Join America’s Next Industrial Revolution

A new industrial revolution is taking place. Smart Manufacturing (SM) is connecting previously siloed manufacturing processes, bringing together information and operations technologies built on the open SM Platform, to create radically smarter, more productive, and energy-efficient production systems and domestic supply chains across American industry, while empowering workers from the shop floor to the C-Suite with actionable information for real-time decision-making. This transformation will unlock the true potential of our people, processes, and technology.

HELPING MANUFACTURERS OF ALL SIZES AND ACROSS SECTORS

Just as the assembly line transformed the U.S. manufacturing landscape over a century ago, Smart Manufacturing is uniquely poised to propel U.S. manufacturing to a new paradigm of efficiency and competitiveness. Change is happening, and the Clean Energy Smart Manufacturing Innovation Institute (CESMII) is helping manufacturers of all sizes, and across all industry sectors, accelerate their integration of Smart Manufacturing technologies and systems by transcending barriers of cost, risk and accessibility.

ACCELERATING INNOVATION AND IMPACT

CESMII convenes leaders across industry, academia, associations and government to accelerate adoption of new technologies and systems, solve collective challenges, form relevant partnerships, catalyze R&D investment, develop a strong workforce, and overcome barriers to innovation. As a result, CESMII’s investment in key industry-driven priority areas will have a strategic economic impact, creating and preserving jobs in manufacturing and other industries. Relative to today’s state-of-the-art technologies, CESMII targets an overall 15% improvement in energy efficiency, a doubling of energy productivity in manufacturing, implementing solutions in half the time and at half the current cost. CESMII aims to develop a growing, world-class workforce and supply chain.
Where are you on the journey?

Wherever your organization is on the Smart Manufacturing journey—whether just starting out, or currently into a mature implementation process—CESMII will meet you where you are, and provide the precise level of support you need. We understand that every organization is at a different readiness level. CESMII is structured to accelerate your technology transition and advancement at every stage by leveraging a rich ecosystem and results from cross-cutting testbeds.

“CESMII will meet you where you are and build on your prior investments.”
- Jim Wetzel, Interim CEO, CESMII
CESMII tackles what no one entity can address alone, as a trusted partner

CESMII enables access to unprecedented information, technology exchange, and innovation that will propel American manufacturing to a new level of competitiveness. The opportunity to learn from other companies and industries, accelerate early stage applied R&D, and implement new technologies is now at your fingertips. Gain broad access to project results across CESMII’s activities that address cross-sector challenges relevant to you. It’s a unique opportunity for your organization to leverage CESMII’s national network of resources and expertise.

CESMII provides access to affordable, agile infrastructure, sensors, modeling and control technologies through integration with a novel, vendor-agnostic platform, and marketplace of solutions and opportunities, that works with your existing infrastructure and supply chains.

The goal is to mitigate risk, improve energy productivity, and optimize performance while breaking down barriers to interoperability and security.

> Realize results through cloud computing, cyber security, predictive modeling and control, advanced sensors, and data visualization tools
> Achieve your business objectives through a heterogeneous environment using a modular, cost-effective, extensible infrastructure
> Leverage replicable, repeatable, and scalable tools with user-friendly workflows and interfaces
> Accelerate adoption through an empowered workforce, enterprise templates, and replication in the Smart Manufacturing Marketplace™
> Increase energy productivity across the enterprise and supply chain
> Learn and engage by collaborating with thought leaders and sharing best practices
> Grow manufacturing process and supply chain innovation and create new jobs

BUSINESS IMPACTS
Optimize process efficiency and energy productivity, to achieve:
- Increased performance across manufacturing processes and operations
- Increased energy productivity
- Reduced waste
- Reduced implementation and production costs
- Reduced supply chain energy stream costs
- Environmentally sustainable operations

COMPETITIVE BENEFITS
Leverage data and process models as key assets across the enterprise and supply chains, to enable:
- Real-time decision-making
- Demand-driven response
- Productivity, performance and agility improvements
- Long-term innovation planning
- High-quality manufacturing jobs
- Integrated energy-management systems

ACCELERATE ADOPTION
Incorporate business and engineering tools, best practices and intelligence, to:
- Connect existing multi-vendor manufacturing systems without a substantial reinvestment in existing infrastructure
- Test and evaluate scalable solutions at the speed of business
- Drive cost and risk reduction for new implementations and opportunities
- Manage across seams with connected data from all processes and systems
- Access a highly skilled workforce
Who Benefits from CESMII Membership?

MANUFACTURERS

Whether you are an oil-and-gas multi-national, medium-sized food and beverage manufacturer, or a small manufacturer of components for your industry’s supply chain, your needs are as unique as your company. CESMII delivers value to your organization, regardless of your size or where you are on your journey through a phased, integrated systems approach.

Member Benefits

› Leverage data to transform information into operational and energy-saving efficiencies
› Preserve existing investments with low-risk methodologies to connect Smart Manufacturing technologies with existing equipment and facilities
› Increase workforce safety and situational awareness with workforce development, training, and certification
› Develop knowledge-based workers for the jobs of the future
› Connect new and existing solutions for innovative, untapped opportunities

TECHNOLOGY PROVIDERS

Organizations that create, develop, sell and/or integrate Smart Manufacturing technologies—such as sensors, controls, and high-performance computational models—can engage in solving high-priority, cross-industry challenges through testbeds, and gain access to integrate products into the Smart Manufacturing Marketplace™ of solutions.

Member Benefits

› Develop additional marketing/sales channels with a network of potential customers, including early adopters of smart technologies across industry sectors
› Test, demonstrate, and certify new technologies and products through a large pool of R&D opportunities
› Get direct customer feedback on early concept design and certify mature products for Smart Manufacturing installations
› Engage with membership to understand current evolving customer needs and facilitate product-to-market alignment of new cross-cutting developments

Examples of Target Manufacturing Industries

Metals and Fabrication  Petrochemical Refining  Paper and Pulp  Industrial Gas  Food and Beverage  Glass, Ceramics, Cement
CESMII tackles cross-cutting priority areas—important to all industries—to accelerate the goals and needs for all.

**NATIONAL LABS AND ACADEMIA**

National labs, research universities, community colleges, and vocational schools can be part of developing Smart Manufacturing solutions, while also helping to define education and training curricula and certification programs. CESMII aligns academic and cutting-edge laboratory research with industry needs.

**Member Benefits**

- Drive validation and verification of early-stage technologies
- Involve students in applied research and development
- Provide hands-on training with industry-hosted and R&D testbeds
- Inform industry-driven course-content development using real-world challenges in the classroom

**STATE AND LOCAL GOVERNMENTS**

State and local government agencies and associations can drive job creation, enable growing markets, reach energy-reduction objectives, and improve underrepresented communities’ access to new technology and workforce development programs.

**Member Benefits**

- Create and retain high-paying manufacturing jobs
- Prepare new and embedded local workers for high-paying jobs of the future with Smart Manufacturing training and certification
- Enable economic development with Smart Manufacturing efficiencies that improve the competitiveness of local manufacturers and foster increased investments in manufacturing

**ASSOCIATIONS AND NON-PROFITS**

Industry trade associations and non-profit organizations involved in manufacturing, energy, economic development, workforce, and education benefit from being a part of a community that is accelerating the adoption of Smart Manufacturing across all industry segments.

**Member Benefits**

- Connect with thought leaders in industry, academia, and government
- Provide services, education, and resources across CESMII membership to leverage and extend your impact
- Build new channels for outreach and a national network of partners for collaboration
- Represent your constituency and tackle priority needs and challenges

Composites  |  Aerospace  |  Micro-electronics  |  Automotive  |  Plastics and Rubber  |  Chemicals
Membership Types and Benefits

**NATIONAL MEMBERSHIP**
National members have regional membership benefits, but are serviced by all CESMII Regional Manufacturing Centers (RMCs). Members can propose projects in any region or across multiple regions and engage in projects hosted by other partners. Membership helps to accelerate the company’s goals with cross-regional opportunities and RD&D resources, early access to IP, and technology for production use. National members have a leadership role in CESMII with a seat on the governance board and representation on standing committees to help guide the Institute’s technical, workforce and business priorities, including input into the Institute’s strategic portfolio of projects.

- Large Company
- Medium Company
- Small Company

**REGIONAL MEMBERSHIP**
Regional members are directly serviced by a CESMII RMC of choice and have the opportunity to propose projects within their region and engage in projects hosted by other partners. Membership helps to accelerate the company’s goals with cross-regional opportunities and RD&D resources, second access to IP, and technology for testing and developmental use. Regional members have representation on standing committees and are candidates to serve on the governance board, to help guide and inform CESMII strategies.

- Large Company
- Medium Company
- Small Company

**RESOURCE MEMBERSHIP**
Resource members provide technology or other services that enable Smart Manufacturing. Membership at this level includes Consortium benefits. Resource members share their product or service, promote their offerings to the Institute and its members, and engage in active projects that align with their interests. Resource members get exposure to cross-sector manufacturing challenges to drive new innovative solutions.

- Large Company
- Medium Company
- Small Company
- Other
- Non-Profit

**CONSORTIUM MEMBERSHIP**
Consortium members have access to a national network of resources, expertise and capabilities. Members can network and build relationships with Smart Manufacturing thought leaders, form partnerships, and identify opportunities to achieve goals. Events and workshops are focused around member objectives. Training and access to best practices on industry challenges, and broad access to industry-driven project results across the Institute can be applied to strategic directions.

- Large Company
- Medium Company
- Small Company
- Other
- Non-Profit

**Membership Types**
- Large company: More than 500 employees
- Medium company: Between 100 and 500 employees
- Small Company: Less than 100 employees
- Other: Vocational, community, and K-12 education
- Non-Profit: Including academic institutions and government labs
## BASIC SERVICES

- Introductory training curriculum on Smart Manufacturing, Platform, Testbed, and Business Case Development
- Access to general CESMII communications, including member newsletters, reports, and intranet.
- Forums for collaboration, networking, and sharing ideas to accelerate Smart Manufacturing
- Opportunities to trial, test, and evaluate products in the SM Marketplace™
- Access to webinars, meetings, information sessions, events, and select regional and national workshops
- Growth opportunities through SM business, markets, and skills

### EXTENDED SERVICES (NEGOTIATED AND FEE-BASED) INCLUDE:

- Service-Level Agreements on SM Platform™ and SM Marketplace™ licenses for development and production
- Dedicated training for project, cost-share, roadmap development and implementation planning
- Dedicated product support and training
- Toolkit development and promotion
- Personnel, product, and systems (hardware or software) certifications
- Commercialization planning
- Testbed implementation planning, design, and integration involving Institute expertise on control strategies, modeling and simulation, and sensor placement

## ADVANCED SERVICES

- Products available through the SM Marketplace™ for Institute-wide access. Product exposure provides members access to product information (for applications, toolkits, etc.) nationwide
- Benchmarking data on your products and comparable products
- Testbed development workshops
- Access to testbed and project information that is non-proprietary
- Access to and training on SM Platform™ for evaluation and demonstration

### INTELLECTUAL PROPERTY ACCESS

- Opportunity to access and license CESMII-generated IP after: 18 mo, 12 mo, 6 mo, Instant

## CESMII GOVERNANCE

- Institute seat on governance board
- Representative for Institute-level standing committees
- Candidate nominees on standing committees and working groups

## SM PLATFORM™ & SM MARKETPLACE™

- Use in production
- Use for internal evaluation, testing, and demonstration

## INDUSTRIAL AND R&D TESTBEDS

- Host national or cross-region Industrial and R&D testbeds
- Host Industrial testbeds
- Host RD&D testbeds
- Participate and leverage cost-shared national/regional testbeds
- Testbed and project proposal consultation

### EXTENDED SERVICES (NEGOTIATED AND FEE-BASED) INCLUDE:

- Intro training

<table>
<thead>
<tr>
<th>CONSORTIUM</th>
<th>RESOURCE</th>
<th>REGIONAL</th>
<th>NATIONAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>O</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td></td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td></td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td></td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td></td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td></td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td></td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>18 mo</td>
<td>12 mo</td>
<td>6 mo</td>
<td>Instant</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>O</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td></td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td></td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td></td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>O</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td></td>
<td>●</td>
<td>○</td>
<td>●</td>
</tr>
<tr>
<td></td>
<td>○</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td></td>
<td>○</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td></td>
<td>○</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td></td>
<td>○</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td></td>
<td>○</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td></td>
<td>○</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td></td>
<td>○</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1-888-720-8096 | info@cesmii.org
In partnership with the U.S. Department of Energy, the Clean Energy Smart Manufacturing Institute (CESMII) is the ninth Manufacturing USA institute to be awarded. CESMII will accelerate Smart Manufacturing by applying advanced innovative manufacturing solutions to manufacturing problems across energy-intensive\(^1\) and -dependent\(^2\) industries.

CESMII is a national and regional network that brings together over $140 million in public-private investment focused on improving energy productivity and creating new jobs in U.S. manufacturing. The Institute will help manufacturers of all sizes integrate information and communication technologies to enable transformational business improvements and radically advance energy productivity and overall competitiveness.

---


2 Energy-Dependent: Solar PV, Carbon Fiber Composites, Light Emitting Diodes, Electro Chromic Coatings & Corrosion resistant alloys, Advanced textiles for fashion, Exotic materials for space, Nano materials for healthcare, Membranes, Computers & Electronics, EV Batteries, Multi-material joining, Other industries that have a 25% or greater cost of energy as part of the total cost of manufacturing