and Centers

Georgia Tech

- Aerospace Systems Design Laboratory (ASDL)
- Combustion Research Laboratory (BTZ)

Peer University - University of Illinois – Urbana Champaign

- National Center for Supercomputing Applications (NCSA)

Consortia

Georgia Tech

- Packaging Research Center (PRC)
- National Electric Energy Testing Research and Applications Center (NEETRAC)
- Manufacturing 4.0 Consortium; affiliated with the AMPF

Translational, Pilot and Scale-Up Facilities

Georgia Tech

- Advanced Manufacturing Pilot Facility (AMPF); affiliated with the Manufacturing 4.0 Consortium

University of Illinois – Urbana Champaign

- Integrated Bio Processing Research Laboratory (IBRL)

Research Labs and Research Centers Examples

GT - Aerospace Systems Design Laboratory (ASDL)

A. Best Practices Overview

The Aerospace Systems Design Laboratory (ASDL) at Georgia Tech is a pioneering research and education hub focused on systems-level thinking, integration, and innovation in aerospace and beyond. With a unique organizational model and a strong emphasis on student development, ASDL has become a national leader in applied research and industry collaboration.

- Key Best Practices
  - Systems Integration Focus: Emphasizes system-of-systems thinking and model-based systems engineering across domains.
  - Industry-Driven Research: 35% of funding comes from industry, with deep engagement through centers of excellence and strategic partnerships.
  - Student-Centric Model: Supports 300–325 graduate students annually, with a strong emphasis on mentorship, training, and career placement.
  - Sustainable Growth: Operates with a $2.4M/month payroll, funded almost entirely through external sources.
  - Organizational Structure: Division-based leadership with long-tenured research faculty (many former PhD students of the lab's director) ensures continuity and mentorship.

B. Mission and Vision: Origins and Founding Principles

ASDL was founded in response to industry criticism that universities were producing scientists, not engineers. Dimitri Mavris launched ASDL to bridge this gap by focusing on applied, systems-level engineering challenges. The lab was built from scratch with minimal university support, relying on surplus equipment and external funding.

- Founding Vision:
  - Train engineers in system-level thinking and integration.
  - Serve as a trusted partner to industry and government.
  - Build a sustainable, student-driven research enterprise.

C. Purpose and Scope of Research

ASDL addresses complex, interdisciplinary challenges in aerospace and adjacent sectors. Its methods are domain-agnostic and have been applied to:

- Aerospace Manufacturing
- Digital Engineering
- Infrastructure and Health Systems (potential future expansions)

- Policy and Strategic Planning

- Research Topics
  - Model-Based Systems Engineering (MBSE)
  - Digital Twin and Simulation
  - Aerospace Manufacturing Systems
  - System-of-Systems Integration
  - Grand Challenge Projects (graduate-level capstones)

D. Scaling and Strategic Growth

- Build trust with industry through transparency and delivery.
- Develop a sustainable funding model independent of university support.
- Create a scalable organizational structure with division heads and research engineers.
- Establish ASDL as a "skunk works" for Georgia Tech—agile, responsive, and innovative.

E. Leadership and Governance

- Governance Structure:
  - Directed by Dimitri Mavris, Georgia Tech Distinguished Regents Professor.
  - Division heads lead research areas and mentor students.

- Internal Team:
  - 50 Research faculty/engineers provide continuity and technical depth.
  - Administrative staff manage finances, contracts, and operations.

- Student Involvement:
  - Students are central to ASDL's mission.
  - 1200+ applicants annually; 250 interviews conducted to select top talent.
  - Students are trained in ASDL's methods and often hired by industry partners.
  - Current student numbers: 126 Masters, 176 PhD; ASDL also engages ~100 undergraduate students annually in research activities.

F. Financial Model and Funding

- Initial Funding:
  - Government grants (100% in early years)

- Ongoing Revenue:
  - 65% government, 35% industry
  - Grand Challenge sponsorships ($100K per project; ~40-50 projects annually)
  - Centers of Excellence (e.g., FAA, Airbus, Siemens)
  - Strategic partnerships (e.g., Boeing, Lockheed Martin)

- Financial Model:
  - No discretionary funds: all salaries and operations externally funded
  - Balanced budget for 33 consecutive years

G. Equipment and Facilities

- Primarily computational and systems modeling infrastructure
- State-of-the-art wargaming and visualization environments funded by Navy DURIPs
- No large experimental facilities; focus is on methods, tools, and analysis

H. Corporate Engagement and Membership

- ASDL does not have a formal membership program.
- Research programs:
  - Sponsored research
  - Grand challenge projects.
  - Centers of Excellence, sponsored by industry partner.
- Engagement Mechanisms:
  - Long-term relationships built on trust and delivery.
  - Industry advisory board includes leaders and directors from major aerospace firms and government agencies.
  - All students involved in a Grand Challenge program present to ASDL's External Advisory Board and other sponsors and stakeholders.
  - Students often transition directly into industry positions.
- Unique Features
  - Operates like a mission-driven enterprise within a university.
  - No internal competition for funding among staff.
  - Emphasis on loyalty, mentorship, and long-term development.
  - Functions as Georgia Tech's internal "skunk works" for rapid, high-impact problem solving.

I. Sample Documents

- Refer to the Appendix for Sample Industry Materials.

GT - Combustion Research Laboratory (BTZ)

A. Best Practices Overview

The Combustion Research Laboratory (BTZ) is a multidisciplinary research hub dedicated to advancing combustion science and energy systems. It integrates experimental and computational research with a strong emphasis on education and industry collaboration.

- Key Best Practices:
  - Interdisciplinary Integration: Combines expertise from Aerospace Engineering, Chemistry, Materials Science, Mechanical Engineering, Electrical & Computer Engineering, and GTRI.
  - Industry Collaboration: Nearly equal funding from federal and industry sources supports applied and fundamental research.
  - Educational Impact: Supports 50–70 graduate students and 70–100 undergraduates annually.
  - Facility Management: Operated by AE faculty with dedicated area and facilities managers.

- Sustainability Strategy:
  - Fully loaded pricing ensures full cost recovery.
  - Costs for new equipment are embedded in project budgets whenever possible (allowable by certain agencies and accepted by some companies)
  - Equipment costs also supported by start-up packages and grants.

B. Mission and Vision: How They Got Started

BTZ began as a small combustion research initiative within Aerospace Engineering and expanded due to growing interdisciplinary interest and funding opportunities.

- Founding Vision:
  - Advance combustion science through experimental and computational research.
  - Foster collaboration among faculty and students across disciplines.
  - Serve as a national resource for high-impact combustion test & research.

C. Purpose of Expanded Research

BTZ addresses critical challenges in energy independence, green energy & propulsion, combustion diagnostics, and high-temperature systems through both fundamental and applied research.

- Application Areas
  - Advanced Propulsion
  - Ground Transportation
  - Sustainable Aviation
  - Sustainable Energy
- Research Topics: Nearly equal funding from federal and industry sources supports applied and fundamental research topics including:
  - Supersonic combustion and detonations
  - Multi-phase combustion
  - Emissions reduction
  - Alternative fuels
  - Plasma-enhanced combustion
  - Combustion dynamics
  - Altitude performance
  - Durability & reliability
  - Thermal management
  - Energetic materials
  - Laser diagnostics
  - Combustion science
  - Fluid mechanics

D. Initial Goals for Scaling the Lab

- Expand infrastructure and equipment to meet growing research demands.
- Develop a sustainable funding structure through fixed-price contracts, industry investment in capability, and cost-sharing.
- Build a national reputation through strong academic output and industry relevance.

E. Leadership Structure and Roles

- Governance:
  - Directed by AE faculty with oversight of operations and research direction.
- Internal Team:
  - Area and facilities managers oversee equipment and scheduling.
  - Research engineers and technical staff support daily operations.
  - Student Involvement:
  - Graduate and undergraduate students are integral to research execution.

F. Types of Funding

- Initial Funding:
  - NSF grants and institutional support

- Ongoing Revenue:
  - Federal and industry research grants
  - Equipment cost recovery through project budgets
  - Start-up packages for new faculty

- Financial Model:
  - ~$10M annual research budget
  - Equipment and facility costs integrated into project planning
  - Strategic reinvestment in infrastructure and personnel

G. Equipment and Facilities

20,000 square foot academic research facility dedicated to advanced diagnostics in combustion and fluid mechanics. Includes an open laboratory with multiple test stations, as well as additional isolation rooms and high-pressure test cells.

H. Corporate Engagement

BTZ does not operate under a formal membership structure. Instead, it engages with industry through:

- Access Pathways:
  - Direct sponsorship of research projects
  - Specialized service agreements and MRAs
  - Collaboration through centers of excellence (e.g., Pratt & Whitney)

- Engagement Mechanisms:
  - Participation in conferences and publications
  - Networking through national meetings and technical forums

I. Sample Documents

- Refer to the Appendix for Sample Industry Materials.

Peer University - National Center for Supercomputing Applications (NCSA)

University of Illinois at Urbana-Champaign

A. Best Practices Overview

The National Center for Supercomputing Applications (NCSA) is a leading hub for advanced computing and interdisciplinary research. It is a state-federal partnership that provides high-performance computing resources, data storage, and visualization tools to researchers across the United States. NCSA supports a wide range of scientific fields, including artificial intelligence, astrophysics, digital agriculture, and health sciences. It collaborates with industry, government bodies, and academic institutions to drive innovation and address grand research challenges.

- Key Best Practices:
  - Low annual membership fee relative to equipment value.
  - Revenue generation through compute time sales and application consulting (access to advanced computing and knowing how to leverage HPC).
  - Tailored services for industry partners in genomics, cybersecurity, AI, HPC operations, and modeling & simulation.
  - Flexible pricing and cost transparency for compute services.
  - Never shows cost calculations, ICR/F&A rates to industry users.
  - Operates an Industry Partners membership program with compute and labor discounts.
  - Discounted membership for companies in the University Research Park.

- Sustainability Strategy:
  - Applies a fully loaded cost formula for industry partners that covers both direct and indirect costs, including the full F&A overhead rate, plus an additional 35% to ensure the generation of self-supporting funds. This approach aligns with university policy for supporting the capacity to meet the high demands of industry collaborations.
  - Return customers due to service quality and ROI.
  - Secure environments for customer data, including HIPAA compliance.

B. Mission and Vision: Origins and Founding Principles

Established to provide advanced computing resources and expertise to academic and industry partners.

- Mission and Vision Highlights:
  - Enable cutting-edge research through high-performance computing.
  - Foster collaboration between academia and industry.
  - Support innovation in data-intensive science and engineering.

C. Purpose and Scope of Research

- Expand access to HPC resources for diverse research domains.
- Develop scalable solutions for big data and AI challenges.
- Support interdisciplinary research initiatives.

D. Scaling and Strategic Growth

- Primary focus is on repeat customers/long-term relationships.
- Increase industry engagement through flexible service structures in target sectors (manufacturing, pharma, energy, et al.).
- Scale infrastructure with support from the NSF to meet growing demand for compute power.
- Enhance visibility and impact of NCSA's capabilities on state and federal policy makers and elevated officials, as well as other industry prospects.

E. Leadership and Governance

- Leadership team; Director(faculty) and seven area/domain full-time leads
- Program Managers oversee project execution and client engagement.
- Project Managers handle day-to-day operations and deliverables.
- Domain experts provide technical support across disciplines.

F. Financial Model and Funding

- Membership fees from industry partners.
- Revenue from compute time and project-based services.
- University and state-level support for infrastructure.
- Major hardware upgrades supported by NSF

G. Equipment and Facilities

- High-performance computing clusters and storage systems.
- Secure data environments for sensitive research.
- Facilities located within the University of Illinois Research Park.

H. Corporate Engagement

- Customized services tailored to the needs of each industry partner.
- Speed up time to market with a combination of HPC and research domain expertise.
- Long-term relationships through reliable service and results.
- Formal membership program: $50,000 annual fee provides reduces compute rates.
- Discounted access for Research Park tenants.

I. Sample Documents

- Refer to the Appendix for Sample Industry Materials.

Consortia Examples

GT - 3D Systems Packaging Research Center (PRC)

A. Best Practices Overview

The PRC at Georgia Tech is a leading academic-industry consortium focused on advanced packaging technologies for computing, wireless, and emerging applications. It integrates interdisciplinary academic research with industry-driven needs to deliver both short-term solutions and long-term innovations.

- Key Best Practices:
  - Consortium-Based Model: Combines academic research with industry collaboration under a Non-Exclusive Royalty-Free (NERF) IP structure.
  - Tiered Membership Structure: Includes Full ($100K), Student ($65K), and Supply Chain ($25K)
  - Flexible Access: Members can engage in collaborative and custom research projects.
  - State-of-the-Art Facilities: 300mm panel-size cleanroom and advanced fabrication tool
  - Interdisciplinary Collaboration: Faculty from ECE, ME, MSE, ChBE, CS, and GTRI work together on complex challenges.
  - Global Industry Engagement: Collaborations span the U.S., Europe, and Asia.
  - Customer-Centric Support: Dedicated project managers, engineers, and training staff.

- Sustainability Strategy:
  - Cost-Sharing Model: Affordable access through subsidized rates and shared resources.
  - Strategic Investment: Over $8M invested in cleanroom upgrades and new tools.
  - Scalable Infrastructure: Additional 8,000 sq ft of cleanroom space supports growth.
  - Federal and State Support: Includes funding from NSF, DARPA, and the State of Georgia.

B. Mission and Vision: How It Got Started

- Founding Vision:
  - Established in 1994 as the first NSF Engineering Research Center (ERC) focused on advanced packaging concept/ technology and educate highly-interdisciplinary students.
  - Supported by NSF for 11 years at a funding level of $35M, and $35M from the State of Georgia. Over time, the center was supplemented by $100M from more than 50 U.S. companies.
  - Aimed to bridge academic innovation with industry application in system-on-package (SOP) technologies.
  - The first of its kind $300mm panel-size cleanroom pilot package, assembly and reliability facility at a cost of $47M.

- Mission Statement:
  - To advance packaging technologies through interdisciplinary research, industry collaboration, and real-world application.

C. Purpose of Expanded Research

- The PRC addresses critical challenges in:
  - Advanced Packaging for Computing and Wireless
  - Thermal Management and Miniaturization
  - Reliability and Cost Reduction
  - Emerging Technologies and CHIPS Act Initiatives

- Research Types:
  - Consortium Projects: Shared research with IP access for full members.
  - Custom Industry Projects: Tailored research for individual sponsors.
  - Federal Programs: Includes SRC/DARPA JUMP 2.0 and other standalone initiatives.

D. Scaling the Consortium

- Launch with NSF and industry funding.
- Build a state-of-the-art cleanroom and recruit top faculty.
- Establish a sustainable membership structure.
- Expand interdisciplinary research and industry relevance.
- Position PRC as a global leader in packaging innovation.

E. Leadership Structure and Roles

- Governance:
  - Center Director, supported by a core team of faculty and engineers.
  - Project Manager: Manages invoicing, membership, and partner engagement.
  - Events Manager: Oversees IRI-related events.
  - Finance and Admin Staff: Shared across IRI, support PRC operations.
  - Technical Staff: Engineers and technicians support lab operations and member training.

- Student Involvement:
  - Supports graduate and undergraduate students through research assistantships and training.

F. Types of Funding

- Initial Funding

  - NSF ERC grant ($35M), State of Georgia ($35M), and over time, the center was supplemented by $100M from more than 50 U.S. companies.

- The PRC was an ERC and federally funded consortia funded in 1994. The NSF funding lasted 11 years and is supported by a diversified funding model with industry funding.

- Membership dues.
  - Custom project contracts.
  - Federal and state grants.

- Financial Model:
  - Annual budget exceeds $3M.

G. Equipment and Facility

- The significant PRC equipment, including the test bed, prototype research laboratory, and advanced assembly technology in cleanrooms, is now part of the Core Facilities located in both the Pettit Cleanrooms and the Marcus Lab. These facilities are managed and operated by the Institute for Matter and Systems. Facility fees for monthly access: $250 (internal), $700 (external), and $25/hour per person. Cost studies ensure affordability and sustainability.

H. Corporate Engagement

- How Industry Gets Access:
  - Consortium has three membership tiers; Engineers work on-site at PRC (for full members).
  - Initiate custom projects through direct contracts.

- Engagement Mechanisms:
  - Annual meetings and regular updates.
  - Access to student researchers and project reports.
  - Participation in IP voting and project planning.

- Membership Models - Fee Structure:
  - Full Membership: $100K/year – IP access, student engagement, and on-site engineers.
  - Student Membership: $65K/year – limited access.
  - Supply Chain Membership: $25K/year – no IP or student access.

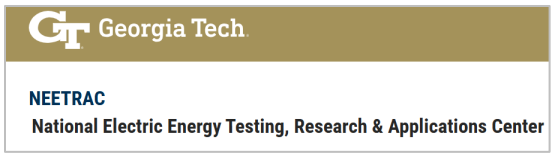
- Project Access:
  - Members access all consortium research; custom projects available for additional fees.
  - IP shared under NERF structure based on member interest.

- Member Composition:
  - ~30 members, U.S. and international companies.
  - Industry Member Meetings with a focus on research projects and emerging technologies.

I. Sample Documents

- Refer to the Appendix for Sample Industry Materials.

GT - National Electric Energy Testing, Research & Applications Center (NEETRAC)



A. Best Practices Overview

The National Electric Energy Testing, Research & Applications Center (NEETRAC) is a premier member-focused consortium housed within Georgia Tech's School of Electrical and Computer Engineering. It provides value-oriented research, testing, and engineering services to the electric energy delivery industry, including utilities and manufacturers. Recognized as a national leader in electric utility testing and standards development, NEETRAC offers a unique platform that bridges academia and industry.

- Key Best Practices:
  - Consortium-Based Model: Combines collaborative "Baseline" research with proprietary "Direct-Placed" projects, enabling both shared innovation and tailored solutions.
  - Tiered Membership Fees: Ranging from $36K to $173K annually, covering research, facility access, and development overhead.
  - Flexible Engagement: Members can initiate projects and scale involvement based on need.
  - Specialized Equipment: ISO-qualified, industry-specific tools for diagnostics, failure analysis, and standards development.
  - Industry Integration: Deeply embedded in IEEE standards groups and utility networks, enhancing credibility and influence.
  - Customer-Centric Operations: Dedicated project managers and a communications lead ensure responsiveness and satisfaction.
  - Regular Member Engagement: Includes triannual board meetings, annual satisfaction surveys, and consistent outreach.

- Sustainability Strategy:
  - Fully loaded pricing ensures cost recovery and supports reinvestment.
  - Development dollars can be rolled over for infrastructure upgrades.
  - Strong industry relationships and technical credibility drive retention and growth.
  - Financial transparency through zeroed-out year-end accounting.

B. Mission and Vision: Origins and Founding Principles

- NEETRAC was founded in 1996 through a strategic partnership between Georgia Tech and Southern Company, following the closure of the Georgia Power Research Lab. The lab's legacy of excellence and its alumni network at Georgia Tech laid the foundation for NEETRAC's launch.

- Founding Vision:
  - Preserve critical testing infrastructure and expertise.
  - Establish a university-based center to serve the electric utility industry.
  - Create a sustainable, membership-based structure rooted in industry relevance.

- Mission Statement:
  - "To advance our industry by providing innovative, impactful, pragmatic solutions to real problems related to the transmission and distribution of electric energy."

C. Purpose and Scope of Research

- NEETRAC's research addresses the evolving challenges of the electric energy sector, including:
  - Aging infrastructure and asset management.
  - Regulatory shifts and compliance.
  - Integration of distributed energy resources (DERs).
  - Technology innovation and implementation.
  - Cost-effective operations and workforce development.

- Research Types - Collaborative Baseline Projects: Voted on by members; examples include:
  - Overhead connector diagnostics.
  - Lightning risk assessments.
  - Standards development.

- Research Types - Proprietary Direct-Placed Research Projects: Tailored to individual members: Failure analysis and grounding studies
  - Prototype and qualification testing.
  - Engineering consultation and diagnostics.
  - Asset management and reliability studies.
  - Over 150 proprietary projects are conducted annually, demonstrating NEETRAC's capacity and responsiveness.

D. Scaling and Strategic Growth

- Initial Goals:
  - Leverage donated equipment from Southern Company to launch operations.
  - Recruit 10 founding members to provide initial funding and project commitments.
  - Establish NEETRAC as a national leader in electric utility research and testing.
  - Develop a sustainable financial structure based on membership and project revenue.
  - Build credibility through IEEE standards participation and high-impact results.

- Differentiators for Scaling:
  - Became a trusted industry standard through its deep integration with IEEE and utility networks.
  - Specialized equipment and flexible project structures attracted a stable and growing membership.
  - Strong word-of-mouth and technical credibility helped NEETRAC become a go-to resource for utilities and manufacturers.

E. Leadership and Governance

- Governance Structure:

- Management Board: One representative from each member company; meets three times annually to review projects and propose new initiatives.

- Internal Team:
  - Leadership Team: Four core leaders, including a director and communications lead.
  - Technical Staff: Engineers, technicians (Levels 1–3), paid hourly, hands-on support.
  - Project Managers: Assigned to every project to ensure delivery, coordination, and customer satisfaction.

- Student Engagement:
  - Previously included internships, co-ops, and research assistantships.
  - Currently paused but under consideration for future reintroduction.

F. Financial Model and Funding

- Initial Funding:
  - Received equipment donation from Southern Company.
  - Membership dues from 10 founding members.

- Ongoing Revenue Streams:
  - Tiered annual membership fees.
  - Project-based revenue from proprietary research.
  - Facility usage fees.

G. Equipment and Facilities

- Operates ISO-qualified, industry-specific testing and diagnostic equipment at reduced rates:
  - High voltage testing systems
  - Environmental and mechanical testing chambers
  - Grounding and safety evaluation tools
  - Failure analysis and quality assurance labs

I. Corporate Engagement and Membership

- Membership Models:
  - Operates under a tiered membership structure that provides flexibility and value.
  - Annual Membership Fees: Range from $36K to $173K depending on tier.

- Fee Covers:
  - Collaborative research (Baseline), Proprietary research (Direct-Placed)
  - Facility usage, development and overhead
- Member Composition:
  - Utilities representing 65% of U.S. electric customers and manufacturers of electric utility equipment

I. Sample Documents

- Refer to the Appendix for Sample Industry Structure Materials.

GT - Manufacturing 4.0 Consortium

Manufacturing 4.0 Consortium operates independently but is also affiliated with AMPF.

A. Best Practices Overview

The Manufacturing 4.0 Consortium is a member-based research consortium launched in 2023 to accelerate the adoption of Industry 4.0 technologies. It operates within AMPF and is managed by GTMI, bringing together academia, industry, and government.

- Key Best Practices:
  - Consortium Model: Collaborative platform for advancing smart manufacturing.
  - Member Engagement: Research, training, proposal development, and networking.
  - Flexible Access: Includes AMPF time and collaborative opportunities.
  - Workforce Development: Supports training and student engagement.

- Sustainability Strategy:
  - Membership fees provide operational funding.
  - Sponsored research is the long-term financial foundation.
  - Initial grant funding supported launch.
  - Long-term sustainability through research engagement at AMPF/GTMI

B. Mission and Vision: How It Got Started

The Consortium was established to formalize collaboration and accelerate innovation in advanced manufacturing.

- Founding Vision:
  - Advance Industry 4.0 technologies
  - Provide a collaborative platform for research and training
  - Support domestic manufacturing competitiveness

C. Purpose of Expanded Research

The Consortium supports collaborative research and demonstration projects focused on scalable, secure, and innovative manufacturing systems.

- Application Areas
  - Cybersecure Industry 4.0 integration
  - Advanced automation and characterization

- Workforce development
- Hard-tech startup incubation (a future activity)
- Domestic manufacturing revitalization

- Research Topics
  - Smart manufacturing systems
  - Robotics and automation
  - Digital twins and data analytics
  - Materials processing and evaluation

D. Scaling the Consortium

- Launch with initial grant funding
  - Grow membership across Georgia and nationally
  - Convert engagement into sponsored research
  - Align with GTMI and AMPF for ecosystem integration

E. Leadership Structure and Roles

- Governance
  - Executive Director (also Interim Director of AMPF Operations)
  - Board of Directors with Georgia Tech and industry representation
  - Supported by professional and research staff

F. Types of Funding

- Initial Funding
  - Consortium grant funding
  - Georgia AIM support

- Ongoing Revenue
  - Membership fees (tiered by company size and location)
  - Sponsored research
  - Gifts and grants

- Financial Model
  - Membership is a strategic entry point
  - Sponsored research is the long-term revenue driver
  - AMPF access and collaboration incentivize deeper engagement

G. Equipment and Facility

- Members access AMPF equipment for:

- Prototyping and pilot-scale production
- Technology demonstration and validation
- Secure, IP-protected research environments

H. Corporate Engagement

- Membership Model:
  - Affiliate/Small Business: $5,000/year
  - Full Member: $20,000/year
  - Georgia-based companies receive a 10% discount

- Access Pathways:
  - One week of AMPF access included
  - Direct engagement in collaborative research
  - Participation in training and proposal development

- Engagement Mechanisms:
  - Networking with other members
  - Faculty and student collaboration
  - Publicity and visibility for member technologies

I. Sample Documents

- Refer to the Appendix for Sample Industry Structure Materials.

Translational and Pilot Facilities Examples

Georgia Tech Manufacturing Institute's (GTMI) Advanced Manufacturing Pilot Facility (AMPF)

Advanced Manufacturing Pilot Facility (AMPF) operates independently but is affiliated with the Manufacturing 4.0 Consortium

A. Best Practices Overview

The AMPF is Georgia Tech Manufacturing Institute's (GTMI) flagship interdisciplinary research and teaching facility. Built as a reconfigurable research and development high bay manufacturing facility, it fills the functions of both a core facility and a translational facility providing a shared user environment supporting secure, IP-protected research and prototyping for academia, government, and industry. To enable real-world testing and scale-up of advanced manufacturing technologies, the AMPF covers Technology Readiness Levels (TRL) 2-6 although both TRL 1 and TRL 7 projects are performed from time to time.

- Key Best Practices
  - Shared User Facility: Open to academic, government, and industry partners.
  - Secure Environment: IP-protected zones for proprietary research.
  - Workforce Development: Hands-on training for students and professionals.
  - Flexible Use: Supports prototyping, demonstrations, SBIR/STTR projects, and startup incubation.

- Sustainability Strategy
  - Core facility usage fees fund operations.
  - Sponsored research provides long-term financial stability.
  - State salary lines, GTMI support, and grants (e.g., Georgia AIM, Army Research Lab) offer foundational support.

B. Mission and Vision: How It Got Started

AMPF was launched in 2017 with foundational support from Delta and Boeing to serve as a translational facility for advanced manufacturing innovation.

- Founding Vision
  - Enable innovation and de-risking of Industry 4.0 technologies.
  - Provide a collaborative platform for research, training, and demonstration.
  - Support domestic manufacturing leadership and economic diversification.

C. Purpose of Expanded Research

AMPF addresses the need for scalable, secure, and advanced manufacturing systems through translational research and pilot-scale demonstrations.

- Application Areas
  - Cybersecure Industry 4.0 integration
  - Advanced automation and characterization
  - Workforce training and development
  - Hard-tech startup incubation
  - Domestic manufacturing revitalization

- Research Topics
  - Smart manufacturing systems
  - Robotics and automation
  - Digital twins and data analytics
  - Materials processing and evaluation

D. Scaling the Facility

- Establish AMPF as a premier shared user facility.
- Expand faculty engagement across GT.
- Support broader research areas and interdisciplinary collaboration.
- Build a sustainable ecosystem through grants and GTMI integration.

E. Leadership Structure and Roles

- Governance
- Led by GT's Chief Manufacturing Officer and Executive Director of GTMI.
- Supported by professional and research staff.
- ~70 graduate students and 120 undergraduates engaged annually.

F. Types of Funding

- Initial Funding
  - Founding gift from Delta and Boeing (2017).
  - Georgia AIM (EDA Grant) for renovation and 3x expansion (2022).

- Ongoing Revenue
  - Sponsored research projects.
  - State salary lines and GTMI support.
  - Gifts and grants.

- Financial Model
  - No membership program (or should it say: See the Manufacturing 4.0 Consortium for details about membership.)?
  - Sponsored research and faculty engagement drive sustainability.
  - Equipment access incentivizes deeper collaboration.

G. Equipment and Facilities

- AMPF offers a comprehensive suite of advanced manufacturing equipment for:
  - Prototyping and pilot-scale production
  - Technology demonstration and validation
  - Secure, IP-protected research environments

H. Corporate Engagement

- Membership Models

I. Sample Documents

a. Refer to the Appendix for Sample Industry Structure Materials.

Translational Facility - Pilot and Scale-Up

Peer University - Integrated Bioprocessing Research Laboratory (IBRL)

University of Illinois at Urbana Champaign

A. Best Practices Overview

The Integrated Bioprocessing Research Laboratory (IBRL) is a bioprocessing research and development facility that bridges the gap from discovery to commercialization of bioproducts. It provides lab and pilot plant for research to market applications and commercial products. IBRL develops technologies for next-generation biofuels and value-added products from biomass. Expertise in improving efficiencies, reducing water usage, and increasing biofuel production in the corn ethanol industry.

- Key Best Practices:
  - Market Discovery: Conduct interviews and surveys to validate demand and refine offerings.
  - Tailored Value Propositions: Align services with industry pain points and priorities.
  - Flexible Engagement Models: Project-based pricing to accommodate diverse partners.
  - Clear Differentiators: Emphasize unique tools, intellectual property structures, or domain expertise.
  - Strategic Positioning: Align with institutional strategic priorities and national priorities to enhance relevance and funding potential.

B. Mission and Vision: Origins and Founding Principles

- IBRL was established to support pilot-scale bioprocessing research and economic development in Illinois.
- Mission and Vision Highlights:
  - Opened in September 2018 to support pilot-scale bioprocessing research and economic development in Illinois.
  - The first four years of IBRL's operation coincided with a global production expansion in the biomanufacturing and bioprocessing industry.

C. Purpose and Scope of Research

- Expand access to bioprocessing resources for diverse research domains.
  - Develop scalable solutions for biofuel and biomass challenges.
  - Support interdisciplinary research initiatives.

D. Scaling and Strategic Growth

- Increase industry engagement through flexible service models.
- Scale infrastructure with support from state funds to meet growing demand for bioprocessing.
- Enhance visibility and impact of IBRL's capabilities.

E. Leadership and Governance

- Leadership team; Executive Director and key roles such as Associate Directors, Business Development Coordinator, plant specialists, lab specialists, office support, and visiting research scientists.
- Program Managers oversee project execution and client engagement.
- Project Managers handle day-to-day operations and deliverables.
- Domain experts provide technical support across disciplines.

F. Financial Model and Funding

- Funding from industry partners (Big percentage).
- State-level support for infrastructure.
- Significant financial backing, including $6.5 million in state funds for equipment and staff expansion.

G. Equipment and Facilities

- Lab and pilot plant for research to market applications and commercial products.
- Dedicated analytical lab to support projects located in the IBRL.
- Facilities include volatile extraction room, grinding room, offices, common spaces, workshop, dock, and storage.

H. Corporate Engagement

- Customized services tailored to the needs of each industry partner.
- Long-term relationships through reliable service and results.
- Full-time Business Development person and attend 18-20 conferences annually to engage with industry.
- Formal membership program with advisory board positions for larger companies.

I. Sample Documents

- Refer to the Appendix for Sample Industry Materials.

BEST PRACTICES REVIEW – LESSONS LEARNED

The following summary distills key insights from a review of the Research Labs, Research Centers, Consortia, and Translational Facilities described in the preceding section.
As universities increasingly serve as hubs for innovation, collaboration, and commercialization, the design and operation of research and translational structures have become critical to long-term success.

Drawing from Georgia Tech's internal experiences and peer institution structures, this summary highlights four essential areas for launching, sustaining, and evolving high-impact research entities. These insights are informed by interviews and operational data from leading centers across the country.

Lesson One: Understanding the Market and the Value Proposition

Successful research structures demonstrate a deep understanding of their target markets and tailor their offerings to meet user needs, especially when industry partnerships are central. This alignment is often validated through pre-launch discovery and sustained engagement.

KEY PRACTICE	DESCRIPTION
Market Discovery	Conduct interviews and surveys to validate demand and refine offerings.
Tailored Value Propositions	Align services with industry pain points and priorities.
Flexible Engagement Models	Offer tiered memberships and project-based pricing to accommodate diverse partners, if memberships are offered as part of the program.
Clear Differentiators	Emphasize unique tools, intellectual property structures, or domain expertise.
Strategic Positioning	Align with institutional strategic priorities and national priorities to enhance relevance and funding potential.

Lesson Two: Initial Funding and Building Sustainable Models

Strong foundational funding, early credibility, and adaptable financial structures are essential for long-term sustainability. Successful centers often blend diverse funding sources, reinvest strategically (especially in equipment-heavy structures), and build strong industry relationships.

KEY PRACTICE	DESCRIPTION
Diverse Initial Funding	Combine state, federal, and industry support to reduce risk and increase flexibility.
Cost Recovery Pricing	Ensure cost recovery and reinvestment are considered when pricing. Confirm these are based on approved guidelines of Georgia Tech.
Early Credibility	Demonstrate leadership and early project success to build trust and attract partners.
Trial Incentives	Offer discounted or free initial access to convert prospects into long-term users, when appropriate, and approved by the university.
Student Integration	Engage students to provide scalable support and attract industry interest. Confirm you are following GT approved guidelines for safe zones.
Simplified Contracts	Streamline agreements and clarify IP terms to reduce friction in partnerships.

Lesson Three: Building Strategic Partnerships and Ecosystem Connectivity

High-performing research programs thrive by embedding themselves in robust ecosystems that span academia, industry, and government. These connections amplify impact and ensure long-term relevance.

KEY PRACTICE	DESCRIPTION
Collaborative Networks	Build formal and informal partnerships to expand capabilities and reach.
Anchor Partners	Establish long-term relationships with key organizations for scalability, stability and credibility.
Cross-Sector Engagement	Involve government, nonprofits, and academia to broaden influence and funding opportunities.
Shared Infrastructure	Co-invest in facilities and tools to foster mutual commitment and cost efficiency.
Joint Programming	Explore opportunities to co-develop training, research, or innovation programs to deepen engagement and align goals.
Ecosystem Visibility	Actively participate in regional and national innovation ecosystems to enhance reputation and reach.

Lesson Four: Continuous Evolution of the Model

To remain competitive and impactful, research programs must evolve continuously—upgrading infrastructure, refining financial structures, and aligning with emerging trends and funding opportunities.

KEY PRACTICE	DESCRIPTION
Ongoing Investment	Regularly upgrade equipment and facilities to attract new users and funding.
Specialized Support	Provide domain-specific expertise to serve advanced users and differentiate the structure.
Financial Model Refinement	Adjust pricing and membership structures in response to market changes.
Societal Impact Alignment	Connect programs to workforce development or national priorities to attract long-term support.
Scalability	Design flexible structures that can grow with demand, enhancing resilience and sustainability.

Technology Readiness Levels (TRLs)

TRLs offer a universally recognized scale (from TRL 1 to TRL 9)—from basic principles to proven systems in operational environments by helping stakeholders understand how close a technology is to deployment. Using this scale can assist faculty and industry partners in aligning expectations and timelines for research outcomes, especially in translational and scale-up contexts.

Originally developed by NASA, TRLs are now widely used across academia, industry, and government to guide research funding, development strategies, and commercialization pathways.

Facility Alignment with TRLs:

- TRL 1–3**:** Conducted in research labs**.** Focus is on discovery, exploration, and proof of concept.
- TRL 4–6**:** Conducted in translation and pilot facilities. Emphasis is on validation, prototyping, and iterative development.
- TRL 7–9**:** Conducted in manufacturing or operational environments**.** Focus shifts to system integration, reliability, and scalability.
- TRL 10: Represents full commercialization, often involving industry partners or spin-off companies.

TECHNOLOGY READINESS LEVELS (TRL)	STAGE	DESCRIPTION
TRL 1	Basic Principles Observed	Scientific research begins; fundamental principles are identified.
TRL 2	Technology Concept Formulated	Hypotheses are developed; potential applications are proposed.
TRL 3	Experimental Proof of Concept	Laboratory experiments validate the feasibility of the concept.
TRL 4	Technology Validated in Lab	Components are integrated and tested in a lab environment.
TRL 5	Technology Validated in Relevant Environment	Testing moves beyond the lab into simulated or relevant settings.
TRL 6	Prototype Demonstrated in Relevant Environment	A prototype system is tested in conditions that closely resemble the real world.
TRL 7	System Prototype Demonstrated in Operational Environment	A near-final system is tested in an actual operational setting.
TRL 8	System Complete and Qualified	The system is fully developed and qualified through testing and demonstration.
TRL 9	Actual System Proven in Operational Environment	The technology is deployed and proven in its final form.
TRL 10	Full Commercialization	The product is mass-produced and available in the market.

Selecting Research Structures

Reflecting on Your Goals for Industry Engagement

Clarifying your purpose will help you select a structure that aligns with your long-term vision and strategic goals. Before selecting a research structure and structure, take time to reflect on the motivations driving your research expansion.

CATEGORY	GUIDING QUESTIONS
Mission and Vision	What is the mission of your initiative? Who are the key stakeholders? Do you want to lead this effort independently, partner with others, or join an existing group?
Strategic Fit	Is your vision unique or duplicative of something already at GT? How does your initiative compare with similar efforts at peer institutions? Is there a critical mass of faculty and students to support your research?
Student Engagement	How will students be involved in your research? Are there clear mechanisms for students to engage with industry or sponsors? Note: Many funders value the talent pipeline as much as the research itself.
Success Metrics	Will success be measured by increased research outputs, stronger partnerships, enhanced student engagement, or greater real-world application? Defining these outcomes early will help guide your planning and decision-making.
Innovation and Commercialization	What is your strategy for translating research into real-world impact? Are there opportunities for licensing, startups, or industry collaboration?
Capacity and Resources	What funding, facilities, and personnel are currently available to you? What gaps would need to be addressed to support your transition? Note: Inquire early about who needs to approve your proposal.
Potential Collaborations and Funding Sources	What partnerships will you need to develop within GT, across disciplines, and with external stakeholders such as industry, government, or nonprofits. Which relationships are most critical to the success and sustainability of your new structure.
Evaluate Organizational and Operational Needs	Will leadership consist solely of faculty, or will it require additional roles such as associate directors, project managers, or administrative support? What institutional commitments (e.g., space, infrastructure) are required?
Alignment with School or College Leadership	Is the research an area that would gain strong departmental buy-in? Does your vision align with the overall GT Strategic Vision? Is it a new concept or is there a duplicative campus initiative?
Potential Challenges with Structure and Governance	What complexities can you anticipate based on transitioning to a new structure? Will there be an increase in administrative oversight? Will you need to manage a larger team? Are there new challenges with navigating intellectual property?

Review of Primary Research Structures

As research initiatives grow in scope and ambition, selecting the appropriate research structure becomes increasingly important for maximizing industry engagement. This section serves as a summary of the information previously outlined on page 5, offering a reminder of the key research structures that support collaboration with industry partners outlined in this guide. Consider the following options:

- **Research Labs:** Investigator-led entities focused on specific scientific or technical questions. Labs can collaborate with industry on applied projects, offer technical services, and provide talent pipelines through student involvement.
- **Research Centers:** Interdisciplinary hubs that address complex scientific, technological, or societal challenges. Centers often facilitate large-scale industry partnerships and collaborative research.
- **Consortia:** Multi-institutional alliances formed to tackle systemic issues through shared resources and joint research. Consortia are ideal for addressing sector-wide challenges and pooling expertise.
  Translational, Pilot, or Scale-Up Facilities: Designed to test, prototype, or scale new technologies and methods, serving as a bridge between research and real-world application. These facilities are especially attractive to industry for de-risking technologies and accelerating commercialization.

Best Practices for Expanding Industry Engagement

- **Establish Clear Objectives and Mutual Benefits:** Define collaboration goals and ensure alignment between academic and industry interests.
- **Foster Open Communication and Trust:** Maintain transparency regarding goals, progress, and challenges.
- **Develop Long-Term Relationships:** Prioritize sustained partnerships for ongoing innovation and learning.
- **Address IP and Legal Agreements Early:** Clarify intellectual property, publication rights, and confidentiality at the outset.
- **Leverage Intermediaries:** Utilize campus offices (e.g., Corporate Engagement, Technology Licensing) to facilitate partnerships.

Measure and Communicate Impact: Regularly assess and share the outcomes of industry collaborations to attract further investment and support.

Guiding Questions to Help Select the Right Structure

Before launching a new structure, it's essential to review existing research entities at Georgia Tech. You may find opportunities to collaborate with faculty, join an established initiative, or adapt an existing structure to meet your goals. Leveraging current infrastructure can accelerate your progress, reduce administrative overhead, and strengthen your proposal.

Based on your strategic goals, consider the following questions and refer to the strategic considerations of the various Research Structures in the chart below. This will help you align your goals to the most applicable structure.

- ✓ Primary Focus: What is the primary purpose of the research, and which structure aligns with your vision?
- ✓ Governance: How do you envision the oversight and governance being managed, and which structure does it align with?
- ✓ Scale and Scope: What scale of growth do you envision for your program, and which structure does it align with?
- ✓ Funding: What types of funding options do you plan to pursue, and which structure does it align with?
- ✓ Infrastructure: What roles does equipment and facilities play in your research, and which structure does it align with?
- ✓ Key Driver: What is the key driver for expanding the research, and which structure aligns with your goals?

Strategic Consideration	Research Labs	Research Centers	Consortia	Translational Facilities
Primary Focus	Focused on a specific scientific question or domain, typically led by a single PI or small team.	Interdisciplinary and mission-driven, addressing complex scientific, social, or policy challenges.	Multi-institutional collaboration to address systemic or industry-wide challenges.	Bridging lab-scale innovation and real-world application through prototyping and scale-up.
Governance Structure	Led by a faculty PI; oversight by department or IRI.	Directed by faculty leadership with advisory boards; may span colleges or schools.	Governed by a board or steering committee with member representation.	Managed by a PI or innovation team; often includes industry and academic oversight.
Scale and Scope	Small to medium; focused research team with students and postdocs.	Medium to large; includes multiple labs, faculty, and external collaborators.	Large-scale; regional, national, or international in scope.	Medium-scale; equipment-intensive and highly specialized.
Funding Sources	Primarily federal or foundation grants.	Federal grants, institutional support, and industry partnerships.	Pooled industry funding, federal/state support, and member contributions.	Innovation grants, SBIR/STTR, and industry partnerships.
Infrastructure Needs	May share or contribute to core facilities; equipment is important but not central.	Often includes shared infrastructure and specialized equipment.	Leverages distributed infrastructure across members.	Equipment is central; facilities support prototyping, testing, and scale-up.
Intended Impact	Scholarly output, student training, and foundational research.	Interdisciplinary collaboration, large-scale funding, and societal impact.	Shared innovation, policy influence, and industry relevance.	Commercialization, technology validation, and industry engagement.

GT INSTITUTIONAL RESEARCH STRUCTURES FOR INDUSTRY ENGAGEMENT

In the previous sections we covered how Research Labs, Research Centers, Consortium models, Translation, Pilot, and Scale-Up Facilities as well as Georgia Tech's extensive Core Facilities can serve as structures for expanding your research.

In this section we will briefly describe a few additional structures that often involve additional governance, funding, and legal considerations. These typically require institutional oversight, cross-unit collaboration, and strategic alignment with Georgia Tech's research priorities.

Interdisciplinary Research Institutes (IRIs)

- Interdisciplinary Research Institutes
  - Definition: Georgia Tech-led institutes that unite researchers across colleges and GTRI around core interdisciplinary themes.
  - Purpose: Support large-scale research portfolios, shared facilities, strategic external partnerships, workforce development and experiential learning to train the next generation of researchers, faculty thought leadership, commercialization and research translation, and s the pursuit of large external funding opportunities.
  - Governance: Includes an Executive Director and may include a Deputy Director and/or one or more Associate Directors. The Office of the EVPR provides logistical and operational support via the Office of the Vice President for Interdisciplinary Research (OVPIR) to coordinate across academic units and with external stakeholders.
  - Faculty opportunities:
    - Connect with interdisciplinary colleagues, facilities, and initiatives.
    - Explore or propose new initiatives aligned with IRI strategy.
    - Join large proposals coordinated by IRIs to expand or launch initiatives.
    - Utilize core facilities hosted by IRIs

Core Facilities – Industry-Focused Opportunities

The Role of Core Facilities

At Georgia Tech there is a mutual relationship between research entities and core facilities. The majority of the core facilities are connected to the IRIs. Research labs, research centers, consortiums, and translational centers both utilize and contribute to core facilities in a symbiotic relationship that enhances institutional research capacity. Core facilities serve as centralized hubs that reduce duplication of expensive equipment and enable shared access to advanced technologies across departments and institutions.
Georgia Tech often pools resources from labs and centers to equip core facilities with high-end instrumentation and equipment. Core facilities are designed to support researchers from diverse fields, encouraging labs and centers to contribute tools and methods that benefit broader scientific communities.

- Definition: Core facilities provide unique services, cutting-edge technologies, and specialized products that enable high-quality research. They have dedicated personnel, equipment, and space.

- Management: Core facilities operate on a pay-for-service or pay-for-access structure. At Georgia Tech they are typically managed as part of the Interdisciplinary Research Institutes (IRIs) and many are connected to SUMS; the Shared User Management System for booking and invoicing.
- Examples of Core Facilities: The large core facilities at Georgia Tech are connected with the IRIs. Over 80% of Georgia Tech's core facilities are managed by the Institute for Bioengineering and Bioscience and the Institute for Matter and Systems.

Applied Research Labs – GTRI Translational Labs

Purpose

- GTRI is the applied research arm of Georgia Tech. The GTRI definition of Labs is not consistent with the academic side of Georgia Tech, and the lab structure is defined below.
- The GTRI Labs are managed and funded through GTRI, Georgia Tech's applied research division. The teams collaborate with GT's academic units, providing students and faculty the chance to engage in applied research projects.
- GTRI serves as a University Affiliated Research Center (UARC), focusing on solving complex national and global challenges through applied research and innovation

Lab Types

GTRI includes eight core labs that support highly translational research. While not all labs are industry-facing, a select group collaborates with companies on the most complex, high-impact technical challenges.

Representative Labs and Focus Areas:

- Advanced Concepts Laboratory (ACL): Electromagnetics, RF/IR signatures, materials science
- Applied Systems Laboratory (ASL): Systems engineering, modeling and simulation
- CIPHER Laboratory: Cybersecurity, hardware assurance
- Electronic Systems Laboratory (ELSYS): Electronic warfare, radar, avionics
- Electro-Optical Systems Laboratory (EOSL): Imaging, infrared, optical systems
- Information and Communications Laboratory (ICL): Software systems, data analytics
- Sensors and Electromagnetic Applications Laboratory (SEAL): Sensor platforms, spectrum operations
- Aerospace, Transportation and Advanced Systems Laboratory (ATAS): Aerospace systems, autonomous vehicles

Governance and Approvals

- GTRI operates under the governance of the Georgia Institute of Technology and adheres to strict compliance, ethical standards, and federal regulations.

KEY CONTACTS - PROPOSAL SUPPORT AND KEY RESEARCH CONTACTS

Office of Corporate Engagement – Industry focused programs

- **Purpose:** Supports planning and strategic development for industry-focused programs. Helps faculty review opportunities and partners, identify companies for collaboration, and navigate processes for securing project or research funding.
- **Faculty Support:** Corporate prospecting, institute navigation, corporate connections, industry insights, and funding strategies.
- **Contact:** General Contact Form Phone: 404-894-2000

Office of Research Development (ORD) - Large-Scale Program Support

- **Definition:** Central unit within the EVPR's office providing services and training for development of externally funded research projects, with a focus on large-scale proposal development.
- **Purpose:** Offers practical and strategic support for team formation, competitive research funding proposals, and newly funded research centers.
- **Governance:** Led by the Executive Director; overseen by the Chief Research Operations Officer and EVPR; collaborates with A/VPs of Interdisciplinary Research, Operations and Infrastructure, Research Administration, Government Relations, and Enterprise Innovation Institute.
- **Faculty Opportunities:** Collaboration planning and team building; Proposal development and site visit preparation; Center administration during launch; Campus workshops, presentations.
- **Contact**: Research Development Website

Interdisciplinary Research Institutes (IRIs)

- **Purpose:** Provide shared facilities, strategic coordination, and support for interdisciplinary research. Facilitate large-scale, cross-college initiatives and proposals.
- **Contact:** Interdisciplinary Research Institutes Website

Office of Commercialization / Office of Technology Licensing (OTL)

- **Purpose:** Manages intellectual property (IP) and licensing agreements. Ensures IP developed in labs, centers, or consortiums is protected and commercialized appropriately.
- **Contact:** Office of Technology Licensing Website

Contracts – Office of Sponsored Programs (OSP)

- **Purpose:** Reviews and approves membership agreements, contracts, and bylaws for research centers and consortiums. Ensures legal and financial compliance for externally funded research.
- **Contact:** Email: Office of Sponsored Programs Website

Applied Research – Georgia Tech Research Institute (GTRI)

- **Purpose:** Collaborates with academic units on applied research projects. Offers infrastructure and expertise for industry-facing and defense-related research.
- **Contact:** Contact GTRI

APPENDIX

Sample Materials

Research Labs, Research Centers, Consortia and Translational Facilities

Supporting Materials for Best Practices in Industry-Focused Engagement Structures

The following examples are provided to support the Best Practices Industry-Focused Examples described in this guide.

Samples include:

- **Industry Membership Models:** Example structures and fee tiers.
- **Promotional Materials:** Outreach flyers, presentations, and informational handouts for engaging industry partners.
- **Sample Outreach Communications:** Example emails, invitations, and messaging for recruiting collaborators and promoting research opportunities.

GT - Aerospace Systems Design Laboratory (ASDL)

Sample documents:

Thursday, May 1, 2025

Time	CoVE Room	CoDE Room
	Data-Driven Decision-Making	**Lunar Operations & Infrastructure**
8:00–8:30am	**SEARCH**: Structured Engineering Archive for Report Categorization and Handling	**CLUE**: Cryogenic Lunar Return Expedition
8:30–9:00am	**ASCENT**: Adaptive Supply Chains for Enhanced Network Transparency	**LIMMA**: Lunar Integration for Multi-Mission Analysis
9:00–9:30am	**PEARL**: Predictive Engine Analytics for Remaining useful Life	**AURORA**: Advanced Uninterrupted Relay for Optical Routing & Access
9:30–10:00am	**CAPP**: Contrail Aviation Prediction Program	**PIONEER**: Permanent Infrastructure and Operations for Next-generation Earth-to-Moon Establishment and Research
10:00–10:20am	**Grand Challenge Demonstration**	**LIGHT**: Lunar Integrated Grid for Habitation Technologies
10:20–10:30am	**Grand Challenge Demonstration**	
10:30–10:40am		
10:40–10:55am	**Networking Break (Atrium)**	
10:55am–12:25pm	**Feedback Session (CoDE)**	
12:25–1:55pm	**External Advisory Board Lunch (members only)**	**Networking with Students (Atrium & CoDE)**
	End of Program	
2:10–5:10pm	**Info Sessions (CoVE and CoDE)**	

Tuesday, April 29, 2025

Time	CoVE Room	CoDE Room
8:00–8:30am	**Welcome Plenary Session (CoVE, broadcast in CoDE)**	
8:30–8:40am	**Short Break**	
	Division Overviews	**Division Overviews**
8:40–9:55am	Civil Aviation Research Division	Space Systems & Technologies Division
9:55–11:10am	Advanced Configurations Division	Defense Systems & Technologies Division
11:10–11:25am	**Networking Break (Atrium)**	
	Division Overviews	**Division Overviews**
11:25am–12:40pm	Propulsion & Energy Division	Advanced Methods Division
12:40–1:40pm	**Networking Lunch (Atrium, CoVE, and CoDE)**	
	Division Overviews	**Division Overviews**
1:40–2:55pm	Experimental Testing Group	Digital Engineering Division
2:55–3:10pm	**Networking Break (Atrium)**	
	Transportation Infrastructure & Sustainability	**Space Systems**
3:10–3:40pm	**RAISE**: Regional Airport Infrastructure Sizing for Electrification	**CHARIOT**: Crew Habitat Architectures for Interplanetary Operations in Transit
3:40–4:10pm	**PRIMED**: Power Resilient Infrastructure for Mobility and Energy Demand	**MOSAIC**: MBSE Modular Satellite Architectures
4:10–4:40pm	**OPERATE**: OPerational Efficiency Research And Technological Enhancements	**DORSAL**: Dynamic Operations for Refuelable Space Asset Logistics
4:40–5:10pm	**FLIGHT**: Future Logistics in Green Hydrogen Transport	**ARCANE**: Asteroid Retrieval and Capture for Advanced Near-Earth Exploration
5:10–5:40pm	**NEOJETS**: New Engine Options for business JET Sustainability	**COSMOS**: Cost, Optimization, and Sizing of Monolithic Optical Satellites
5:40–6:00pm	**Grand Challenge Demonstration**	**Grand Challenge Demonstration**

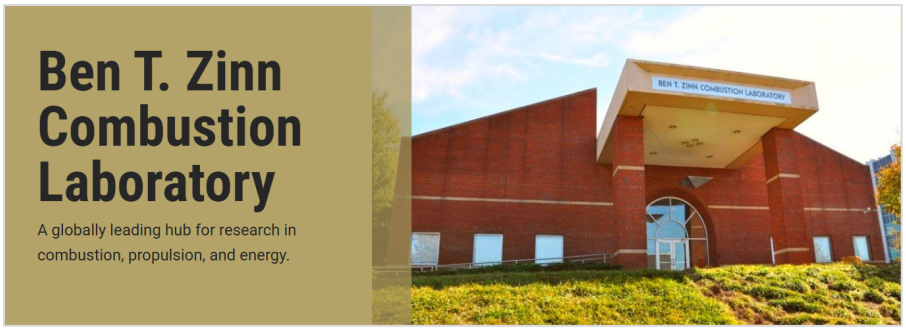
GT - Combustion Research Laboratory (BTZ)

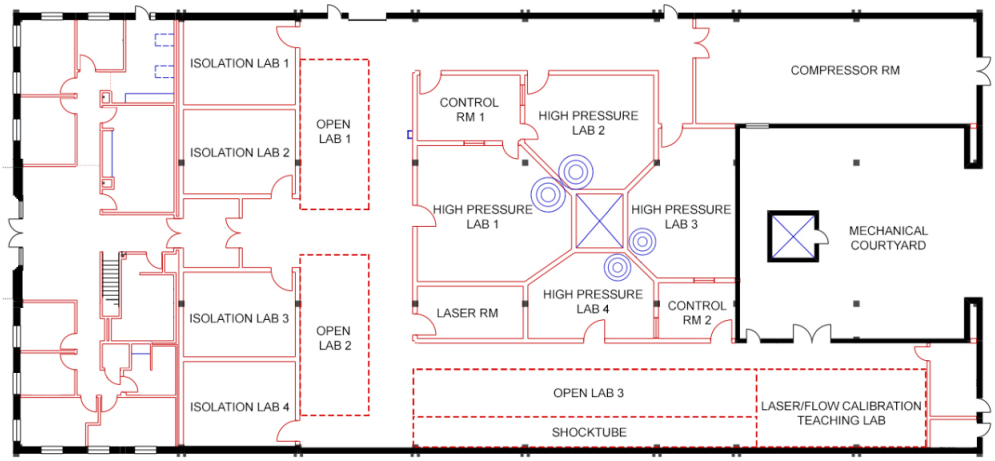
Georgia Tech

Ben T. Zinn Combustion Laboratory

Cutting Edge Research in Propulsion and Energy

Sample materials





Peer University - National Center for Supercomputing Applications (NCSA)

UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN

NCSA

Sample materials

University of Illinois at Urbana-Champaign, National Center for Supercomputing Applications (NCSA)

The **National Center for Supercomputing Applications (NCSA)** at the University of Illinois at Urbana-Champaign offers several membership and partnership opportunities, particularly through its **Industry Partner Program (IPP)** and collaborations with centers like the **Center for Digital Agriculture (CDA)**.

◈ NCSA Industry Partner Program (IPP)

This program is designed to foster collaboration between industry and academia. Here are some key **benefits** of membership:

- **Access to Expertise**: Collaborate with world-renowned researchers and field experts in areas such as data science, genomics, and digital agriculture.
- **Cutting-Edge Technology**: Use of NCSA's advanced computing, data, and visualization resources.
- **Research Influence**: Members can direct their membership fees to influence research, education, and outreach priorities.
- **Professional Development**: Opportunities for staff training, workshops, and joint research projects.
- **Event Participation**: Complimentary registration to CDA-sponsored and NCSA-hosted events [1].

◈ Who Can Join?

- **Industry partners** from sectors like agriculture, engineering, health sciences, and more.
- **Academic collaborators** and researchers seeking high-performance computing resources.

If you're interested in joining or learning more, NCSA encourages direct contact through their website or by reaching out to specific programs like the CDA at digitalag@illinois.edu.

Here are official sources detailing the **membership and benefits** of the **National Center for Supercomputing Applications (NCSA) Industry Partner Program (IPP)** at the University of Illinois at Urbana-Champaign:

1. **NCSA Industry Partner Program Overview**
   This page outlines the core benefits and capabilities offered to members, including:
   a. Access to domain expertise in areas like AI, genomics, cybersecurity, and HPC.
   b. Collaboration opportunities with faculty and students.
   c. Infrastructure services including software development, data analytics, and visualization.
   d. Support for sectors such as aerospace, agriculture, healthcare, and finance [1].
   Visit the NCSA Industry Partner Program page
2. **CDA Industry Partner Program (a component of NCSA IPP)**
   This program, launched by the Center for Digital Agriculture (CDA), extends NCSA's IPP with a focus on agriculture and sustainability. Benefits include:
   a. Tiered membership benefits.
   b. Complimentary registration to CDA-sponsored events.
   c. Influence over research, education, and outreach priorities.
   d. Access to cutting-edge research and technologies [2].
   Read about the CDA Industry Partner Program
3. **NCSA's Role in Building Relationships**
   This article highlights how NCSA helps partners solve large-scale computational problems and navigate collaborative opportunities [3].
   Explore NCSA's partnership approach

GT - 3D Systems Packaging Research Center (PRC)

Georgia Tech

3D Systems Packaging Research Center

Sample materials

- Membership Documents (Attached below)

Georgia Tech

PRC Membership & Member Benefits

KEY BENEFITS	TECHNOLOGY DEVELOPMENT MEMBERSHIP	STUDENT RECRUITMENT MEMBERSHIP	SUPPLY CHAIN MEMBERSHIP
In-person review of all PRC technologies every 6 months	YES	YES	YES
Detailed updates (Webinars)	YES		
Customized R&D project	YES		
Process development of supply chain materials	YES		YES
Roadmap and standards development	YES		
Commercialization path by supply chain companies	YES		YES
Tool placement and evaluation for application	YES		
Dispatch engineer to GT campus	YES		
IP Rights: non-exclusive, royalty-free	YES		
Graduate student recruiting	YES	YES	
Co-authorship of journal papers	YES		YES
Influence on R&D projects	YES		
PhD student research support	YES	YES	
Annual Membership Cost	**$100K US**	**$65K US**	**$25K US**

Figure 1: PRC Membership & Member Benefits

GT - National Electric Energy Testing, Rese arch & Applications Center (NEETRAC)

Georgia Tech

NEETRAC

National Electric Energy Testing, Research & Applications Center

Sample materials

NEETRAC Member Fee Schedule

Effective April 1, 2023

Member Category	Option	Direct Placed ($k)	Baseline ($k)	Facilities ($k)	Development ($k)	Total ($k)
Utility 1 (<1 M customers)		10	57	6	4	77
Utility 2 (1-2 M customers)	A	5	85	10	8	108
	B	25	69	10	8	112
Utility 3 (2-4 M customers)	A	5	110	12	10	137
	B	25	95	12	10	142
Utility 4 (4-6 M customers)	A	5	130	18	12	165
	B	25	118	18	12	173
Utility 5 (>6 M customers)	A	5	130	18	12	165
	B	25	118	18	12	173
Manufacturers	A	5	85	10	8	108
	B	25	69	10	8	112
Associate		15	11	6	4	36

- **Meeting Documents**

Call to Meeting

TO: **NEETRAC Advisory & Management Boards Members**
FROM: **Jean Carlos (JC) Hernandez-Mejia, Interim NEETRAC Director**
DATE: **March 31, 2025**
SUBJECT: **May 7 - 8, 2025 Advisory & Management Boards Meetings**

With this memorandum, I confirm that the NEETRAC Advisory & Management Boards will meet on May 7 - 8, 2025 at the Georgia Tech Global Learning Center. The meeting schedule is shown below.

Day	Time	Activity	Location
Wednesday, May 7, 2025	9 am – 10 am	Baseline Project Ideation Session	GT GLC*
	10 am – 11 am	Advisory Board Meeting	GT GLC
	11 am – 12 pm	Director Comments	GT GLC
	12 pm – 1 pm	Lunch	GT GLC
	1 pm – 5 pm	Management Board – Day 1	GT GLC
	5:30 pm – 8:30 pm	Dinner	TBD
Thursday, May 8, 2025	8 am – 12 pm	Management Board – Day 2	GT GLC
	Noon – 1 pm	Box Lunch	GT GLC

*Georgia Tech Global Learning Center

ADVISORY BOARD MEETING
Purpose: Review and discuss NEETRAC business/policy and activities for Member Year 2024/2025.

MANAGEMENT BOARD MEETING
Review and discuss NEETRAC's collaborative research program (baseline projects), including the following: ideations for potential new projects, proposals for new projects, closeout presentations for completed projects, and updates for ongoing projects. Other activities supported by the collaborative research program are also reviewed.

MEETING LOCATION: **Georgia Tech Global Learning Center**
Technology Square (adjacent to the Georgia Tech Hotel)
84 5th Street (Second floor)
Atlanta, GA 30308, Second Floor

Click here for directions and parking information. Please note, parking passes are not provided; however, attendees can still use the paid parking garage attached to the learning center for easy access to the meeting.

REGISTRATION: ***Please register (at no cost) yourself and your guests by Friday, April 25, 2025 using the following link***:
https://www.surveymonkey.com/r/M22025ABMBMeeting.

If you cannot access the link, please contact Suzanne Schmidle at 404-675-1875 or via email at suzanne.schmidle@neetrac.gatech.edu to be registered.

ADVISORY BOARD AGENDA
(Preliminary)

1. Welcome and Introduction
2. Approval of the Agenda
3. Approval of the Minutes from the May 2024 Meeting of the Advisory Board
4. NEETRAC Activity Report
    a. Notable Accomplishments for the 2024-2025 Member Year
    b. Revenue & Expenses
    c. Strategic and Business Goals
        i. Membership/Member Recruitment
        ii. Staffing
        iii. Facilities
        iv. Quality Management System Updates
5. General Discussion
6. Adjourn

MANAGEMENT BOARD AGENDA

(Preliminary)

1. Welcome and Review of Ideation Session Objectives
2. Presentation of Ideation Topics
3. Director Comments
4. Break for Lunch On-site
5. Welcome and Introduction for M2 2025 Baseline Project Review Session
6. Approval of the Agenda
7. Approval of the Minutes from the M1 2025 Meeting of the Management Board
8. Presentation of Baseline Project Portfolio


NEETRAC
National Electric Energy Testing,
Research, and Applications Center
Management Board Meeting
May 7 – 8, 2025
Agenda
I. Call to Order and Introductions
II. Welcome and Safety
III. NEETRAC Antitrust Statement
IV. Approval of the Agenda
V. Approval of the Minutes from the February 2025 Management Board
VI. Ponder Dates for Future Meetings
VII. Management Board Representative Responsibilities
VIII. Materials in Your Packet
IX. Technical Advisors
X. Managing Direct Placed Accounts
XI. Emergency Direct Placed Projects
XII. Reaction Sheet
XIII. Meeting Details
XIV. Membership
XV. 2024 / 2025 Member Year
XVI. Looking Forward to 2025/2026
XVII. Director Search Update
XVIII. Equipment Replacement Update
XIX. Technical Committee Representation Program
XX. Human Resources
XXI. QMS Update
XXII. Baseline Portfolio
XXIII. Table of Contents
XXIV. Baseline Project & Proposal Presentations
XXV. Set Dates for Future Meetings
XXVI. Meeting Wrap up

GT - Manufacturing 4.0 Consortium

Manufacturing 4.0 Consortium operates independently but is also affiliated with AMPF.

Georgia Tech Manufacturing Institute

Manufacturing 4.0 Consortium

Sample materials

Georgia Tech, Applied Manufacturing Pilot Facility (AMPF)
Manufacturing 4.0 Consortium

Memberships & Benefits:

- **Membership Levels:** Full Member, Affiliate Member, Small Business Member, Georgia Business Member
- **Benefits:** Access to AMPF equipment, workforce training, collaborative research, technology demonstration and testing, ROI model development for new technologies
- **Discounts:** Georgia businesses receive a 10% discount; small businesses (<100 employees) receive a $7,500 discount on full memberships
- Joining the Georgia Tech Manufacturing 4.0 Consortium formalizes participation at the AMPF. The main benefit that comes with each Consortium membership is a week of time at the AMPF.

- Examples of how this time can be used include:
- **Accessing AI-MPF equipment via the User Facility model**
- **Participating in workforce trainings**
- **Performing collaborative research**
- **Demonstrating and testing your company's technology**
- **Developing return on investment models for new technologies**

Meeting Agenda:

- **Industry Member Meetings:** Typically include updates on ongoing projects, discussions on new project topics, and collaborative solutions to manufacturing challenges

Member Benefits

Consortium Member Benefits	Full Member $10K	Small Business Member* $2.5K	Affiliated Member $2.5K
One-week access to the Advanced Manufacturing Pilot Facility (AMPF)	X	X	
Company logo presence on Georgia Manufacturing 4.0 Website	X	X	X
Attending members only events (meetings, workshops, training, seminars, industry listening days)	X	X	X
Subscription to Newsletter	X	X	X
Attendance to Annual Advisory Board Meeting Open Session	X	X	X
Attendance to Annual Advisory Board Meeting Closed Session	X	X	
Advisory board seat	X	X	
Student resume booklet and job posting site	X	X	X
Project participation for federal funding initiatives	X	X	X
Ability to participate in sponsored research	X	X	
INTELLECTUAL PROPERTY:			
Non-exclusive royalty free (NERF) for internal evaluation and R&D purposes	X	X	
Reserve the right to negotiate a royalty-bearing license for commercial use	X	X	

*All GA businesses receive a 10% discount on memberships.

*Small businesses (< 100 employees) will receive a $7,500 discount on full memberships for 2024-2025, or so long as DOD grants continue to offset costs for small businesses (defined as < 100 employees).

Georgia Tech

Meeting Documents

Georgia Tech Manufacturing Institute

Georgia Tech Strategic Energy Institute

GT Manufacturing 4.0 Consortium Members' Quarterly Meeting (Fall 2024)
October 3, 2024

Location:	**Georgia Tech Manufacturing Institute (GTMI)** **813 Ferst Dr NW, Atlanta, GA 30332**	
8:30 AM – 9:00 AM	Breakfast for the Consortium Board of Directors	*GTMI Room 114*
9:00 AM – 10:00 AM	**Consortium Board of Directors' Meeting (closed meeting)**	*GTMI Room 114*
10:00 AM – 10:30 AM	Registration and Morning Refreshments	*GTMI Auditorium*
10:30 AM – 11:00 AM	**Welcome and Introductions** Steven Ferguson, *Managing Director, Georgia AIM* Tom Kurfess, *Executive Director, GTMI*	
11:00 AM – 11:15 AM	**Consortium Update and Engagement Opportunities**	
11:15 AM – 12:00 PM	**Operational AI in Manufacturing: Real Case Studies, Real Results.** Karim Pourak, *Process Miner*	
12:00 PM – 1:00 PM	**Networking Lunch with Strategic Energy Institute (SEI)**	*GTMI Atrium*
1:00 PM – 1:30 PM	**Joint Session Welcome** Christine Conwell, *Interim Executive Director, SEI* Tim Lieuwen, *Interim Executive Vice President of Research, GT*	*GTMI Auditorium*
1:30PM – 2:00 PM	**Keynote Speaker** Kelly Speakes-Backman, *former DOE EERE Assistant Secretary*	*GTMI Auditorium*
2:00 PM – 2:30 PM	**Fireside Chat** Kelly Speakes-Backman, *former DOE EERE Assistant Secretary* Scott McWhorter, *Distinguished Fellow*	*GTMI Auditorium*
2:30 PM – 2:45 PM	Break	
2:45 PM – 3:45 PM	**Panel 1: Manufacturing for the Future** Moderated by: Cynthia Curry, *Metro Atlanta Chamber Senior Director, Smart Cities & CleanTech Ecosystems* Panelists: ▪ Chuck Boyles, *Factory Automation Systems* ▪ Karim Pourak, *Process Miner* ▪ Daniel Schiopu, *Siemens* ▪ Amanda Simpson, *Third Segment*	*GTMI Auditorium*

3:45 PM – 4:00 PM	Break	
4:00 PM – 5:00 PM	**Panel 2: Electrification and Energy Policy** Moderated by: Laura Taylor, *Georgia Tech, Chair of School of Economics and Interim Director of the SEI EPICenter* Panelists: ▪ Miguel Granier, *Cox Cleantech Accelerator* ▪ Anthony Oni, *Energy Impact Partners* ▪ Kenneth Shiver, *Southern Company*	*GTMI Auditorium*
5:00 PM – 5:15 PM	Closing Remarks	
5:15 PM – 5:30 PM	**Break and Travel to Marcus Nanotechnology Building *(walking distance)***	

Georgia Tech
Manufacturing Institute

GT Manufacturing 4.0 Consortium
Annual Public Symposium and Poster Fair

Date/Time: January 30, 2025 / 8:30 AM – 4:30 PM
Location: Georgia Tech Global Learning Center (GLC) – Amphitheater 236
84 5th St. NW, Atlanta, GA 30308

PARKING: All-day parking validations will be provided for attendees at the meeting.
Please Park at the Global Learning Center parking garage address: 770 Spring St. NW, Atlanta, GA 30308-1031

AGENDA

8:30 AM – 9:00 AM	**Registration & Networking Refreshments + Senior/Poster Fair**
9:00 AM – 9:15 AM	**Welcome and Introductions**
9:15 AM – 9:45 AM	**Steven Ferguson,** *Executive Director, Georgia Tech Manufacturing 4.0 Consortium* GT Manufacturing 4.0 Consortium Update
9:45 AM – 10:45 AM	**Keynote Speaker(s)** **Brent Stubbs,** *Chief Administrative Officer, Hyundai Motor Group Metaplant Ameri* **Jonghyun "Jay" Ji,** *Head of IT, Hyundai Motor Group Metaplant America*
10:45 AM – 11:30 AM	**Dr. Aaron Stebner,** *Associate Professor, Georgia Tech* "AI Manufacturing Pilot Facility (AI-MPF) Project Update"
11:30 AM – 12:15 PM	**Research Presentations *(15 mins each)*** **Dr. Carolyn Seepersad**, *Professor, School of Mechanical Engineering* "Advances in Polymer Additive Manufacturing" **Dr. Shreyas Kousik**, *Assistant Professor, School of Mechanical Engineering* "Getting Both Safety and Performance for Autonomous Robots" **Dr. Manos Tentzeris,** *Professor, School of Electrical and Computer Engineering* "Wireless and 5G-Enabled Technologies for Smart/AI Manufacturing and Industry 4.0 Application"
12:15 PM – 1:00 PM	Networking Lunch *(1st Floor Atrium)*
1:00 PM – 1:30 PM	**Michael Bakas,** *Army Research Lab Regional Lead South*
1:30 PM – 2:30 PM	**Consortium Members' Engagement Success Stories and Project Updates** 1. *Contextualize*, Branden Kappes 2. *Open Mind Technologies (HyperMill)*, Peter Bingman 3. *Siemens*, Daniel Schiopu 4. *Premier Engineering*, David Crews

Georgia Tech Manufacturing Institute's (GTMI) Advanced Manufacturing Pilot Facility (AMPF)

Georgia Tech

Advanced Manufacturing Pilot Facility

Peer University - Integrated Bioprocessing Research Laboratory (IBRL)

IBRL
INTEGRATED BIOPROCESSING RESEARCH LABORATORY

University of Illinois at Urbana Champaign

WELCOME TO IBRL

The IBRL is a bioprocessing product research and development facility that bridges the gap from basic discovery to commercialization of bioproducts. The facility serves as an invaluable asset to bioenergy and bioprocessing companies by partnering them with the human and equipment capabilities of the university. Faculty and researchers affiliated with the IBRL have the expertise needed to improve efficiencies, reduce water usage, and increase biofuel production in the corn ethanol industry. IBRL provides a lab and pilot plant for innovative research to market application and commercial products for industry partners. Researchers are also developing and improving technologies for next-generation biofuels and value-added products derived from biomass.

References

The Best Practices Guide: Building Research Impact: Georgia Tech's Research Structures and Best Practices for Industry Engagement was prepared by the Office of Corporate Engagement (OCE).

Prepared by the Office of Corporate Engagement (OCE)

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Georgia Tech Institutional and Programmatic Sources

- NSF HERD FY2023. Used for Georgia Tech's research expenditure data.
- Georgia Tech Website and Research Center Manual. Source for definitions, governance, and structure of labs and centers.
- Georgia Tech Research Centers – Defined. Referenced for governance structures.
- Georgia Tech Office of Corporate Engagement. Guidance and support for industry-focused programs.
- Georgia Tech Office of Technology Licensing (OTL). Intellectual property management and licensing agreements.
- Georgia Tech Office of Research Development (ORD). Proposal development, team building, and center administration.
- Georgia Tech Manufacturing Institute (GTMI). Advanced Manufacturing Pilot Facility (AMPF) and translational research.
- Georgia Tech Interdisciplinary Research Institutes (IRIs). Shared facilities, strategic coordination, and cross-college initiatives.
- Georgia Tech Core Facilities and Service Centers. https://research.gatech.edu/core-facilities-and-service-centers
- Georgia Tech Research Institute (GTRI). Applied research, translational labs, and industry partnerships.

Peer Institution and Federal Sources

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- National Center for Supercomputing Applications (NCSA), University of Illinois Urbana-Champaign. Advanced computing, interdisciplinary research, and industry engagement.
- Integrated Bioprocessing Research Laboratory (IBRL), University of Illinois Urbana-Champaign. Bioprocessing research and development, industry partnerships.
- Wikipedia. Translational research. https://en.wikipedia.org/wiki/Translational_research

Industry Engagement, Partnership, and Best Practices

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- USAFacts. Referenced for government research funding.
- UNCAGE-ME EFRC. DOE-funded Energy Frontier Research Center example.
- EPICA – Electronic-Photonic Integrated Circuits for Aerospace. NSF IUCRC example.
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- Irving Mejia-Hilario, Dallas Morning News. 'Department of Defense to invest $30 million in battery tech research at UTD', Sept. 18, 2023.

Georgia Tech and Regional Innovation Partnerships

- GRA – Georgia Research Alliance. https://gra.org/
- REM – Regenerative Engineering and Medicine Center. https://www.regenerativeengineeringandmedicine.com/
- PIN – Partnership for Inclusive Innovation. https://pingeorgia.org/
- ATDC – Advanced Technology Development Center. https://atdc.org/
- CIBER – Center for International Business Education and Research. https://www.scheller.gatech.edu/centers-and-initiatives/center-for-international-business-edu-and-research/index.html
- Marcus Center of Excellence for Cell Biomanufacturing. https://marcuscellmanufacturing.gatech.edu/
- Center of Excellence for Simulation and Digital Twin (Siemens CoE). https://www.asdl.gatech.edu/news/100421_siemens_coe/