THE FABRIC REVOLUTION

FROM FIBER DEVICES TO FABRIC SYSTEMS

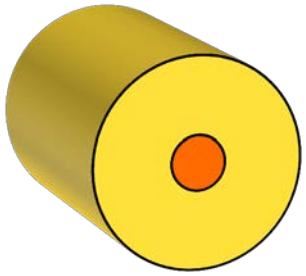
MOORE'S LAW FOR FIBERS - Fibers that have the functionality of semiconductor devices yet are produced at fiber lengths, uniformity and cost.

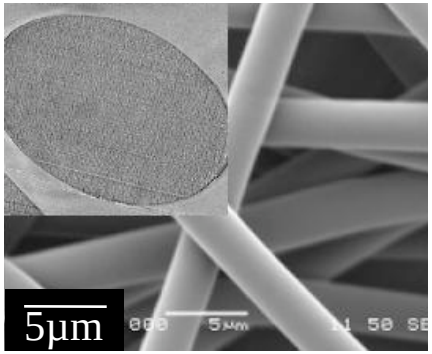
FABRICS AS A SERVICE - Fabrics that see, hear, sense, communicate, store and convert energy, regulate temperature, monitor health and change color.

$340M

Preform-to-fiber processing: a pathway to functional fibers

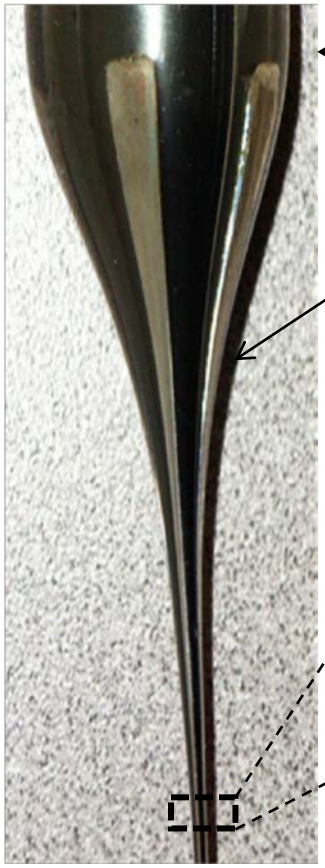
Conventional fibers





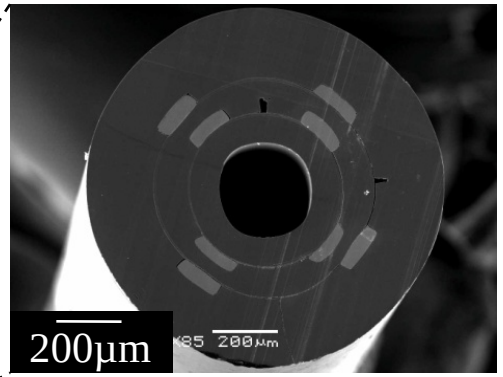
Single material
Simple geometry

Materials | **Architecture** | **Length scale**



← Manufacturing on the preform level

Heat and draw down



Sorin et al, Nano Letters **9**, 7 (2009)

→ extended lengths of functional fiber

A National Movement

Membership Accrual

100 SIGNED AGREEMENTS

Startup/NPO (39)

AFMA
American Boronite
APJet
ATACAMA
Ben Franklin Tech Partners
Biotectix
Biowear
Blue Export Group
Bonbouton
Brooklyn Fashion + Design Accelerator
Brrr!
Chameleon International
Electroninks
Elizabeth Whelan Design
Empatica
FabNewport
Factory 404
Force Fibers
FullScaleNano
Glocal Network
Loomia
Ministry of Supply
Nanocomp Technologies
Nashville Fashion Alliance
NCTO
Parent Technology Group
Principled Design
Protect the Force
Rebel
Reserved Studio
SEAMS Association
Solielle Design Studio
TexDel
Textile Instruments
Uwila Warrior
Veil Intimates
Vorbeck
WETESO
WiseWear

Industry (15)

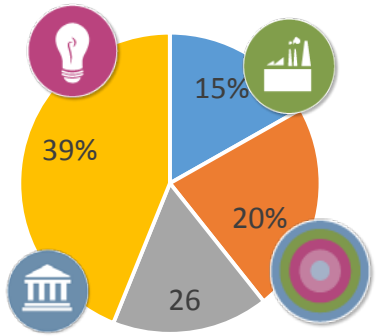
ADS
Analog Devices
Cintas
Corning
DuPont
Highland Industries
Lear
Lubrizol Advanced Materials
New Balance Athletics
Nike
PVH
Saint-Gobain
Steelcase/DesignTex
VFC
Sumitomo Chemical

FIN (20)

American & Efird
Apex Mills
Auburn Manufacturing
Bluewater Defense
DSM Dyneema
Flextronics
Haartz
Hills
Inman Mills
International Textile Group
Intradeco Apparel
Lakeland Industries
Milliken & Company
Otex Specialty Narrow Fabrics
RTI International
Saab Barracuda
Sage Automotive
Tencate Protective Fabrics
Triton Systems
Warwick Mills

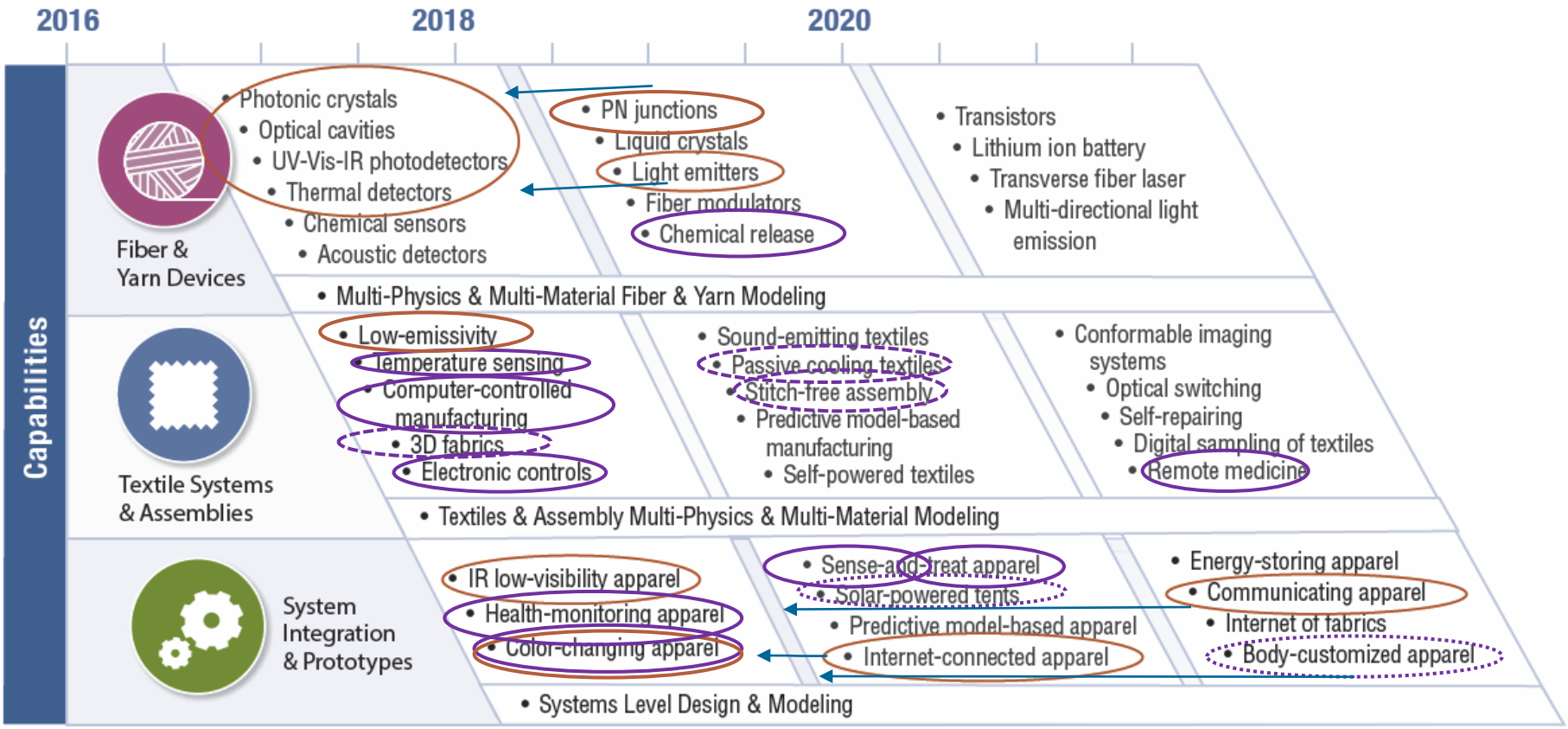
Academic (26)

Carnegie Mellon
Clemson University
Drexel University
FIT
Indiana University Bloomington
Iowa State University
MassMEP
MIT
Manufacturing Solutions Center
NC State University
Ohio State University
Pennsylvania State University
Philadelphia University
RISD
TCC at Gaston
Thomas Jefferson University
University of Georgia
UMass Amherst
UMass Dartmouth
UMass Lowell
University of Central Florida
University of Kentucky
University of Maine
University of Minnesota
University of Texas at Austin
Virginia Tech



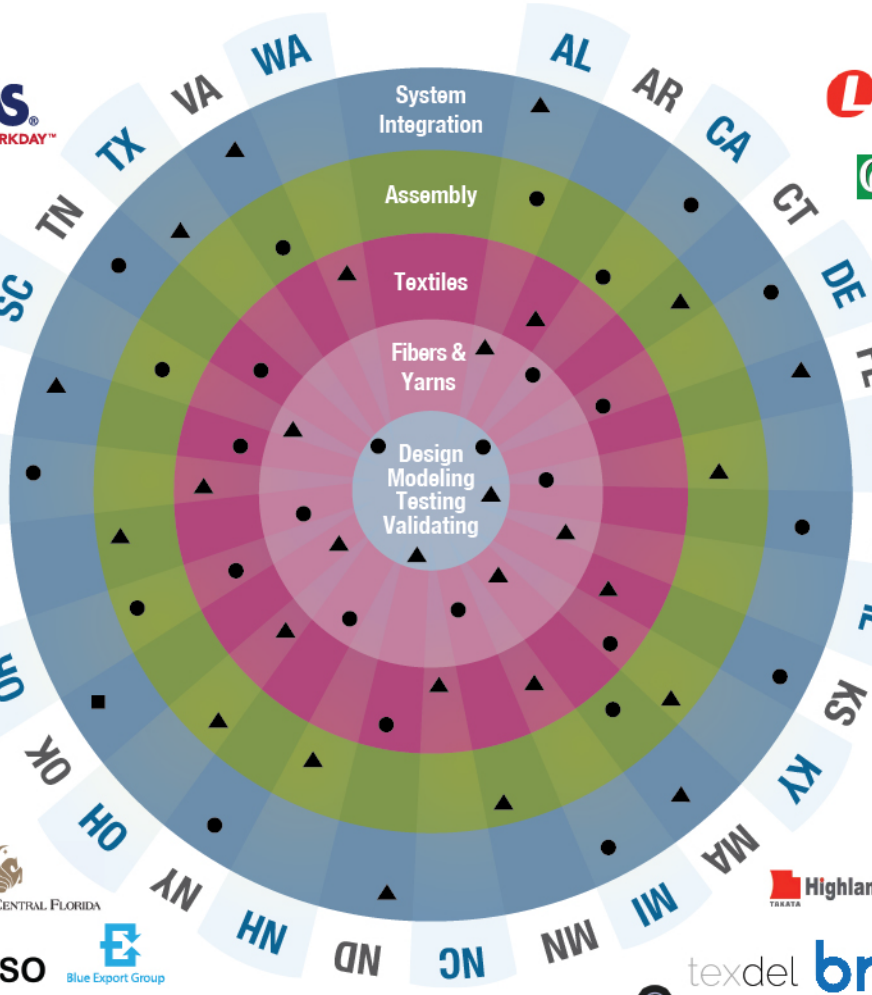
AFFOA Roadmap 1.0

Current Core Demonstrators & Project Call



- Structural health monitoring geotextiles
- Color changing infrastructure
- Chemical release apparel
- Treatment apparel

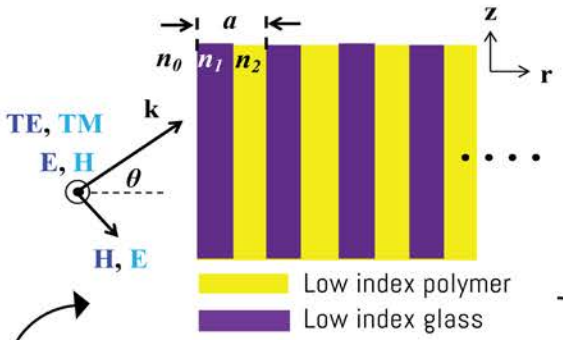
FIN Fabric Innovation Network

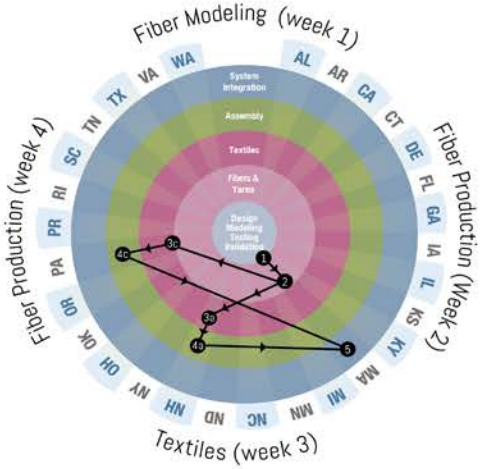


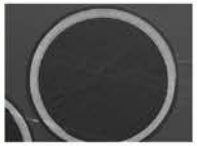
KEY ● Prototype Facilities ▲ Pilot Facilities

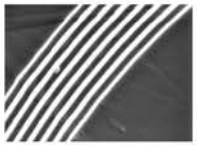
Confidential & Proprietary

CAD to Product Prototype in 4 Weeks









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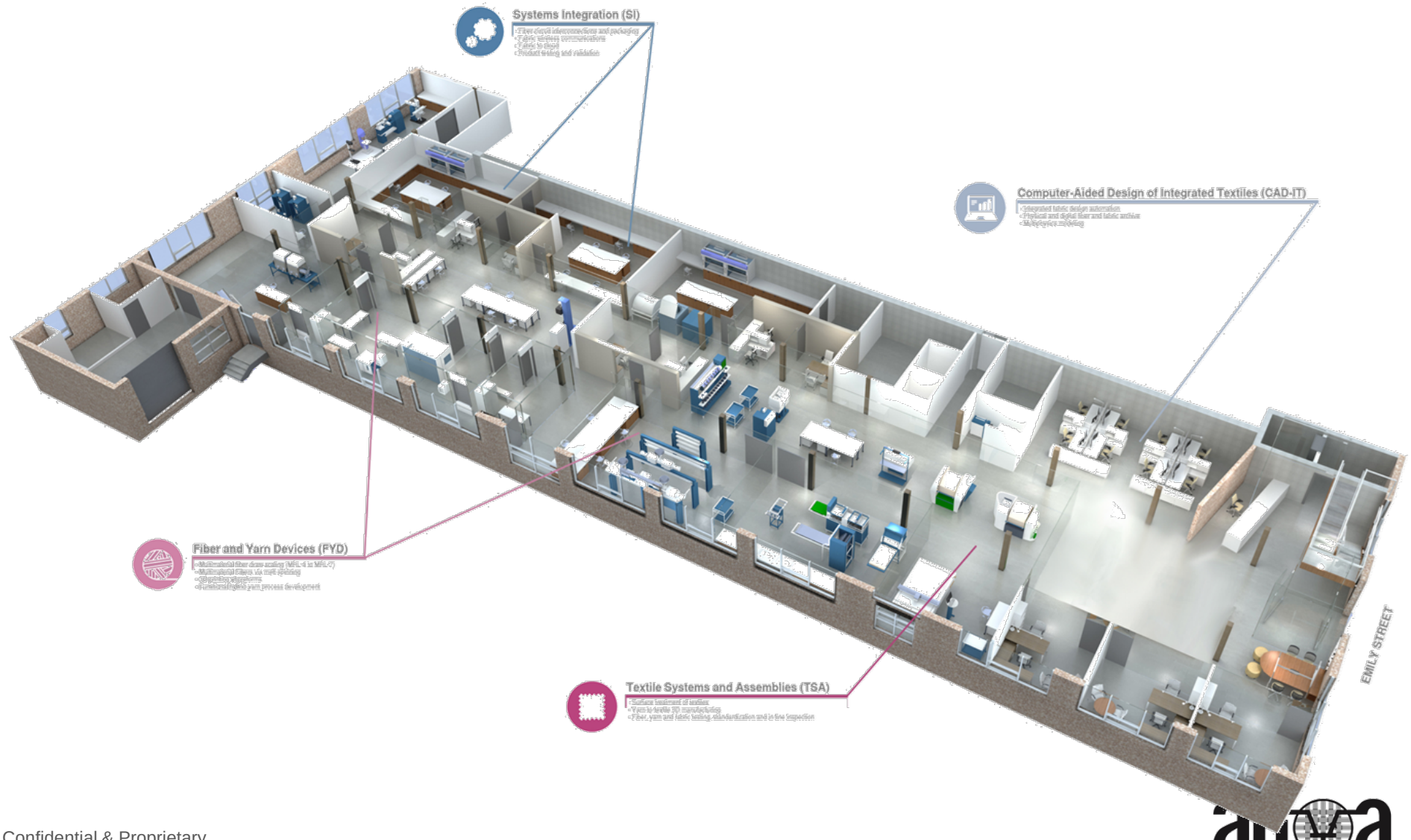
HQ Fabric Discovery Center (FDC)

Technology, Product, Manufacturing, and Education

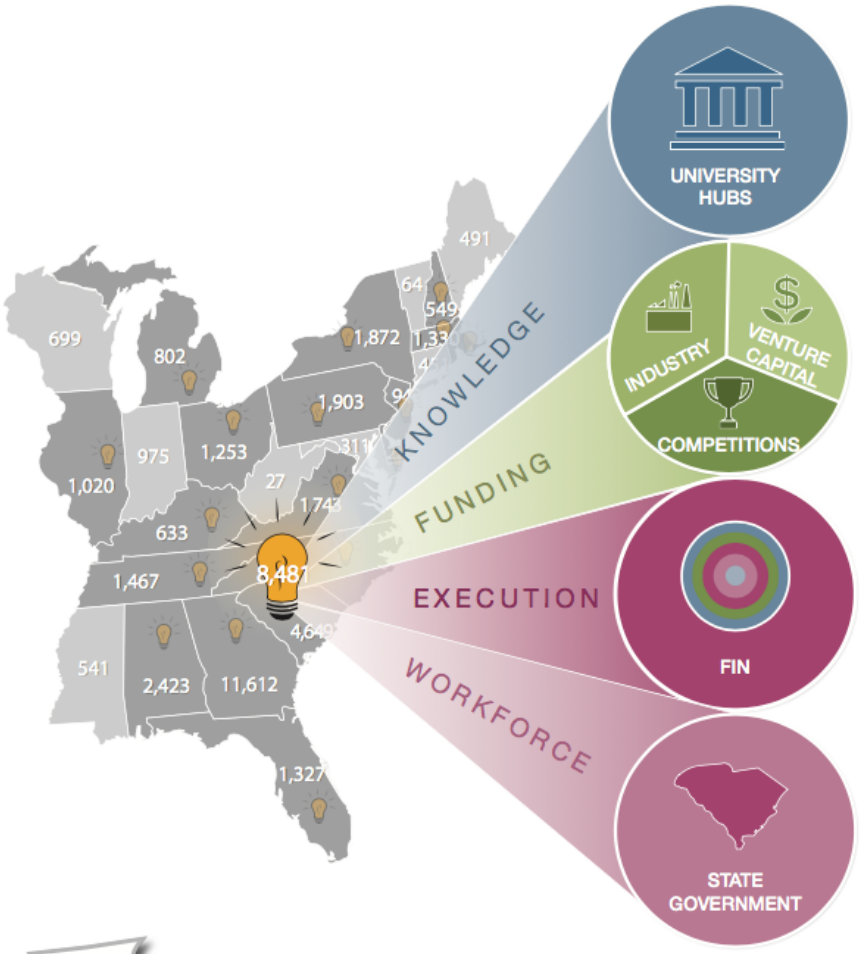


fabrics the new software

AFFOA lowers the barrier to innovation in the advanced functional fabric space enabling startups to thrive. AFFOA unlocks fabric product innovation in the same way that "app stores" unleashed business model innovation based on software.

AFFOA is building a national network of fabric discovery centers that colocate prototyping with incubator space and educational and workforce activities.

AFFOA combines IP, knowledge and manpower from universities, consumer insights and funding from industry, rapid prototyping through FIN and resources from public and private sectors to accelerate product innovation across the country.



UMASS LOWELL

DREXEL UNIVERSITY Center for Functional Fabrics

MANUFACTURING SOLUTIONS CENTER
NC STATE UNIVERSITY

UNIVERSITY OF GEORGIA

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AFFOA “firsts”

- Moore’s Law for Fibers
- Fabric as a service
- Product focused
- Compact and distinguished board
- Small-business startup oriented
- Proprietary ‘product’ projects
- “One-stop” University IP licensing
- 2 page member agreement – NDA free
- IP-based “made in US” strategy
- Roundtable membership - no more ‘Tiers’
- Do-Learn-Teach member engagement
- Fabric Discovery Centers