

MFOresight Insights

A Newsletter for the Manufacturing Community

October 2016

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Recent Events

MFOresight National Summit 2016



On September 29, leading thinkers from industry, academia, and government came together in Washington, DC for the first MFOresight National Summit. The aim of the event was to envision a successful future for American manufacturing and identify next steps for business leaders and policymakers.

Some important themes emerged:

- The biggest threat to American manufacturing isn't foreign competition. It's our own lack of interest. We have to improve workforce training and get kids passionate about careers in science and technology as a matter of national competitiveness.
- Innovation and discovery are crucial. But they won't rebuild American manufacturing on their own. We need to focus on translating big ideas into new American-made products that improve lives and create good livelihoods.
- Higher Ed has a crucial role to play. We need a "federal challenge grant program" to get universities focused on the creation of innovative new products.

We hope you enjoy reading about what MFOresight has been up to recently, and we encourage you to contact us at info@mforesight.org with any questions or comments you have about this update. -[M]-

- At a moment of widespread anxiety about the American economy, restoring manufacturing is a way to empower people and restore opportunity. Manufacturing creates quality jobs for people with diverse backgrounds and skills—not just college grads.
- Neither business nor government can solve the challenges of American manufacturing alone. We need integrated thinking, a diversity of perspectives, and a range of public-private partnerships and tools to restore the sector.

These are just a few of the insights from the Summit. You can find tweets from the Summit using #MForesight16 and you can download PDFs of our reports and other handouts from the Summit through <http://mforesight.org/national-summit-2016/>. We hope you will help us continue the ongoing discussion about advanced manufacturing by commenting on the "[Memos to the Next President](#)" feature on [Huffington Post](#). Your feedback will show support for the important issues facing advanced manufacturing discussed in the blog post.

Assistive Reverse Site Visit

On September 28, 2016, Director of MForesight, Sridhar Kota, along with several members of the Leadership Council, met with MForesight's sponsors, NSF and NIST, and a review panel at the National Science Foundation in Washington, DC. The purpose of this meeting was to review the first year of MForesight's work and to identify how MForesight can continue to improve its operations and ability to strive for its vision:



to serve as the voice of the national advanced manufacturing community, providing government and industry with information and analyses about emerging technologies, workforce training, and opportunities for public-private partnerships that strengthen U.S. competitiveness.

The meeting was very productive and we thank the NSF reviewers for their insightful thoughts and feedback. MForesight will be building on the feedback in the days ahead—deepening consultations with industry, government, and academia to help solve common problems and shine light on future opportunities for American manufacturing.

Fall Leadership Council Meeting

Leadership Council members gathered on Friday, September 30, 2016 in Washington, DC. It was a lively exchange of ideas on topics related to MForesight's future—including the next National Summit, reports and workshops, and the organizational mission.

MForesight will continue to engage with Leadership Council members throughout the year. Thank you to each Leadership Council member who attended!

Democratizing Manufacturing

MForesight hosted the "Democratizing Manufacturing" Workshop on August 8-9, 2016 in Washington, DC. We were joined by more than two dozen leading innovators and manufacturers to discuss how the U.S. can make the most of

opportunities that are emerging with lower cost of desktop equipment, CAD software, shared makerspaces, and innovations. The session addressed a range of questions, including:

- What advances in hardware, software, and services would have the biggest impact on increasing the variety and value of what an individual could design, prototype, and manufacture?
- How can entrepreneurs best be supported to make the transition from “making” to low-volume manufacturing?
- What are the barriers that entrepreneurs and SMMs (small and medium-sized manufacturers) face when trying to access an established supply chain?
- How can we lower barriers to accessing new technologies by SMMs?

Following the workshop, a report was written which includes actionable recommendations. Read a summary of the report: [Democratizing Manufacturing](#). A draft of the report is available to download at <http://mforesight.org/download-reports/>. Please send any comments about the draft report to reportcomments@mforesight.org by Dec. 1, 2016.

Manufacturing 101 Follow-up Announcement

We’re pleased to let you know that the Manufacturing 101 report, written this past summer, played a key part in developing the recently announced Build4Scale effort at the Department of Energy. Read a summary of the Manufacturing 101 report: [Prototypes to Products: Helping Entrepreneurs Master Manufacturing](#).



David Friedman announcing Build4Scale at the National Summit

Build4Scale will train Cleantech entrepreneurs on the fundamentals of manufacturing, providing them with the tools and information they need to bring promising energy solutions to market.

Lawrence Livermore National Laboratory is leading the development of the training for Cleantech entrepreneurs and is partnering with a range of organizations. Acting Assistant Secretary for Energy Efficiency and Renewable Energy, David Friedman, announced the Build4Scale program at the National Summit on September 29.



Learn more about the project at the Build4Scale website: <http://energy.gov/eere/technology-to-market/build4scale-manufacturing-training-cleantech-entrepreneurs>

Projects in Progress

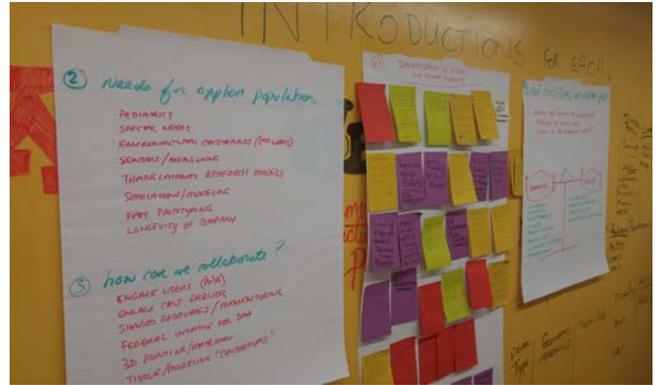
Low Volume Medical Device Manufacturing

Medical devices for under-served, smaller market segments (often called *orphan populations*) have long been a challenge to develop and market successfully. MFOresight is sponsoring a project to improve the ability for low volume manufacturing to produce needed medical devices for orphan populations.

On October 20, 2016 a workshop was held to identify:

- the specific needs of orphan populations
- the barriers to low volume production for orphan populations
- the opportunities for low volume production

The workshop was attended by doctors, representatives from the medical device industry, and experts in medical device regulation and reimbursement. Drs. Arthur G. Erdman and Greg Peterson from the University of Minnesota Medical Device Center are leading the project, and a report is forthcoming. Learn more at <http://mforesight.org/projects-events/med-device-mfg/>.



Supply Chains Deep Dive Study

Supply chains are a critical part of the manufacturing ecosystem and it's essential that the U.S. provide the infrastructure, policy frameworks, and resources needed to help manufacturers maintain successful relationships with suppliers. Increasing digitization of information, smart data, and engagement of existing Manufacturing Extension Partnership centers (MEPs) across all 50 states could a) provide better access to supply chains for startups and SMMs, and b) enhance collaboration and innovation among participating firms. This project will undertake a deep dive exploration of the challenges that suppliers and manufacturers face on a daily basis, and it will identify opportunities for improvement. Michael Russo and Susan Helper are leading this project. If you are interested in participating in this study, please contact us at info@mforesight.org.

Download Reports & Publications

As a reminder, all reports and publications that MFOresight publishes are available to download at <http://mforesight.org/download-reports/>. The newest reports include:

- Manufacturing 101: An Education and Training Curriculum for Hardware Entrepreneurs
- America's Next Manufacturing Workforce: Game Changing Practices in Education and Skills Building
- Democratizing Manufacturing: Bridging the Gap Between Invention and Manufacturing (DRAFT)

If you have any comments about the reports, please send them to reportcomments@mforesight.org.



Sridhar Kota welcoming participants to the Democratizing Manufacturing workshop in August

Leadership Updates

Executive Committee

Moving forward, we will be working with an Executive Committee which will help make decisions about the organization and guide MForeSight's efforts. MForeSight management will be contacting them regularly for input and feedback, and they will help to hone information prior to it being distributed more widely to the Leadership Council and beyond. Members of the Executive Committee are also members of the Leadership Council. Members of the current Executive Committee have been appointed by the Director, and new members in the future will be elected by the Leadership Council. Currently, the Executive Committee consists of the following members:

- Sridhar Kota, Executive Director of MForeSight (Ex Officio)
- Glenn Daehn, Ohio Manufacturing Institute
- Pramod Khargonekar, University of California, Irvine
- Michael Russo, GLOBALFOUNDRIES

New Leadership Council Members

We are excited to announce new members of the Leadership Council who joined after March 2016.



Dean L. Bartles recently retired from his vice president position at General Dynamics Corp. where his career spanned over 30 years, and included profit and loss responsibility for three manufacturing plants, as well as managing the establishment of two manufacturing operations overseas. Bartles has more than 36 years of management experience, which has included positions with Fairchild Republic Co., General Defense Corp., Olin Ordnance, and Primex Technologies. He currently serves as SME's President and was elected an SME fellow in 2012. Bartles also serves on the Industry Advisory Board of ASME where he was made a fellow in 2012, is chair emeritus of the Board of Directors of the National Center for Defense Manufacturing and Machining, and chair emeritus of the Board of Directors of the Smart Manufacturing Leadership Coalition. Additional board positions include the National Center for Manufacturing Sciences, the North American Manufacturing Research Institution of SME (NAMRI/SME), the MT Connect Institute and the Manufacturing Enterprise Solutions Association.

Additionally, Bartles served previously on President Obama's Economic Recovery Advisory Boards' Education and Training Subcommittee, the U.S. State Department's Defense Trade Advisory Group and the Army Research and Development Advisory Committee. He graduated from Shepherd College with a bachelor's degree in business administration, holds an MBA from Shippensburg University and a master's degree in international business from Tampa College. Bartles has also earned a doctorate in business administration from Nova Southeastern University and a doctorate in technology management with a concentration in manufacturing systems from Indiana State University.



Susan Helper is the Frank Tracy Carlton Professor of Economics at the Weatherhead School of Management at Case Western Reserve University. She was formerly Chief Economist at the U.S. Department of Commerce and a member of the White House Staff. She has served as chair of the Economics Department, and has been a visiting scholar at University of Oxford, the University of California (Berkeley), Harvard University and the Massachusetts Institute of Technology (MIT). Her research focuses on the globalization of supply chains, and on how U.S. manufacturing might be revitalized. Dr. Helper received her PhD in Economics from Harvard and her BA from Oberlin

College in Economics, Government and Spanish.



Pramod Khargonekar was named vice chancellor for research at the University of California, Irvine earlier this year. In this position, he provides strategic direction for the Office of Research, which supports and enhances the creative and scholarly activities of UCI faculty. Khargonekar received B. Tech. Degree in electrical engineering from the Indian Institute of Technology, Bombay, India, in 1977, and M.S. degree in mathematics and Ph.D. degree in electrical engineering from the University of Florida in 1980 and 1981, respectively. He has held faculty positions at the University of Florida, University of Minnesota, and The University of Michigan. He was Chairman of the Department of Electrical Engineering and Computer Science from 1997 to 2001 and also held the position of Claude E. Shannon Professor of Engineering Science at The University of Michigan. From 2001 to 2009, he was Dean of the College of Engineering at the University of Florida and was Eckis Professor of Electrical and Computer Engineering there. He also served briefly as Deputy Director of Technology at ARPA-E, U. S. Department of Energy in 2012-13. He most recently served as assistant director for engineering at the National Science Foundation where he headed the Directorate for Engineering from 2013 to 2016.



Scott Paul is President of the Alliance for American Manufacturing (AAM), a partnership established in 2007 by some of America's leading manufacturers and the United Steelworkers union. Scott and AAM have worked to make American manufacturing and "Made in America" top-of-mind concerns for voters and our national leaders through effective advocacy and data-driven research. Scott has hosted more than 80 "Keep It Made in America" events, including a presidential candidates' forum on manufacturing, and has testified before seven committees of the House and Senate. Scott is also a co-author of the 2013 book *ReMaking America*. Scott earned a B.A. in Foreign Service and International Politics from Penn State and an M.A. with honors in Security Studies from Georgetown University's School of Foreign Service.



Tim Shinbara is the Vice President of Manufacturing Technology at AMT. His academic and industrial background focused on applied information technology in manufacturing. Most of the projects he has worked on are targeted toward developing technologies in support of more cost-effective, capable, or efficient manufacturing.

Shinbara has a B.S. in Computer Technology and an M.S. in Mechanical Engineering Technology from Purdue University, and an MBA specializing in Finance from Pepperdine University, George L. Graziadio School of Business and Management.



K. Scott Smith is a professor of mechanical engineering at UNC Charlotte, where he is also the deputy director of the Center for Precision Metrology. He previously served as the associate director of the Machine Tool Research Center at the University of Florida. Smith is a Fellow of CIRP (the International Academy for Production Engineering). He is the president of the North American Manufacturing Research Institute of SME (NAMRI/SME) and a previous recipient of SME's Outstanding Young Manufacturing Engineer Award. His career in manufacturing research and education spans more than 20 years. He currently holds two patents, and is the author or coauthor of more than 100 technical papers.

Welcome, Dean, Susan, Pramod, Scott P., Tim, and Scott S.!

M Foresight Staff News

New staff

Three new staff members have joined M Foresight since June, Natasha Arnold, Justin Talbot-Zorn, and Al Woodliff. Read below to learn more about Natasha, Justin, and Al and how they are helping M Foresight.



Natasha Arnold is the Project Manager for M Foresight. Prior to joining M Foresight in August 2016, Natasha was a Project Manager and Executive Assistant Senior in the Office of the Executive Vice President for Medical Affairs at the University of Michigan. She has over 10 years of experience managing a variety of projects and processes and she has a Bachelor of Arts from Oral Roberts University. Natasha helps keep M Foresight running smoothly by coordinating events, assisting with financial transactions, coordinating meetings, and helping with a variety of other projects.

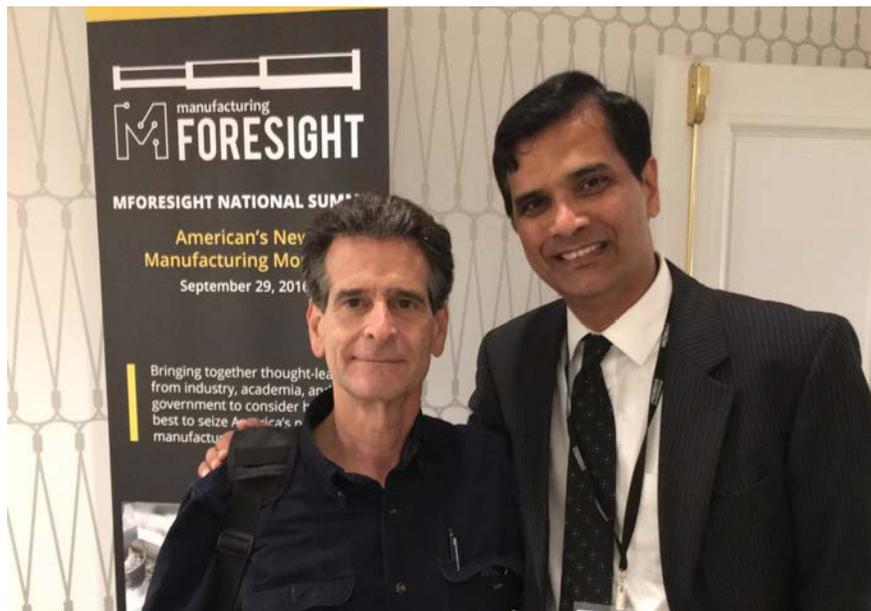


Justin Talbot-Zorn is M Foresight’s Senior Adviser for Policy and Communications. He has served as Legislative Director to three Members of Congress, as founder of a humanitarian nonprofit, and as an op-ed contributor to publications including *The Washington Post*, *Time*, *Harvard Business Review*, *The Guardian*, *The Atlantic*, *Foreign Policy*, and *CNN.com*. A former Fulbright Scholar and current Truman National Security Fellow, Justin holds graduate degrees in public policy and international relations from Oxford University and Harvard University’s Kennedy School of Government. Justin is helping M Foresight share insights and reports through written communication, and build brand awareness among federal decision-makers and the public.



Al Woodliff is the Director of Industry Relations for M Foresight. Prior to joining M Foresight, Al retired from the Tauber Institute for Global Operations at the University of Michigan where he was Adjunct Professor and Industry Co-Director. Al has 33 years of automotive and two years of aerospace corporate experience in a variety of industrial leadership roles. He has a PhD in Mechanical Engineering from the University of Michigan and an MBA from the Ross School of Business at the University of Michigan. Al is helping M Foresight increase outreach to small and medium enterprises, and generally help build awareness of M Foresight within the manufacturing community.

Welcome, Natasha, Justin, and Al!



Sridhar Kota (R) with keynote speaker, Dean Kamen at the Summit.

Staff Transitions



Larry Molnar, founding associate director of MForesight, is transitioning off of the MForesight lead team. He and his team at the Institute for Research on Labor, Employment, and the Economy (IRLEE) have been chosen to lead yet another major project with the Department of Defense to help communities in Michigan, Indiana, and Ohio diversify and attract new businesses. Larry will be leading this important effort and as a result, is leaving the MForesight team. Thank you, Larry, for your expertise and guidance in getting MForesight up and running, and congratulations to you and IRLEE as you embark on this important new work! [Read more about IRLEE's new project...](#)

Open Position: Managing Director

MForesight is reposting the position for Managing Director. We are looking forward to receiving applications from highly qualified individuals! If you know someone who would be a good fit for managing MForesight's day to day activities and reaching out to the broader manufacturing community, [download and share the position description \(PDF\)](#). If you have any questions about the position, please contact us at info@mforesight.org.

Short Description of Position: The primary mission of MForesight is to forecast emerging technologies that strengthen U.S. manufacturing competitiveness, and provide insights to public and private sector stakeholders on opportunities and challenges in advanced manufacturing. To achieve MForesight's goals, the Managing Director (MD) will work with the Executive Director to (i) engage with the broader manufacturing community; (ii) build and maintain ongoing relationships with the Leadership Council and Executive Committee, and (iii) represent MForesight to external stakeholders including senior government officials, potential collaborators, and industry leaders. The MD will also ensure that high quality events and workshops are successfully executed and that the goals of the events are met. The MD is responsible for maintaining the day-to-day work of the MForesight team, which consists of 3 FTEs and several part-time employees and consultants. Location: Ann Arbor, MI.



Photos from the M Foresight National Summit. *Gamechanger: Making Revolution*: Mark Hatch; *Forecasting Future Innovation Panel*: Justin Talbot-Zorn, Tom Kalil, Mike Molnar, Sridhar Kota, Bruce Kramer, Mike Russo; *Keynote*: Dean Kamen; *Closing Remarks*: Norm Augustine; *Education & Workforce Panel*: Sheila Boyington, Wes Hall, Ryan Miller, Toni Neary, Jeff Krause, Kent Suiters, Jim Woodell, Maria Flynn, Tim Franklin, Adele Ratcliff

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