Seizing the emerging opportunities for business growth offered by rapid advances in digital manufacturing was the theme of an industry-focused workshop conducted by the Golisano Institute for Sustainability's Center of Excellence in Sustainable Manufacturing at RIT on July 15, 2015. The seminar, “Digital Manufacturing: Transforming the Manufacturing Value Chain,” was co-sponsored and co-presented by the Digital Manufacturing and Design Innovation Institute (DMDII). The program was attended by nearly 90 Upstate New York business leaders and entrepreneurs in the manufacturing industry.

Based in Chicago, DMDII describes itself as “a federally-funded research and development organization, that encourages factories across America to deploy digital manufacturing and design technologies, so those factories can become more efficient and cost-competitive.” The Institute was established last year by the White House as one of the National Network of Manufacturing Innovation initiatives to promote the resurgence of American industry. DMDII is a consortium of more than 100 companies, nonprofits, and colleges and universities who partner with the federal government to vigorously promote the adoption of digital manufacturing/design. The organization focuses on creating and managing targeted applied research and development collaborations into digital technology, fostering professional-level networking among all its members, and providing American industry with an extensive program of outreach activities. DMDII's website is: http://dmdii.udlabs.org/.

Attendees were introduced to the mission, vision and operations of DMDII through presentations by top officials of DMDII: George Barnych, Director of R&D Programs; Jacob Goodwin, Director of Membership Engagement and Communications; and Dennis Thompson, Director of Workforce Development.

They were followed by a series of high-profile industry speakers, including Bret Greenstein, Vice President, Internet of Things (IoT) Continuous Engineering and Asset Management Solutions, IBM Analytics; and Dr. Benjamin Beckmann, Lead Scientist, for GE Global Research. Upstate NY industry presenters included Tom Courtney, Global Director of New Product Development, Gleason Corporation, a global leader in the technology of gearing products and services; and Mike Bechtold, President of OptiPro, a major designer and builder of computer controlled grinding, polishing, and measuring equipment for the precision optics industry.

Attendees learned about key topics such as why adopting digital manufacturing is essential for American industry today; what companies can do to integrate digital technologies and production into their processes; and how to set up and maintain an effective digital supply chain. According to DMDII's Jacob Goodwin, “Digital manufacturing and design is a vital competitive advantage for small to large businesses in the U.S. today. For example, learning how to capture, analyze and use data at each stage of the manufacturing process - right through data from customer usage of your product - is fast becoming essential for business success. That means getting systems to communicate together and better.”
A significant enabler for this is the oncoming Internet of Things (IoT) revolution, where ordinary products and tools will be equipped with sensors, embedded intelligence, and communication abilities, enabling new kinds of data and data flows to be utilized by manufacturers to improve their products. IBM's Bret Greenstein says that IoT will be "transformative technology" that will help drive better business engagements with customers.

Helping manufacturers cope with the complexity of the digital economy and manufacturing environment is the purpose behind the Digital Manufacturing Commons (DMC), a GE-led effort to create an open-source platform for connecting and managing manufacturing supply chains. According to Dr. Benjamin Beckmann of GE, this project, which is being developed in partnership with DMDII, will eventually enable the sharing and interaction of data and software in ways that are now either difficult or impossible. The DMC will also facilitate distribution of key digital manufacturing technologies such as design tools and advanced analytics capabilities.

Several presenters reminded the audience not to overlook the challenge of developing a workforce that can perform comfortably and effectively in the emerging digital factory. More than a half-million unfilled positions for skilled manufacturing workers exist today and that number is expected to grow into the millions over the next several years. Mike Bechtold of OptiPro reminded industry leaders that they have a big role in building a tech-ready labor force. "Early engagement is important," he told attendees. "Never overlook an opportunity to have teachers and their students tour your facility and see for themselves that the new digital manufacturing environment is clean, the work is interesting, and the potential for personal, professional, and financial growth and prosperity is attainable and exciting."