

CESMII assembles a national Think Tank to advocate for the transformation of the U.S. manufacturing ecosystem

Smart Manufacturing Executive Council -

A Vision to Democratize Digital Transformation

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For decades, Federal Reserve Economic Data showed that United States manufacturing productivity was on the rise at a steady and fairly linear growth path. In 2010, that trajectory changed.

“Productivity plateaued and began declining,” says John Dyck, CEO of CESMII, the Smart Manufacturing Institute. “It’s not a coincidence that plateau happened at the same time as the announcement of the 4th Industrial Revolution. We’re 11 years in and just beginning to see a glimmer of this ecosystem being disrupted.”

Revolutions in manufacturing don’t happen, Dyck says, because the majority of manufacturers are reluctant to bring new ideas and technologies into the shop floor. “It’s very much an evolution, not a revolution,” he adds. “If we’re going to dramatically impact the productivity curve, traditional behaviors, business models and technology architectures must make way for new ones.”

Recognizing the urgent need to accelerate the adoption of smart manufacturing in the U.S., CESMII and SME launched the Smart Manufacturing Executive Council (SMEC) in late 2022. Described as “a national think tank of smart manufacturing leaders,” the SMEC was created to help transform the U.S. manufacturing ecosystem.



“Most manufacturers are concluding that despite access to new technologies like the cloud, IIoT, AI and augmented reality, little has changed in terms of the cost and complexity of implementing smart manufacturing systems,” Dyck adds. “The statistics bear this out, with anywhere from 72% to 80% of all digital transformation initiatives being characterized as ‘not successful.’”

The objective of the council is to develop prescriptive guidance for several stakeholder groups in the U.S. manufacturing ecosystem, helping them understand their role in the evolution, as well as invest in the knowledge and skills required for this transformation.

The Smart Manufacturing Executive Council includes members representing a

With the majority of manufacturers in the U.S. having 20 or fewer employees, the Smart Manufacturing Executive Council will make a concerted effort to help enable small manufacturers to achieve digitization and ensure productivity rebounds, and thrives, in years to come.

diverse array of companies and industries and focuses on several strategic initiatives:

1. Leverage admired manufacturing businesses, demonstrating their leadership on this journey, and showing others the way.
2. Inspire the ecosystem to evolve their strategies and business models to support the democratization of manufacturing technologies and ensure that SMMs can engage in smart manufacturing.
3. Provide guidance for eight key stakeholder groups in our manufacturing ecosystem (corporate manufacturing and supply chain leadership, plant leadership, strategy consultants, system integrators, machine builders, technology providers, learning and training leaders, and operators) to help them understand their role in this evolution, and invest in the knowledge and skills required for this transformation.
4. Inform U.S. policy makers on the transformative actions and policies that will accelerate U.S. adoption of smart manufacturing.

Small, Mid and Mighty

Dyck explains that while the Fortune 1000 might be able to afford digital transformation and the implementation and maintenance it requires, they still struggle to justify budgets, as well as get buy-in and adoption.



John Dyck is CEO of CESMII and co-chair of the Smart Manufacturing Executive Council.

“Now imagine if you have no access to these kinds of capabilities, which are structurally designed for large manufacturers,” he says. “There’s no ecosystem to deploy these great capabilities in small manufacturers.”

All of that underscores the deep digital divide in U.S. manufacturing. With 98% of all manufacturing companies in the U.S. defined as small businesses, the majority have 20 or fewer employees. The SMEC will have a sharp focus on helping small- and medium-sized manufacturers (SMMs).

“We talk about the wage gap and the socioeconomic gap between the middle class and the 1%, but there is a real digital divide between large and small manufacturers,” says Dyck. “The council was unanimous in our declaration that we are enabling SMMs to participate in this world of smart manufacturing and digital transformation.”

New Mindset, New Results

A primary obstacle in crossing the digital divide is the need to create a smart manufacturing mindset similar to the mindset developed in the 1980s for quality as part of lean manufacturing principles and methods. While these methods originally focused on the shop floor, they have evolved over the past four decades, achieving new levels of adoption across a range of industries, including healthcare, education and hospitality.

“The lean movement has become part of the culture, DNA, language and the way we justify investment in systems and talent. Smart manufacturing demands the same level of dedication and cultural transformation,” Dyck says.

Jeannine Kunz is chief workforce development officer at SME and, along with Dyck, serves as co-chair of the SMEC. According to Kunz, major transformation requires a focus on culture so people don’t feel threatened by change. “Humans by nature tend to resist or not participate, and it is important that leadership understands their role in helping transitions and not just implementing new technologies,” she says.

“Our shared vision with CESMII is to teach the manufacturing workforce the basics of smart manufacturing methodologies to help them understand its essential nature and benefits to accelerate transformation in the U.S. manufacturing workforce,” Kunz adds. “This

common foundation is important in smart manufacturing's adoption and in realizing the benefits of improved quality, reduced costs, and process and workforce efficiencies."

Education and skills training are essential to accelerate smart manufacturing adoption by U.S. manufacturers. To that end, Tooling U-SME (the workforce development division of SME) and CESMII launched a "Fundamentals of Smart Manufacturing" learning curriculum in June for building awareness and educating the workforce around newly available smart manufacturing processes and technologies. Sponsored by the National Institute of Standards and Technology and the U.S. Department of Energy, the curriculum includes 35 self-paced training modules that cover topics such as an introduction of smart manufacturing, data organization, system connectivity, automation, cybersecurity and decision-making insights. The curriculum was reviewed and supported by CESMII, CyManII and America Makes, along with the U.S. Office of Naval Research. The online training courses can be accessed from [Tooling U-SME](#), education providers or employer training portals for building awareness across the ecosystem and introducing modern skills required for many existing and emerging smart manufacturing job roles.

A Marathon, Not a Sprint

Still in its infancy, the SMEC is in the process of setting goals and milestones for the months and years ahead. Each member is also committed to evangelizing the council's work during speaking engagements, at industry events and in the regular rhythms of business.

For example, At SOUTHTEC, Oct. 24-26 in Greenville, S.C., CESMII will host its 2023 Annual Member Meeting, which has been expanded to include the Smart Manufacturing Experience featuring multiple connection points with 900 leading voices from manufacturers, system integrators, thought leaders, government entities, suppliers and council members.

"This group represents the voice of manufacturing, and collectively we will have a bigger impact and influence on helping the ecosystem recognize how important it is to move away from a legacy, proprietary and customized way of doing things and move forward with new ideas," Dyck explains.

There are no vendors on the council. There are no tech providers. That is intentional.

"We want to leverage the voice of manufacturing that is not in any way impacted by profit motive," Dyck asserts. "This vendor-agnostic, tech-agnostic body is focused on advocating for transformational ideas, not a specific outcome."

Look for future articles in *Smart Manufacturing* with updates on the SMEC's goals, milestones and activities. For more information, and to see a full list of council members, visit www.CESMII.org. 📍

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