



18th Annual Washington Policy Conference – June 27-28, 2007

“Making Manufacturing a National Priority”

**Supply Chain Value Creation Breakout Session:
*Strengthening the Manufacturing Infrastructure***

On June 27-28, 2007, NACFAM convened manufacturers, researchers, government, and association leaders to begin work in developing innovative initiatives and related programs required for strengthening the overall U.S. manufacturing infrastructure. NACFAM’s Supply Chain Value Creation Council began the process of identifying major issues and key policy recommendations for NACFAM and the membership to carry out as next steps in this area.

We concluded that one of the foremost issues facing the United States manufacturing sector relates to the general business shift from solely focusing on “integration” issues to more specifically searching for “value creation” throughout the extended enterprise. Unlike earlier supply chain integration initiatives, this mind-shift places much stronger emphasis on support activities which increase trust, collaboration and connectivity for creating more network-centric manufacturing capabilities.

The continuous pursuit to increase speed, quality and efficiency while minimizing waste and risk throughout the extended enterprise has placed greater emphases on effective management of network-centric enterprises. For firms, network-centric manufacturing is emerging as a business and product differentiator in the world marketplace. For manufacturing support entities (such as universities, government and non-profits), assistance to manufacturing must similarly evolve to provide relevant support for the overall U.S. network-centric manufacturing infrastructure. In our increasingly interdependent world, promising initiatives such as product life-cycle management, sustainable manufacturing, and next generation advanced manufacturing technologies and processes will all benefit from a highly effective network-centric manufacturing infrastructure.

Discussion Points of Network-Centric Manufacturing Included:

- Original Equipment Manufacturers (OEMs) are becoming more focused on their integration activities and are becoming more dependent on their suppliers, who are often small to medium manufacturers (SMMs).
- SMMs face both significant challenges and opportunities for responding to multiple (sometimes conflicting) demands for increased ability, flexibility, connectivity, and risk-sharing while remaining significantly cost and time constrained. A network-centric manufacturing (NCM) support structure is required for SMMs to remain globally competitive.

- NCM is different from supply chain integration (SCI). Simply stated, SCI represents those activities that one company, the OEM, employs to connect to its supply chain. NCM represents those activities employed by the OEM and its suppliers collaboratively to assure their collective success in advancing value creation throughout their network, providing a more robust capability for visibility and speed.
- This importance was highlighted by one OEM participant who estimated that 25%-50% of the OEMs value comes from below Tier 1 suppliers. Thus, the OEMs need increased ability to manage and collaborate throughout the supply chain. NCM provides a more robust capability for visibility and speed below Tier 1 for both SMMs and OEMs.
- One probable outcome from the lack of SMM capacity will be for OEMs to increase the search for global best practices for their sourcing solutions. Off-shoring tends to be the most noticeable result. This business reality lends weight to supporting the case for an effective network-centric manufacturing infrastructure in the United States to reduce the need for such off-shoring and the attendant US job losses.
- Connective technologies such as creating a “digital thread” through the total product life-cycle will enable more integration of supply chain activities and will become increasingly important for an effective NCM environment.

Recommendations for strengthening NCM in the U.S. included:

1. Communication with and education of government leaders on the importance of the manufacturing supply chain/network to the economy.
2. Establish new capabilities and mandates for MEPs to fill capability gaps in the manufacturing supply chain that are essential to ensure the future competitiveness of SMMs in this network-centric manufacturing (NCM) environment.
3. Establish the overall infrastructure needed to support SMMs in the evolving NCM environment that is shaping supply chains/networks. This requires new investment and new mandates to bridge the gap between SMMs and OEMs. Industry including OEMs must play a significant role in guiding the development of this infrastructure.
4. Remove policy and regulatory constraints that reduce the ability of SMMs to compete for federal government business.

Discussion of current federal agencies, policies and practices impact on NCM:

- What is the network of agencies and how does it act? Who are the stakeholders? How to engage? How can funding sources among agencies and constituencies (especially within DOD) be harmonized for better leverage? What is the role of Interagency Working Groups (IWGs)?
- Long term contracts need to be reflected at all levels in the supply chain while also permitting for quick contracting to provide flexibility from an operational view (e.g., out-of-production parts).

- Within DOD there is no central function, including the ManTech program, that is funding research that would look at supply chain/network specific improvements.
- If agencies could provide SMMs support as a variable cost (consumption based) versus fixed cost and if the support was provided in a distributed manner, it would be very helpful for SMM participation.

Discussion of possible NIST-MEP role in NCM:

- While MEP may be the most logical starting point for building an infrastructure to support, few people in the MEP system understand the increasing importance of NCM capabilities, how SMMs need to respond to these new demands, and how MEP can play a critical role in the success of SMMs within the evolving NCM demands.
- Increased trust and collaboration must be developed between OEMs and suppliers. MEP can play a critical role as a 3rd party in supporting this focus. A case study is required that supports real cost savings in order to be credible in supporting the need of a 3rd party approach. Suppliers often do not trust OEMs because of their emphasis on cost reduction. On the other hand, many defense OEMs do not understand how to access MEPs to identify / broker partnering relationships, and some view MEPs as a threat.
- MEPs do not have a business model that can be used to request funding for MEPs to serve as the national infrastructure. NCM requires a consistent approach across all MEPs which will require some cultural change and a good business case to sell 3rd party service such as quality surveillance to OEMs.
- MEPs have certain competencies (e.g., lean) that are useful, but there is potential to expand the competencies (e.g., connectivity) to improve support to SMMs. MEPs must create a case that shows benefits to SMMs in the first year or two and then over longer term periods (e.g., 3, 5, 10, 15 years). MEPs must find a few successful examples that demonstrate coordination of quality work through 3rd parties.
- To access NCM more effectively, standard processes across industrial sectors must be developed. If resources were significantly increased for MEPs (of which a significant part went to a national program), it would make the overall program more effective. A pilot program would need to be developed to assure positive results for the additional funding.

Further Recommendations for strengthening NCM in the U.S. included:

5. Establish a focal point with responsibility and funding for research in enabling supply chain/network technologies, standards, protocols, network structures, digital connectivity and social sciences to ensure future SMM competitiveness.
6. Form an industry advocate group to develop a proposal to position MEPs as the national supply chain infrastructure capable of assisting SMMs in using digital

technologies and connectivity to close supply chain capability gaps and enhance competitiveness.

6.1 Define a phased plan that adds funding in areas of demonstrated MEP competency. Near term, significant funding should be added to deploy demonstrated competencies. Mid-term, capabilities should be added as additional supply chain competencies are demonstrated. Long-term, MEPs should be linked to become a major part of the national NCM infrastructure.

7. Conduct a study of existing DOD procurement policies and processes (e.g., total cost formula) to understand their impact on the ability of SMMs to pursue bid opportunities to expand the industrial base.
 - ✓ Identify potential policy and process changes that would improve SMM bid opportunities.
 - ✓ Account for lead time in spares and repairs sourcing decisions.
 - ✓ Conduct a pilot to verify the effectiveness of these changes.
8. Conduct a study to understand the economic and industrial base impacts of off-shoring on SMMs. Include in the study the influence that the adoption of total cost methodologies could have in achieving balanced procurement decisions.
9. Encourage MEPs to investigate, capture and share best global practices for sustainability with SMMs. Develop a plan to grow sustainability knowledge within MEPs as part of the necessary NCM infrastructure for future competitiveness.

NACFAM Next Steps:

- A. The NACFAM Supply Chain Value Creation Council will work together to shape the policy and program initiatives recommended in the steps above. This includes funding and partnership ideas for appropriate federal assistance with open innovation requirements. (For more information, visit www.nacfam.org.)
- B. The results of the Council's work will become the basis for much of the National Infrastructure Panel discussion to be led by NACFAM's CEO at the October 29 Doyle Center NCM Forum.
- C. NACFAM will collaborate with other manufacturing associations, especially the National Association of Manufacturers (NAM) to work toward more fruitful presidential campaign discussion of manufacturing, including raising NCM as a national priority.