

Title: “The 2014 Study of Nanotechnology in the U.S. Manufacturing Industry”

Abstract:

Under NSF award, the National Center for Manufacturing Sciences (NCMS) has conducted four consecutive studies of over 1300 nanotechnology stakeholders in the U.S. manufacturing industry in 2003, 2006, 2009 and 2014 - to track their progress towards novel, disruptive and sustainable nano-enabled products. The objective was to benchmark and capture trends and needs in research and identify barriers to entrepreneurial initiatives with nanotechnology (i.e., technology push), and integration into high-performance product platforms (i.e., technology pull).

Over 300 executives took an online survey in 2013-14 addressing 20 strategic metrics of readiness including scalability, collaboration, open-innovation, integration, environmental risks, product design practices and sustainability considerations, as well as socio-economic factors such as workforce, location and competitiveness.

The NCMS-NSF study has found that nanotechnology-enabled products are becoming commonplace in many dual-use, industrial and consumer applications ranging from semiconductors to healthcare, energy storage and functionalized materials to enhance consumer/military electronics and new smart/mobile devices. Respondents were unanimous that Nanomanufacturing has the best near-term potential for generating high-paying, high-skill jobs in the U.S. The study calls for continued leadership of the government as an investor and facilitator in long-term alliances between corporations and component manufacturers for accelerating the development, characterization, qualification and integration of sustainable nano-enabled solutions.

Speaker Biography:

Manish Mehta leads NCMS' collaborative research programs in sustainable manufacturing. He has extensive program development experience in advanced materials, composites, lightweighting, alternate energy (batteries and fuel cells), paints/coatings, remanufacturing and nanomanufacturing. He has a B.S. in Mechanical Engineering from Bangalore University, and M.S. and Ph.D. degrees in Industrial Engineering from the University of Cincinnati, and completed the Executive Program in Corporate and Technology Strategy from the University of Michigan Ross Business School.