Please see the below responses (in blue) to the RFI.

1. What are the key problems and issues facing small U.S. manufacturers and their competitiveness and opportunities for growth in the near-term (1 to 2 years), mid-term (3 to 5 years) and/or long-term (more than 5 years)?

   (1 to 2 years) – As globalization continues on and the competition only grows stronger, U.S. manufacturers have two key issues:

   A. Do more with less – Creating a flexible, cross trained workforce that allows you to increase capacity without necessarily adding cost to the business
   B. Employee Satisfaction – While doing more with less, companies still must have strong employee satisfaction. A manufacturer must improve employee value by providing valuable experience in different roles while, at the same time, ensuring that employees do not become overwhelmed or burn out.

   (More than 5 Years) – Many U.S. manufacturers have a very experienced workforce that will be heading to retirement in both the near and long term. Succession planning is of critical importance and those companies that have done their proper planning will be set up to succeed in the near term and long term.

2. What advanced manufacturing technologies are and/or will be needed by small U.S. manufacturers for the companies to be competitive and grow in the global marketplace in the near-term (1 to 2 years), mid-term (3 to 5 years) and/or long-term (more than 5 years)?

   (3 to 5 years) and (more than 5 years):

   A. Just like a flexible, cross trained workforce is critical, flexible equipment is also critical. Specifically in high mix, low volume environments, it is necessary to have the ability to make anything at any time. As a result, whether it be presses, CNCs, assembly lines and/or paint lines, it is critical that changeovers are as close to 0 as possible and automation is explored where practical
   B. The use of RFID to be able to track and locate parts quickly is also important. Non Value Added activities such as waiting, transportation and excess motion need to be minimized.

3. What technologies and/or business models are important to small U.S. manufacturers as they choose and participate in any particular supply chain?

   For US manufacturers that have a low volume/high mix business model, what is critical are technologies that support an agile supply chain. This means technology that will be responsive to unpredictable changes in demand.

4. What complementary business services, including information services, are and/or will be needed by small U.S. manufacturers and/or MEP Centers to take full advantage of advanced manufacturing technologies at the company or supply chain level?

The ability to benchmark other manufacturers already using critical technologies would be of great benefit to manufacturers. This gives manufacturers the ability to see advanced technology up close before committing to a potentially significant investment.

5. Are there any other critical issues that NIST MEP should consider in its strategic planning for future investments that are not covered by the first four questions?

   A. A type of “Apprenticeship” type program working in partnership with small manufacturers. In order to ensure that there is a talent pool available when the wave of retirements from the baby boomers begin. In addition, an apprenticeship program can help to drive interest of the younger generation into manufacturing careers.

   B. A focus on Lean/Continuous Improvement training. The pressure is always on to do more with less or to increase capacity without adding cost. As a result, Lean manufacturing is critical for everyone.