

**TESTIMONY ON
THE ROLE OF MANUFACTURING HUBS IN A
21ST CENTURY INNOVATION ECONOMY**

**UNITED STATES SENATE
COMMITTEE ON COMMERCE, SCIENCE, AND
TRANSPORTATION**

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Thank you Chairman Rockefeller and Ranking Member Thune. And thank you to the Committee Members and staff for inviting me to testify today on the use of manufacturing hubs to foster innovation.

But before I present my testimony, I'd like to take a minute to tell you about myself and my background.

I am the president and CEO of M-7 Technologies, a small manufacturing, engineering, and applied research company in Youngstown Ohio. We currently have 35 employees. We service the manufacturing sector of the United States. I am third generation in a family business that began in 1918. We are a founding member of The National Additive Manufacturing Innovation Institute, America Makes and currently hold a seat on their Governance Board.

Even though manufacturing is in my blood, it was not my first choice when deciding on a career. I had other ideas. Shortly after graduating from Michigan State, I accepted a job working on the trading floor of The New York Stock Exchange. About two years in to my dream job, I received some bad news. Back in Ohio, my father been admitted to the hospital and was critically ill. Long story short, I left my firm in New York, and returned home to help my parents re-build their manufacturing business. That was in 1985.

Since then, I have grown to love manufacturing and the challenges it presents, especially when technology is introduced in the manufacturing process. And, I have realized that a career in manufacturing can be more rewarding than one on Wall Street.

So, as a result, my wife and I decided to build a technology driven manufacturing business, leveraged with a skilled workforce, to create a sustainable business model. This decision has since led me to interact with several universities and leading research institutions. We have partnered with businesses in both the Middle East and Western Europe. We anticipate additional partnerships with firms in South East

Asia to be finalized in Q 1 of 2014 as we begin the commercialization of the technology we have recently developed.

Through this process, I have been exposed to both domestic and international models for innovation. The differences are very intriguing but become disturbing when studied closely. Typically, in the United States, basic research is funded by a several sources, primarily government organizations. Then, a resource problem develops when entrepreneurs attempt to commercialize their technology. The commercialization process can be very expensive and time consuming. Investors are not willing make the necessary investments without assurance that their investment will yield a return, but the entrepreneur has yet to receive an order for his technology. So, tremendous amounts of technology never make it to market. This is why they call it “the valley of death”. This does not happen in other countries, our global competitors. Other countries have established manufacturing hubs to address this issue. One typical example is the Fraunhofer Institute in Germany.

The National Additive Manufacturing Innovation Institute, America Makes is the pilot project of the proposed National Network of Manufacturing Institutes, the United States’ answer to other countries manufacturing hubs. M-7 is a lead member of America Makes and pays annual dues of \$50,000. Although this may sound expensive, but, if M-7 were to duplicate the capabilities and equipment available at America Makes, it would have to invest sustainably more to have similar assets in house. This neutralizes the resource issue and makes the valley of death less intimidating. It allows us to focus on the real issues of creating commercially viable applications of our technology. Those commercially viable applications create jobs and provide a tax base.

In addition to member benefits such as these, the accomplishments of America Makes in the last 14 months are nothing short of remarkable. These include:

- The creation of a National Roadmap for additive manufacturing technology development
- Organized and active participation in the ASTM International Standards Development Committee F-42 which will insure consistent and rapid commercial adaption of the technology as it develops
- The establishment of a national repository for all additive manufacturing technology and information through the creation of a Digital Estate
- The development of a curriculum platform to transition the current and future workforce to 21st century skill sets. This effort was underscored with yesterday's announcement of Maker Bot donating 5,000 3-D Printers to school systems across the country. This donation was facilitated by America Makes.
- Funding and management of six projects with total value of close to \$10.0 million with anticipated initial commercial value of \$200 million, a 20 to 1 return on investment, and over 700 jobs created or retained.
- And, planned private investment of approximately \$350 million for the creation of a SmartPark to facilitate the natural progression of America Makes members with a customer focused, commercially driven, proximity based co-development environment for Additive Manufacturing applications.

None of these accomplishments would be possible without the creation of The National Additive Manufacturing Innovation Institute, America Makes, the pilot project of The National Network for Manufacturing. Our answer to others manufacturing hubs.

Thank you very much.