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NIST Spearheads New Mfg. Initiative

The National Institute of Standards and Technology's Engineering Laboratory's manufacturing division is spearheading a national effort aimed at reestablishing the United States as a leader in advanced manufacturing systems technology. The agency held a two-day meeting January 11-12 with industry representatives and government agency officials aimed at defining concepts and developing strategies associated with "extreme" manufacturing. The meeting was "a first step to identify the new, long-term technology advances needed to make future manufacturing competitive in the United States," according to NIST.

The workshop was deemed a success, with organizers having to turn away too many people wanting to attend. "We are trying to keep the momentum up," says Howard Harary, NIST's deputy director for manufacturing and conference host. "This is one of many first steps. We are very conscious of making plans to sustain interest for making a difference."

The meeting focused on long-term issues associated with making U.S. manufacturing more competitive with a push toward "extremely" agile, rapid, custom, precise and even extremely "weird" manufacturing. "NIST is in the technology space, not the policy space for the macroeconomics for manufacturing," Harary explained in keeping the focus of the initiative on long-term technology advances needed to push performance. "It was a challenge for many people attending the workshop to think long term because we have so many problems in the short term. But if we don't think long term, we are never going to solve the long-term problems. If we don't start thinking about them now, the future will be upon us without us having thought about it and we will be addressing the problems in less of a planned way and more in a reactionary way."

Attendees at the workshop say the initiative should gather strength. This is a "now-or-never moment," said one conference attendee from a large U.S. manufacturing firm. Company representatives said they intend to stay involved, and NIST intends to broaden the community through networks such as LinkedIn. "This is just the fist step and now it's our job to continue the momentum," says Harary.

The workshops looked at the future of intelligent manufacturing systems, including rapid product realization and scale up of new products based on emerging technologies and materials. It looked at "snap together" modular processes and system modeling; highly integrated control of complex and precise processes; customized production; 3D printing; design for sustainability; bioscience and biosystems for manufacturing; computational biology for process controls; precise, high-volume directed self assembly of multifunctional nano-microsystems; additive manufacturing; dynamic collaborations across reconfigurable supply chains; tightly integrated design, test and validation; and potential "game-changing" production paradigms including digital direct manufacturing of complex products and assemblies, service oriented manufacturing and cloud manufacturing.

http://www.nist.gov/el/extrememanu.cfm.