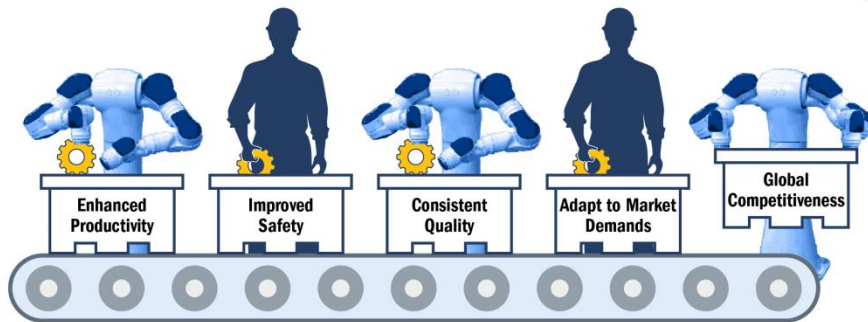


What is AGILE? The AGILE Robotics Manufacturing Institute will be a place where industry, R&D organizations, academia, workforce development professionals, government entities, and others can come together to develop and leverage robotics technologies for the benefit of U.S. Manufacturing. A recent report estimates that the share of tasks performed by robots across all manufacturing industries will more than double by 2025¹. Historically, robotics has been most successfully applied to high-volume, low-mix manufacturing applications where costs can be amortized across large production runs. Today's U.S. manufactures, from small to large, are challenged with the need for agile automation solutions that create quantifiable return on investment for a broad range of applications. Next generation adaptive and collaborative robotics have the potential to provide more agile solutions which are economical for lower-volume, high-mix applications. The net result will be improved productivity, safety, quality, adaptability, and competitiveness for U.S. manufacturers in the global marketplace. AGILE will leverage federal and other funding sources to develop, validate, and transition robotics technologies to achieve these goals.

Robotics is the Future of Advanced Manufacturing



Agile robotics technologies have the potential to transform a wide range of manufacturing applications to create competitive advantages for businesses of all sizes.

How will AGILE be Funded? As part of the [National Network for Manufacturing Innovation \(NNMI\)](#), AGILE will be a National resource for substantially advancing U.S. competitiveness through the development and application of industrial robotics technologies. [EWI](#), in partnership with a team of collaborators, is pursuing \$160M in federal, state, local, and partner funding to launch AGILE. The DoD has issued a Funding Opportunity Announcement (FOA) for a NNMI institute focused on robots in manufacturing environments. Federal funding will be approximately \$80 million over five years, with at least a 1:1 match from non-federal sources. AGILE will be self-sustaining within five years, based on a proven business model.

What Happens in AGILE? Industry sets the agenda for AGILE. The AGILE vision includes a comprehensive plan to address the diverse needs of manufacturers through a variety of activities and services:

- **National Robotics Ecosystem.** Industry-led roadmap development exercises will set national priorities for industrial robotics investments. AGILE will convene a wide range of partners for robotics technology development, workforce development, technology transition, and commercialization of new technologies.
- **Applied Technology Development.** AGILE will target the development of foundational robotics technologies to enable much broader application of robotics at dramatically reduced integration costs.

¹ "The Robotics Revolution – The Next Great Leap in Manufacturing", Boston Consulting Group, September 2015

Automation Grows Investment and Lasting Employment (AGILE)

The figure below illustrates AGILE’s Technology Thrust Areas. AGILE will facilitate a portfolio of pre-competitive joint R&D projects, as well as proprietary one-to-one applied development projects for individual manufacturers. AGILE will also pilot test new robotics applications to validate performance and ensure a smooth transition to the factory floor.

- **Open Source Solutions for Rapid Innovation.** AGILE will leverage the Robot Operating System Industrial (ROS-I) open source project for a common framework to develop new robotics applications and advanced capabilities. This platform will reduce both the development time for new capabilities and the integration costs to accelerate adoption of robotics.
- **Workforce Solutions.** AGILE will bring together leading education and workforce organizations to attract and develop talent with the skills necessary to meet the demands of industry.
- **Technology Transition.** AGILE will help get new technologies to the market by engaging a range of commercialization partners, robotics equipment suppliers, and integrators. Industry outreach and support services will help companies of all sizes apply robotics solutions across the supply chain.



What are the Benefits of Participation in AGILE? AGILE is reinventing the NNMI paradigm with a focus on delivery of tangible results to industry quickly and consistently.

- **Industry-Led Decision Making.** AGILE is not an academic exercise. Industry is the foundation for AGILE, and industry-needs drive the AGILE investment priorities. A tiered membership structure (attached) encourages involvement from companies of all sizes.
- **Early Adopter Benefits:** Companies which sign-up now prior to the NNMI award receive a 50% discount on the membership price for five years, and are assured positions on influential oversight boards. AGILE members that sign up now also have the opportunity to influence the fast-start projects to address their needs.
- **De-Risking New Technologies.** By pooling resources, AGILE will develop and test new technologies with much less risk and lower investment than individual companies would bear. AGILE facilities will have the tools and experts to assemble, debug, and pilot test new technologies in order to validate performance and ensure a smooth transition to the factory floor.
- **Business Friendly Structure:** AGILE is designed to be nimble, efficient, effective, sustainable, and start fast. Based on feedback from industry, AGILE leverages lessons learned from other NNMI Institutes by adopting practices which have worked well, and improving on practices that have not. Industry members may participate in the organizational structure that drives AGILE's direction and priorities.
- **Fast Delivery of Results.** AGILE is operated by a proven, sustainable applied manufacturing R&D organization and led by professionals with decades of experience in delivering results quickly. Fast-start projects will be queued up in advance so AGILE will begin working immediately upon award.
- **Significant Leverage:** Each member's investment is leveraged against the \$160M total budget. Half of the anticipated \$80M federal budget is allocated to pre-competitive joint industry projects.
- **Influence National Agenda:** Industry-led roadmap development exercises identify needs for technology development, workforce development, and supply chain support. AGILE will promote and advocate for these priorities nationally, as well as invest in targeted programs identified by industrial members.
- **Pre-Competitive R&D:** Member fees fuel the applied R&D portfolio. Precompetitive joint industry R&D portfolio will encompass a broad range of topics identified by industry and government. Industry is encouraged to actively participate in project calls. Membership fees paid by members will be applied as cost share on their projects. An efficiently managed project call process solicits proposals to address the priorities identified by AGILE's industry-led Technology Advisory Board. All proposing organizations (industry or R&D partners) will have pre-negotiated agreements to facilitate rapid contracting. Dedicated and experienced Program Managers are assigned to manage project calls and manage project cost, schedule, and technical performance, with direct contracts from AGILE to all project team participants whenever possible to facilitate rapid contracting.
- **Proprietary Projects.** Individual member companies that fund proprietary, single-sponsored development programs have access to a broad range of AGILE partner capabilities across the network.
- **Friendly Intellectual Property Policy:** Inventors retain ownership of foreground IP that is created on pre-competitive joint industry projects, and industrial sponsors receive a license to apply the technology for their applications. Results from proprietary, single-sponsored projects will remain confidential to the sponsor funding the work and foreground IP will be owned by the sponsor.

- **Access to National Industrial Robotics Ecosystem:** AGILE will facilitate visibility and access to a range of partners and members:
 - Industry: Interact with a broad range of companies of all sizes across diverse sectors.
 - Academic Partners: AGILE has assembled a nation-wide network of academic partners, with capabilities mapped against technology development needs.
 - Workforce & Education Partners: A nationally recognized leader will engage workforce organizations to implement a needs-driven process that addresses skill gaps at all levels.
 - Equipment Suppliers and Investment Partners: Provides a viable path to implement technologies. Investment partners have offered up to \$25M to commercialize technologies developed by AGILE.
 - 2 AGILE Hub Facilities: Equipped with state of the art industrial automation technology for technology demonstration, training, application testing, and development projects.
 - 4 Node Partners: Geographically distributed node partners convene regional stakeholders and offer unique capabilities to enable broad range of robotics project investigations.
- **Ongoing Engagement:** AGILE members have the opportunity to connect in a variety of ways
 - Network with other AGILE members and partners at AGILE events.
 - Participate in roadmap development activities.
 - Serve on AGILE oversight committees.
 - Receive electronic communications on best practices and the technology trends.
 - Have visibility to government sponsored activities and initiatives.
 - Engage in standards activities in the robotics domain with standards organizations.
 - Sponsor internships or participate in workforce strategy and program development activities.
 - Provide equipment for technology demonstrations.
 - Attend technical workshops and conferences.
 - Connect to partner industry associations and other NNMI institutes.
- **Supplier Support:** AGILE bronze, silver, and gold members may award free AGILE SME (small to medium size enterprise) memberships to select suppliers. SME members have access to a bundle of services to help them make more effective use of innovative manufacturing technologies:
 - Design reviews
 - Technical information search services
 - Site-assessment services to evaluate potential applications
 - Technology help desk for technical assistance, questions and answers, and guidance
 - AGILE conferences, workshops and events

Membership Levels

Participation cost levels will double after NNMI award.

Tier	Availability	Cost	Benefits
SME	Manufacturers with <500 employees	\$7.5k/year (cash) Fee waived for selected SME companies	<ul style="list-style-type: none"> • Member services bundle • Event participation • Discounts on client-funded fee-for-service projects
Supplier 1	Automation equipment and software suppliers	\$20k/year (in-kind consignment)	<ul style="list-style-type: none"> • Product demonstration opportunities • Member services bundle • Event participation • Discounts on client-funded fee-for-service projects
Supplier 2	Automation equipment and software suppliers	\$50k/year in-kind consignment of equipment and/or software	<ul style="list-style-type: none"> • Product demonstration opportunities • EWI Membership and services bundle • Event participation • Participate in research consortium • Opportunity to participate in project calls • Discounts on client-funded fee-for-service projects
Bronze	Manufacturers with 501-1500 employees	\$15k/year membership fee, plus additional \$35k labor, materials, and/or in-kind (\$50k total)	<ul style="list-style-type: none"> • EWI Membership and services bundle included • Event participation • Participate in research consortium • Opportunity to participate in project calls • Award one free supply chain SME memberships
Silver	Manufacturers with <7,500 employees	\$50k/year membership fee Suggested additional \$50K/year labor, materials, and/or in-kind	<ul style="list-style-type: none"> • EWI Membership and services bundle included • Event participation • Seat on Technical Advisory Board • Elected seat on Executive Committee • Participate in research consortium • Opportunity to participate in project calls • Royalty-free license for joint industry projects • Award three free supply chain SME memberships • Discounts on client-funded fee-for-service projects • Associate Robot Operating System Industrial Consortium (RIC) membership included
Gold	Manufacturers with >7,500 employees	\$100k/year (membership fee) Suggested additional \$100K/year labor, materials and/or in-kind	<ul style="list-style-type: none"> • EWI Membership and services bundle included • Event participation • Seat on Technical Advisory Board • Guaranteed seat on Executive Committee • Participate in research consortium • Opportunity to participate in project calls • Royalty-free license for joint industry projects • Award 10 free supply chain SME memberships • Discounts on client-funded fee-for-service projects • Full Robot Operating System Industrial Consortium (RIC) membership included

Member Services Bundle Includes:

- ✓ Access to EWI library and information services
- ✓ Access to EWI Engineering resources for design reviews
- ✓ EWI Technology “help desk”
- ✓ Embedded [Manufacturing Extension Partnership](#) contact
- ✓ Member communications (newsletters, announcements, project calls, events)
- ✓ Member only website for online storage, organization and retrieval of information
- ✓ Member only events (workshops, training sessions, program reviews)
- ✓ Technology transfer through technical information exchange

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Learn more by contacting Brian Bishop • 614.270.7052 • bbishop@ewi.org

AGILE Robotics Manufacturing Institute
Automation Grows Investment and Lasting Employment (AGILE)

Learn More: EWI is leading the AGILE team and is available for questions, or will get you in contact with a collaborator in your region to discuss AGILE in more detail.

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