

White House Paves Way for New Textile Frontier

By KRISTI ELLIS and ARTHUR FRIEDMAN

The Obama administration isn't only poised to develop cutting-edge textiles and apparel for U.S. soldiers, firefighters and first-responders — it's also paving the way for the future of the beleaguered apparel and textile manufacturing industry.

The U.S. Department of Defense and Massachusetts Institute for Technology on Friday unveiled details of the administration's sweeping \$315 million public-private project aimed at keeping the country at the forefront of fiber and textiles innovation — on the battlefield and on main street. As reported, the administration first revealed the initiative in March 2015.

MIT President L. Rafael Reif declared the "dawn of a fabric revolution" as officials from across industries and the government joined to outline the objectives of the new "Revolutionary Fibers and Textiles Manufacturing Innovation Institute" at MIT's Sloan School of Management in Cambridge.

The institute will be composed of a consortium of 89 manufacturers, universities and nonprofits organized by MIT and DOD. Its primary goal is to innovate and create what could potentially become a new industry of advanced and highly functional fibers and textile manufacturing for military and commercial applications.

MIT Professor Yoel Fink will lead the institute as executive director and chief executive officer.

Under the banner Advanced Functional Fabrics of America, or AAFOA, the consortium is comprised of firms from several industries and fields, including fashion groups VF Corp., New Balance and Nike and textile manufacturers Milliken & Co., Buhler Quality Yarns and Inman Mills. The project also encompasses 52 companies and 32 universities, colleges and other schools, including the Fashion Institute of Technology.

In the New York region, FIT is partnering with Manufacture New York to launch and host skills-based training and registered apprenticeship programs across the fashion textile manufacturing supply chain, including AAFOA technical project participants and drawing from FIT and other local and national public educational institutions.

Manufacture New York chief executive officer Bob Bland will serve as the deputy director of Apprenticeships and Internships and will establish a regional training hub for New York.

"We believe the AAFOA Manufacturing Innovation Institute will effectively bridge the current supply chain gap between technology enablers and commercial products in smart fabrics," Bland said. "It will be instrumental in bringing technologies to market by fostering innovation in manufacturing and advanced engineering."

Joyce Brown, president of FIT, said, "We are committed to using our expertise in the areas of textiles from the design process through production, and look forward to supporting AAFOA and Manufacture NY in this innovative."

FIT has 14 state-of-the-art labs in various disciplines, including textiles. The school will also provide human resources support, training and education.

At least 30 apprenticeships and internships will be offered annually and the goal is for graduates of the program to enter the local workforce. Ultimately, programs piloted through AAFOA will be implemented nationally through the institute's inclusive network of partners.

Manufacture New York will offer access to shared pattern tables, digital patternmaking, automated cutting, screen printing, digital textile printing, full fashion knitting and sewing production equipment for sampling, development and production of approved AAFOA projects.

Founded in 2012, MNY is based in Liberty View Industrial Plaza in Sunset Park, Brooklyn, with a 160,000 square-foot manufacturing innovation hub. It houses a diverse range of fashion designers, manufacturers and technologists.

At the MIT launch, Defense Secretary Ashton Carter said, "This is a pioneering field combining fibers and yarns with flexible integrated circuits, LEDs, solar cells, electronic sensors and other capabilities to create fabric and clothes that can see, hear, sense communicate, store energy, regulate temperature, monitor health, change colors and much more."

Carter said the new institute will "ensure that the innovations needed to develop, manufacture and commercialize these cutting-edge materials will happen right here in America."

"With a range of innovators involved in technical textiles here in New England and the greater Northeast, including companies like Bose, New Balance and Dupont, this institute will be headquartered at MIT and it will be strengthened by a robust number of research partners and manufacturers across the country," he added. "The commercial applications of technical textiles will be just as transformative if not more so given the drive towards wearables and the Internet of Things. For example, running shoes as lightweight as socks will be able to sense the impact of every step so athletes can better understand their physiological condition."

The global market for smart clothing is expected to grow to \$600 million by 2020 from \$17.2 million in 2013, according to research from Tractica LLC.

The broad initiative is an attempt to lay the foundation for the next wave of advanced manufacturing and one that is centered around an industry — textiles and apparel — that has been hit hard by job losses over the past two decades, but has also seen a small resurgence in the past few years.

Auggie Tantillo, executive director of the National Council of Textile Organizations, said the current stability in U.S. textile and apparel employment is a "significant achievement."

"If you want to go back to the late 1990s through 2009 and 2010, you would see we were shedding 10,000 jobs a month and about 100,000 jobs a year," Tantillo said. "The fact that things have stabilized should not be understated."

U.S. textile exports increased nearly 40 percent to \$17.6 billion in 2015 from \$12.6 billion in 2009, according to Commerce data.

Average annual employment has increased 0.6 percent, by 1,500 employees, from 2013 to 2015. In January, employment in U.S. textile manufacturing reached 234,800, representing an increase of 1,000 in the workforce compared with a year earlier and marking the highest total since June 2012, when it stood at 235,000. But in March, textile manufacturing employment fell slightly to 232,300 and apparel manufacturing employment fell to 133,600.

Capital investment within the industry totaled \$2 billion in 2014, an increase of 50 percent since 2009, according to NCTO. Tantillo said the DOD's new project will "help fund the next generation of fiber and fabrics that will be lighter, stronger and more heat and water resistant."

"The benefit we get out of this is that we can now use that fiber or fabric in a commercial context," Tantillo said. "It carries back into our core business where we now have better, higher quality, more technologically advanced fabrics that allow people to do things to a greater degree with greater functionality, and greater and improved characteristics. We obviously want to help the military produce the next generation of textile materials, apparel and textile-based equipment. But it will have a carry-over effect for us to produce better fabrics for the marketplace that hopefully will allow us not only to hold onto and grow market share but also to expand into areas where we are using textiles to replace aluminum or even steel."

The government purchases about \$2 billion in textiles and apparel for military applications from the industry, he said.

David Sasso, vice president of sales for Buhler Quality Yarns said the overall concept to "stimulate the industry and put together supply chains with the idea of creating new textiles in the U.S. is great."

He said Buhler has assets and traditional textile equipment that process a lot of fibers that hopefully can partake in in this initiative.

"So our interest is what fibers can we process through our mills efficiently," Sasso said. "Maybe they can create synthetic fibers that dye like cotton, while using less energy, less water and less people. A lot of times innovation doesn't create jobs because of the automation it creates. I think you're starting out with high-tech applications that will find their way into apparel in some form."

"Maybe it does offer a way to expand the industry through technology," Sasso added. "Manufacturing needs this type of government support, collaborating with academia and industry."

Nike said it was pursuing a number of "material innovation opportunities to redefine the future of what fabric can be, all in service of the athlete," adding "cross-industry collaborations such as the AAFOA are essential to help us achieve breakthrough innovations even faster."

Stephen Lamar, executive vice president of the American Apparel & Footwear Association, said, "The hub will bridge a research gap to unite different parts of the supply chain — fiber, yarn, fabric, and garments. It will catalyze the next generation of textile technologies to support U.S. manufacturing for military and commercial applications."



Manufacture New York's exhibit at Premiere Vision New York.

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