The Three Rs of the Great American Outdoors: Recreation, Revenue, and Re-thinking Where Textile Trailblazers and Technological Innovation Move the Industry Forward

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This presentation has five critical components for digestion and reflection. They are:

1. OTEXA’s role in the textile, apparel, and footwear industries, including advanced textiles and smart fabrics, and the services we offer to assist and promote U.S. small and medium-sized manufacturers with domestic and international sales.

2. The greater economic impact of the outdoor recreation industry. How does the recreation industry ripple through the economy to create jobs, increase manufacturing, distribution, company branding and spark innovation?

3. The industry advancements and innovations that must be taken into consideration for your company’s growth and future stability.

4. Lifestyle trends are creating demand for high-tech performance driven apparel, equipment and gear.

5. The responsibility by both industry and recreation enthusiasts to leave the smallest carbon footprint while aggressively pushing for renewables and recyclables.
OTEXA has over 30 years of experience facilitating exports for small and medium-sized companies:

- Export counseling & assistance
- Market research
- Emphasis on niche markets (e.g., technical, advance textile materials for industrial & military end-uses), higher-end producers & suppliers, and FTA partnerships
- U.S. Pavilions at established trade shows overseas
- Cost-efficient catalog/sample booths at overseas trade shows
- Trade missions
- Match-making

http://otexa.trade.gov
“Made in the U.S.A.” Database

- Search by Supplier, Manufacturer, or Service Provider

http://otexa.trade.gov/MadeInUSA
The United State: A Global Leader

- A strong and diverse textile industry producing a range of high-quality products.

An important economic sector in terms of output and investment with a highly productive workforce:
- Output of $71 billion in 2014;
- Expended upwards of almost $2 billion on structures, plant and equipment in 2013; and
- 372,300 employees in 2014, 3% of the total manufacturing workforce

- Fourth largest single country exporter of textiles, with $13.9 billion in exports in 2013\(^1\).

- Largest single country importer of apparel, with imports of $91.0 billion in 2013, 19% of total global imports\(^2\).

\(^1\)Following China, India and Germany. Source: *Time Series on International Trade*, WTO.

\(^2\)Source: *Time Series on International Trade*, WTO
• Studies show that “small manufacturers lag behind larger competitors when it comes to adapting to new technology and business practices, negatively affecting productivity and competitiveness.”
• “The federal government is now working on facilitating public-private partnerships to help small manufacturers compete.”
• The Department of Defense has recently launched a competition for leading manufacturers, universities, and non-profits to form a new manufacturing hub focused on revolutionary fibers and textiles technologies.
• The Revolutionary Fibers and Textiles Manufacturing Innovation Institute (RFT-MII) provides $75 million in public investment, then matched by more than $75 million of private investment in researching, prototyping, and commercializing fibers with “extraordinary properties.”
• The RFT-MII will ensure that America remains at the leading edge of fiber science.
Resurgence in the US Textiles Industry
New Textiles Investment in the Last 18 Months

Capital Investment

New Employment

Source: NC State College of Textiles, Dean Hinks Presentation on Textiles
U.S. Textiles Industry Revival

- US textile shipments > $56 billion
- US exports to 199 countries: > $18 billion
  - Up to 45% from 2009

Source: NC State College of Textiles  Dean Hinks Presentation on Textiles, 2014 Data

Image courtesy of: indolinkenglish.wordpress.com
Image courtesy of: www.textileturc.com
Top 10 Export Markets For All Textiles And Apparel

Ranked by Calendar Year 2014 Value ($Millions)

<table>
<thead>
<tr>
<th>Country</th>
<th>2013</th>
<th>2014</th>
<th>% change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mexico</td>
<td>5,749</td>
<td>6,208</td>
<td>8.0%</td>
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<tr>
<td>Canada</td>
<td>5,471</td>
<td>5,527</td>
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<td>Honduras</td>
<td>1,401</td>
<td>1,538</td>
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<td>China</td>
<td>1,391</td>
<td>1,262</td>
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<tr>
<td>Japan</td>
<td>732</td>
<td>653</td>
<td>-10.8%</td>
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<tr>
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<td>624</td>
<td>647</td>
<td>3.7%</td>
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<tr>
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<tr>
<td>Germany</td>
<td>397</td>
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<tr>
<td>World</td>
<td>23,666</td>
<td>24,353</td>
<td>2.9%</td>
</tr>
</tbody>
</table>

Source: Export Market Report, OTEXA

US exports to NAFTA and CAFTA-DR countries represent over 60% of the total.
U.S Total Exports: Top Ten Markets for Total Apparel

1. Canada
2. Mexico
3. United Kingdom
4. Japan
5. Sub-Saharan Africa
6. El Salvador
7. Honduras
8. United Arab Emirates
9. Australia
10. Chile

Source: http://otexa.trade.gov/scripts/tqexp_ads_grp.exe/grpdata
Top 10 US Export Markets for Jogging and Athletic Suits

1. Mexico
2. Japan
3. UK *Year End growth percent change= +292.37%
4. Canada
5. Italy
6. Venezuela
7. South Korea
8. France
9. Colombia
10. Ecuador

Source: http://otexa.trade.gov/exports/grp55.htm, April 2015
The U.S. and China

- China’s outdoor market reached RMB18 billion (USD 2.9 billion) in 2013, up 24.3% from the previous year.

- China is estimated to replace Europe to become the world’s second largest market for outdoor products in the next 8-10 years.

- eCommerce is growing to be a major selling platform for outdoor products in China in the next 5-7 years.

Sources: U.S Commercial Service, U.S Department of Commerce, Xinhua News Agency
The emergence of the middle class in China has given way to a new generation of leisure and adventure travelers. This trend is driving strong demand for high quality outdoor lifestyle products made and designed in the United States. Second-tier cities are the new battleground among consumer brands looking to establish a long-term presence in China. Chengdu is the most important commercial center in Western China, with a market reach of 200 million consumers and is the distribution center for southwest China. Geographic features and the city’s location make it a hub for outdoor sports in southwest China. The first and only designated National Park is in the Chengdu area.

Source: U.S Commercial Service, U.S Department of Commerce

Source: [http://www.tripadvisor.com/Location](http://www.tripadvisor.com/Location)

Did You Know That…

- When Outdoor Recreation ripples through the economy, it has a $1.6 trillion impact and is responsible for approximately 12 million American jobs?
- The Outdoor Recreation Industry is responsible for $646 billion in consumer spending?
- Approximately 35 million people visit national wildlife refuges annually?
- Stand Up Paddle Boarding has become the fastest growing outdoor sport in the U.S.A. and the creator of the inflatable board is here at Outdoor Retailer?
- The number of wearable technology brands exhibiting at ORSM has increased nearly 60% in the last four years?
- Did you know that the Seattle area is the nation’s largest consumer of sunglasses?

In 2013, nearly half, 49.2%, of all Americans participated in outdoor recreation, with a net gain of 700,000 outdoor participants.


Image courtesy of: adaptiveadventures.ca
Outdoor Recreation and Employment

- Outdoor Recreation employs more Americans than any of the following:
  - Finance and Insurance
  - Construction
  - Transportation and Warehousing
  - Education
  - Information
  - Oil and Gas
  - Real Estate, Rentals, and Leasing

- “More American jobs depend on trail sports (768,000) than there are lawyers (728,200) in the U.S.”

Image courtesy of: thinkingoutloudblogz.wordpress.com

Image courtesy of: industry.traveloregon.com

Outdoor Industry Association, Outdoor Recreation Economy Report 2012, outdoorindustry.org
Economic Benefits

• 6.1 million American jobs
• $646 billion in outdoor recreation spending each year

  – This amount is the third largest segment of annual consumer spending, coming in just after outpatient health care ($767 billion) and financial services and insurance ($780 billion)
  – $120.7 billion in outdoor recreation product sales
  – $524.8 billion in trips and travel-related spending

• $39.9 billion in federal tax revenue
• $39.7 billion in state/local tax revenue

Outdoor Industry Association, Outdoor Recreation Economy Report 2012, outdoorindustry.org
The impact of outdoor recreation reaches far beyond the outdoor industry, directly fueling major traditional American economic sectors such as:

- Manufacturing
- Accommodation and Food Services
- Retail Trade
- Arts, Entertainment, and Recreation
- Wholesale Trade
- Finance and Insurance
- Real Estate, Rental, and Leasing, Transportation and Warehousing
- Professional, Scientific, and Technical Services
- Information
- Other
Economic Impact

- “The outdoor recreation economy grew approximately 5% annually between 2005 and 2011 – this during an economic recession when many sectors contracted”
- “More than 725 million visits to state parks provided a collective $20 billion economic benefit to communities surrounding state parks nationwide”
- “Recreation visits to Department of Interior managed lands result in over 316,000 jobs and nearly $25 billion in economic impacts each year to the communities and regions surrounding Interior-managed land”
- “Nearly 35 million people visit national wildlife refuges annually, supporting almost 27,000 private sector jobs and producing about $543 million in employment income”
- “Rural western countries with more than 30% of their land under federal protection increased jobs at a rate four times faster than rural countries with no federally protected lands”
- “Americans spend more on bicycling gear and trips ($81 Billion) than they do on airplane tickets and fees ($51 Billion)”

Outdoor Industry Association, Outdoor Recreation Economy Report 2012, outdoorindustry.org
“Our parks are economic engines for local communities”
-Sally Jewell, Secretary of the Interior

- In 2014, the National Park System received over 292 million recreation visits
- Visitors spent $15.7 billion in the surrounding communities
- This contribution to the national economy was 277,000 jobs and $10.3 billion in labor income

Source: NPS Staff, NPS: National Park System Is An Economic Engine, And Valuable Carbon Dioxide Sink, 22 April 2015
"Pendleton Woolen Mills' Glacier Stripe National Park Blanket and the creation of the National Park Service, both in 1916, is a story that is uniquely and authentically American. Pendleton is proud to be a contributor to the National Park Foundation for two landmark projects that will help to restore and rebuild significant historic architecture; in Glacier National Park, the Many Glacier Steps, and in Grand Canyon National Park, the Grand Canyon Train Depot."

Source: Bob Christnacht, Pendleton VP Worldwide Manager of Sales
Utah was the first to pass legislation for a State Office for Outdoor Recreation, followed only by Washington and Colorado.

The department works to bring both product and service companies to the Outdoor Industry to Utah.

The department works with locals to build the necessary infrastructure for both tourism and to make Utah a great place to live for citizens, companies, and employees.

General unemployment is now below 3.5% in the state, and for the high-tech industry it is below 0.5%.

Source: Brad Petersen, Director of Utah’s Office of Outdoor Recreation, bradp@utah.gov, telephone interview 7 July 2015
Utah’s Success

- $12.0 billion in consumer spending in 2013
- $7.5 billion in tourism
- $2 billion in revenue from outdoor related businesses
- 122,000 direct Utah jobs
- $3.6 billion in wages and salaries
- $856 million in state and local revenue
- At least 82% of Utah residents participate in outdoor recreation each year
- The Outdoor Retailer summer and winter trade shows draw more than 46,000 people annually to Salt Lake City, generating more than $40 million annually for the local community

Sources: Outdoor Industry Association; Brad Petersen, Utah Office of Outdoor Recreation, bradp@utah.gov, telephone interview, 7 July 2015
Top Outdoor Sports in Utah

1. Biking, Mountain Biking

2. Fishing
   - Considered a gateway activity to get people outside

3. Hiking
   - Utah is home to over 10,000 miles of trails

4. Water Sports

Source: Brad Petersen, Director of Utah’s Office of Outdoor Recreation, bradp@utah.gov, telephone interview 7 July 2015

Image courtesy of: www.destination360.com
Recreational Fishing

- If sportfishing were a corporation, the amount spent by anglers to support fishing-related retail sales would rank it 51 on the Fortune 500™ list.

- According to the U.S. Fish and Wildlife Service's 2011 National Survey of Fishing, Hunting and Wildlife-Associated Recreational, more than 40 million licensed anglers generate over $46 billion in retail sales with a $115 billion impact on the nation’s economy creating employment for more than 828,000 people.

- Since 2006, angler numbers grew 11%.

“Sportfishing in America”, American Sportfishing Association, January 2013
Portland, Oregon

“The City of Portland targets the outdoor industry as part of its five-year economic growth and job creation strategy. The athletic and outdoor industry in Oregon directly employs more than 14,000 workers”

In Oregon, outdoor recreation generates…

- $12.8 billion in consumer spending
- 141,000 direct Oregon jobs
- $4.0 billion in wages and salaries
- $955 million in state and local tax revenue

Additionally, Portland is home to the U.S. Headquarters of both Nike and Adidas

Image courtesy of: www.oregon-rivers-adventures.com
Washington State

• Washington State has placed a current emphasis on electronics and wearables and is one of the biggest hubs for the development of wearable monitoring equipment and technology.

• The Washington State Department of Commerce will soon have a program director specifically for outdoor recreation, fashion and apparel.

• Washington State University’s Department of Apparel, Merchandising, Design and Textiles is unique in the state and feeds into Washington’s fashion and apparel niche.

• Washington State has an over $8.3 billion fashion and apparel industry, and is home to brands such as Eddie Bauer, Nordstrom, Tommy Bahama, and Filson.

• Seattle’s apparel market supplies over 45,000 jobs and $13 billion in revenue.

Source: Economic Development Council of Seattle and King County, phone interview 14 July 2015.
“We’re expecting high growth in the area of wearables, such as smart watches and fitness bands. Because of our strong IT and outdoor recreation sectors, we’re poised to lead the nation in these products.”

-Stephen Gerritson, Vice President, Economic Development Council of Seattle and King County, 14 July 2015
Most Popular Outdoor Activities by Participation Rate

1. Running, Jogging and Trail Running
2. Road Biking, Mountain Biking, BMX
3. Freshwater, Saltwater and Fly Fishing
4. Car, Backyard, Backpacking and RV Camping
5. Hiking
Most Popular Outdoor Activities by Frequency of Participation

1. Running, Jogging and Trail Running
2. Road, Mountain and BMX Biking
3. Birdwatching/Wildlife Viewing
4. Freshwater, Saltwater and Fly Fishing
5. Car, Backyard, Backpacking and RV Camping
Top Outdoor Activities for Growth

Greatest 3-year positive change:
1. Adventure Racing up 38%
2. Non-Traditional/Off-Road Triathlon up 34%
3. Stand Up Paddling up 31%
4. Kayak Fishing up 20%
5. Traditional/Road Triathlon up 19%

Greatest 1-year positive change:
1. Stand Up Paddling up 38%
2. Downhill Telemarking up 26%
3. Boardsailing/Windsurfing up 18%
4. Snowshoeing up 16%
5. Kayak Fishing up 15%

Rock Climbing Growth

• A Growing Industry
  • 9% annual growth rate in the U.S.
  • There has been a 15% growth increase over the last year
  • 310 commercial climbing gyms are now open in the U.S.
  • U.S. GDP average growth of 4.1%

Get In The Bubble!

- Bubble soccer is, for the most part, exactly what it sounds like: full-contact soccer where each player wears a plastic bubble from thigh to head approximately five feet in diameter. The bubble itself is a souped-up version of those inflatable sumo wrestling costumes, although your hands remain inside the bubble at all times.
- Bubble soccer isn't all fun and games, though. It's a workout! The bubbles themselves are deceptively heavy, sometimes as much as 30 pounds, and because the bubble extends beyond the thighs, players have to shuffle along the field!

Source: Aaron Gordon, “GET IN THE BUBBLE IF YOU WANT TO LIVE: BUBBLE SOCCER’S IMPOSSIBLE RISE”, 11 March 2015
According to the IBIS World research group, with the sports participation rate on the rise since 2010, more consumers have required athletic apparel, footwear and other sporting goods for their fitness regimens.

Sporting Goods Stores take in approximately $50 billion in revenue a year and employ roughly 255,046 people.

Industry value added, which measures the industry's contribution to the overall economy, is expected to grow at an annualized rate of 1.8% during the 10 years to 2020.

Bruce Wright, AIA, of Just Wright Communications notes that there is a “rapid adoption of mobile technologies in almost every field of endeavor, most noticeably in retail. [Pop-up stores where concepts can be tested and refined.]”

Source: Bruce N Wright, AIA, of Just Wright Communications, Techtextil North America Presentation, June 2015
Triathlon Gear

• Competitive triathletes require a lot of gear, including but not limited to:
  – Wetsuits
  – Bicycles
  – Cycling Shoes
  – Running Shoes
  – Race Apparel
  – Helmets
Innovation in Triathlon Gear

Wetsuits

The Maverick Pro wetsuit from Rokasports.com is able to help increase distance per stroke. Thick neoprene in the lower half makes that happen—an attribute super kickers may not appreciate. A snug fit in the chest and no-chafe, ultra-secure neck Velcro keep water out.

Innovation in Triathlon Gear - cont.

Bicycles

- Composites expert David Morse and Ironman pro T.J Tollakson teamed up to modernize the traditional beam bike
- Dimond has revived an old bike design that can significantly reduce drag
- Riding the Dimond is solid and stable, in stark contrast to older bikes and still responds to steering input from the hips and moves as predictably as a typical tri bike

Source: Aaron Hersh, Beam Me Up: A Look At The Dimond Tri Bike, triathlon.competitor.com, 23 Dec. 2014
Innovation in Triathlon Gear - cont.

Cycling Shoes

The Specialized Trivent Expert by Specialized.com has a carbon composite outsole that reflects heat from the road while the tongue-less upper keeps air flowing. The shoe fits true to size and has slightly above average volume throughout the toe box. This shoe feels efficient and supportive thanks to the longitudinal arch support, which aligns your foot in a biomechanically correct position to transfer power to the pedals.

The Lake TX222 from Lakecycling.com puts the tester’s foot in an optimal position to transfer power to the pedals, and the ultra-rigid carbon sole ensures none of that power is lost. The mesh over the toe box and on the tongue makes this shoe breathable while the padded heel cup cradles the back of the foot to prevent slippage on your upstroke. An antimicrobial liner is a nice bonus, especially if you do most of your training sockless.

The sleek, form-flattering compression top from 2XU.com features 2XU’s Ice X technology, designed to draw heat from the body while blocking infrared rays to keep you cool. For women and can be worn with any favorite bra. Two rear pockets hold a few gels, while the top is long enough to nix funky back burns. A thick, drawstring-free waistband on the shorts is comfortable and fuss-free, while deep side pockets hold extra fuel. The soft chamois is best suited to sprint through half-iron-distance events.

GEL RUNS DEEP

• Most running sneakers are going through a low-foam phase or a fat-foam phase, but now one new model is going through a gel phase. The designers of the new ASICS Gel Quantum 360 chose gel to fill 22 pockets lining the bottom because the dense substance absorbs and diffuses shock better than foam.

• Some pockets are denser than others so you get support and control only where you need it.

• The all-new GEL-Quantum 360™ is revolutionizing running footwear by equipping itself with 360 degrees of GEL-Cushioning - our most GEL ever! As if an extreme amount of the most intense shock absorption around weren't enough, an asymmetrical FluidFit upper and full-length Trusstic System creates the ultimate symbiotic relationship between form and function.

Source: [http://www.asicsamerica.com](http://www.asicsamerica.com), “get fit news”, SHAPE.COM, July/August 2015
Adventure Racing

- The sport of Adventure Racing is sweeping the nation at a phenomenal rate!
- Adventure Racing is one of the few sports where just completing a race is often considered a victory.
- A driving factor in Adventure racing is the emphasis that is placed on teamwork, rather than individual achievement.
- Adventure races can vary anywhere from 2-5 person teams, with some events now offering solo categories.
- Adventure Racing offers an easy crossover for cyclist, runners and water sport enthusiasts just to mention a few. The disciplines can vary from race to race.

Adventure Racing Apparel and Gear

While equipment and apparel lists vary by race, a sample wardrobe is as follows:

- long sleeve cool max shirt, or biking jersey
- nylon running shorts
- polypro running tights
- wool or synthetic socks
- lightweight fleece w/ pitzips
- breathable, water proof jacket w/ pitzips
- breathable, waterproof pants
- fleece hat and gloves
- biking shorts, for the bike sections

The Salomon Exo Zip Tech Tee S-Lab has been designed specifically for multisport racing and is the most technical multisport shirt ever built.

From the outside the XA Series V Short looks like a long running short. On the inside is a connected support and compression short. The inside thigh and crotch area is made from a single layer of stretch fabric.

Ideal for adventure racing, running, trekking, paddling and even biking.

• Eddyline Kayaks, family owned and proudly handcrafted by American workers, has manufactured thermoformed Carbonlite 2000 Technology, a high performance co-extruded plastic laminate that is proprietary to the company.

• It is first made into a two layer flat sheet with a “muscle” substrate and a hard abrasion and UV resistant exterior. Then, using very high temperatures and vacuum, the company forms each sheet into the deck or hull of a kayak.

• The material looks and performs like fiberglass with clear advantages over other plastics: dimensional stability and increased stiffness, higher heat distortion temperatures, hard glossy “non fuzzing” finishes with excellent abrasion and impact resistance, easy repairability, superior UV resistance and lighter weights.

• Carbonlite 2000 is 100% recyclable.

Source: http://www.eddyline.com/technology-innovation/
Kayaking Apparel

- What you should wear depends on the paddling environment and the likelihood of taking an unexpected swim!
  - When the air and water are warm, simply dress for a day at the beach
  - If taking a dip is at all probable, dress for the water. Remember, whitewater means cold water, and whitewater means you should plan for a swim!
  - Layer, Layer, Layer! The base layer provides insulation and picks up perspiration and either absorbs it (like cotton or wool) or wicks it outward (like synthetic fibers). You want moisture to be wicked away. The insulating layer can be wool, fleece, or a similar material
  - Footwear can range from old sneakers with wool socks, to river sandals, to neoprene wet suit booties, to “wellies”, to dedicated paddling shoes
  - **Remember the 100 degree rule**: If the combined air and water temperature is 100 degrees or less, use caution and wear a wet or dry suit!

Source: Canoekayakmag, “What to Wear Kayaking and Canoeing” 11 November 2013

In the works is a modern tent that converts solar energy into electrical energy for your gadgets, used by a bag of wireless charging.

This “Miracle tent” also has an integrated GPS technology which is very useful in situations where campers lose their tents, it’s called Glo-cation technology. You can send a text message to the tent and tell it “glow more” so it is always visible and easy to find.

It also has a control panel that indicates the amount of energy produced and the amount consumed. The great feature of this tent is that it is a heater that starts to work after the temperature inside the tent under a previously established level. This invention brings camping to a new level, which seems to be the future of this “natural” activity.

Stand Up Paddle Boarding

- Stand up paddle boarding has been one of the fastest growing sports since 2010 and is growing faster than ever.
- The U.S. continues to play a major role in furthering the sport’s growth in popularity, mostly due to the volume of people and their accessibility to it.
- Most of the innovation for the industry takes place in the U.S., as it offers the largest target markets for producers.
- Paul Cherry of SUPIA noted that part of the beauty is that not much is needed to get started, but as people take longer trips on their boards, a new market has blossomed for stand up paddle boarding to improve the experience.

Source: Paul Cherry- VestPac, SUPIA Secretary
New Stand Up Paddle Board Gear

- This new market includes products such as waterproof cell phone cases, board leashes, and hydration packs, such as VestPac’s Wilson Pack
- VestPac, with a small factory in Wyoming, creates and tests new products for the stand up paddle board industry
- With multiple international distributors, they are committed to exporting

Source: Paul Cherry- VestPac, SUPIA Secretary
Stand Up Paddle Boarding

- Paddle boards are offered as both composites and inflatables
- Inflatables are growing at a faster rate as they are more practical for stowing and transport, but composite boards are still preferred for competitive racing
- There is still a higher percentage of composites in the U.S. than in Europe for recreational use as space is less critical

Source: Paul Cherry- VestPac, SUPIA Secretary

Stand Up Paddle Boards

Innovation in Bounce Stand Up Paddle Boards

- **Thermal Composite Technology**

  - Increases impact resistance by replacing the epoxy resin typically infused into the woven fiberglass with thermoplastic resin
  - Stiff and strong, so the ride feels just like an epoxy board
  - Foam is injected into the hollow single-piece fiberglass skin and mechanically locks to the interior surface

- **Hollow Thermal Construction Technology**

  - This new step in the Bounce technology evolution uses the same durable skin found in TCT boards, but sandwiches it and leaves the core hollow, making for a lighter board.
  - Bounce H-TCT boards are initially formed in a single hollow shape, which results in a board with lapped fiberglass seams and greatly diminished potential for leaks (versus tradition technologies)
  - The flex provided by Bounce technology means that a H-TCT board can deflect more impact than a solid S.U.P.
  - The added flexibility means a H-TCT board can handle temperature and internal pressure changes much better than a traditional hollow board. It flexes!
  - The added buoyancy of the H-TCT board means that the same shape rides higher in the water and can hold more weight than traditional hollow boards

Source: http://bouncesup.com/about_bounce_durable
ULI Stand Up Paddle Board

Father of the Inflatable Stand Up Paddle Board

- ULI, a San-Diego based company, created the first-ever inflatable stand-up paddle board
- After being in the surf and boogie board industry since 2001, Weir’s company began making inflatable stand up paddle boards in 2006, utilizing Kevlar and increasing the stiffness of the boards by 47%
- ULI plans for the future to develop a more eco-friendly board using new fibers and coatings
- ULI boards are
  1. Exclusive
  2. Hand-Crafted
  3. 100% Made in the U.S.A
- Boards can be found at http://www.uliboards.com/

Source: Jim Weir, ULI, telephone interview 1 July 2015
The Stand Up Paddle Industry Association (SUPIA) is the new trade organization for all stand up paddle board businesses with a mission to serve the standup paddle board industry for the betterment of the sport and the community as a whole.

- Over 260 businesses have already joined in this new organization.

Kristin Thomas, SUPIA’s Executive Director, is proud to call the stand up paddle board the most versatile watercraft in the world, overlapping in many areas including travel, recreation, surf, yoga, and fitness.

- The inflatable board is also one of the most transportable pieces of sports equipment as many fit into a checked bag for airlines as well as in trunks of cars.

- The stand up paddle board includes various elements seen in boating, surfing, kayaking, and other fitness arenas such as yoga.

- Stand up paddle boards are sold almost everywhere nowadays to include pop-up stores.

- SUPIA can be found annually at both the Outdoor Retailer Summer Market and Surf Expo.

- For more information, contact SUPIA at www.supindustry.org or Kristin Thomas at info@SUPIndustry.org.

Image courtesy of http://www.supindustry.org/
• **$7 Billion** industry
• **$27 Billion** spent annually in the U.S. on yoga products
• **87%** increase on yoga product spending over the last 5 years
• **29%** increase in yoga participation from 2008 to 2012
• **20.4 Million** yoga participants in the United States in 2012
• **4.8% anticipated** average annual increase in industry revenue through 2017
• **2.8%** approximate annual growth
• **113,148** Americans employed in approximately **26,586** businesses

SmartMat For Yoga

• SmartMat is a yoga mat with built-in sensors that connect to your smart device (phone, tablet) to give you real time feedback on your Yoga practice. Offering adjustments on position, balance, alignment, and of course other important aspects of your practice, your SmartMat will be uniquely calibrated to your body so that it can provide you with customized feedback to help you achieve your optimum practice and find your “perfect pose.”

• SmartMat is the world's first intelligent Yoga mat, and during their recent crowdfunding campaign on Indiegogo they soared past their $110,000 goal in under 24 hours (hitting over $317,000 in pre-orders)

• The insides of SmartMat are a conductive grid placed over a piezoresistive layer. This is sandwiched seamlessly on top and bottom by a custom yoga mat material manufactured in an eco friendly manner that eliminates the toxic emissions often found in PVC manufacturing process. This process also ensures the durability of SmartMat, which is designed to be used in Daily practice for years

“Is your yoga routine getting a little stale? If you're looking for a new challenge, yoga on a stand up paddle board will reinvigorate you and push you to become an even better yogi than you thought possible -- all while enjoying the natural splendor of floating on water. And it's not just for the lucky few in tropical places like Hawaii. The S.U.P. yoga community is much larger than you'd expect, making it easier for you to find a convenient place to try it”, states the Huffington Post.

“When practicing yoga on a stand up paddle board, it allows you to tune into each posture. For example, in downward dog if you are putting more weight on one side, your board will lean more to one side. S.U.P. yoga increases core strength, range of motion, and balance. Those are three key components when doing yoga on water. Also, by bringing your practice to water, it allows you to be in nature, and enjoy all that nature has to offer while doing yoga” notes the namastesup website.
S.U.P. Yoga Boards

• Boga Yoga was one of the first boards to become popular on the market for stand up paddle yoga boards; their width and length made them perfect for stability
• Their yoga board is the only board designed and shaped with the leaders in the industry for the ultimate balance and stability you desire for fitness on water
• The BOGA Yoga board is different from other paddleboards for the following reasons:
  - Completely flat top deck to the edge of the rails
  - The aqua balance shaping on the underside
  - Wide square tail and nose, tracks really well
  - Beautifully designed pad is extra long (for those downward dog poses!) and is soft and comfortable on the feet, hands, and head!
  - Made with quick water wicking material. The yoga mat type pad is super soft yet has a great grip
  - Matte finish makes it’s surface area scratch resistant for classes/rental fleets that get a lot of use
  - Only 26-27lbs 1.5LB EPS Vacuum Bagged Bamboo + Epoxy Construction

Enhancing S.U.P. Yoga

• S.U.P. Yoga Anchors:
  – Vancouver company offers an anchor system that keeps boards stationary for classes
  – The SUP Yoga Anchor is a stylish designed bag that allows you to add weight to (rocks, sand etc.) when you arrive at your launch

• Indoor S.U.P. Yoga:
  - Studios and gyms across North America are offering indoor SUP classes that supply stationary boards as your base instead of mats
  - Kimberly Trefilek, a Surfset Fitness indoor-SUP teacher and owner of Moirai Health and Fitness in Chicago states that “by working on an unstable surface, you’re strengthening your core and all of the stabilization muscles that you don’t use as much in a regular yoga class”

The Impact of Composites On Sporting Gear

• Why use composites?
  – Superior strength-to-weight ratios
    • Leads to lower energy consumption, higher speeds, improved overall performance
  - Greater ability to define and address high stress/strain areas
  - Improved stiffness-to-weight ratios
  - Targeted and controlled flexibility
  - Improved conformability
  - Reduction of carbon footprint
  - Higher durability

“Although the effects of the 2008 global financial downturn are still felt in some sectors, the composites industry, in general, showed health, growth and a renewed focus on innovation”

“Composites are found in products used in 7 of the 10 most popular outdoor sports and recreational activities”

“In terms of composite materials consumption, some of the largest volume users of carbon fiber composites are the manufacturers of golf shafts, racquets, skis, snowboards, hockey sticks, fishing rods and bicycles”

Who Would Have Thought Of Saddling Up With Composites?

A CF/polyethylene terephthalate (PET, or thermoplastic polyester) PowerFilm has been used recently in the world’s first fully adjustable saddle tree, enabling the structure to be heated and reformed to adapt to changes in the horse’s body shape without disassembling the saddle.”

PowerFilm is being used in the award-winning Barnsby i-Tree saddle, which can be easily and repeatedly adjusted.

SOURCE: www.hay-net.co.uk and www.horsetalk.co.nz.
Skateboards

As of 2013, skateboarding is the third most popular outdoor activity among youth aged 6 to 24

- 58.8 average outings per skateboarder
- 1.2 million total outings

Image courtesy of: www.scooterandski.co.uk
Hydroflex Skateboards has become a leader in composite skateboard technology. The company has “a patented 3-D-Glassing Technology for building some of the strongest, most durable boards in the world used by top surfers including Josh Kerr, Brad Simpson and Clarissa Moore. Staying true to the history of surfing and skateboards, the company applied their high-tech surfboard manufacturing process to produce skateboards that are light, strong and waterproof.

3D-Glassing prevents the fiberglass layers from separating. In studies performed, Hydroflex has seen the new decks can withstand up to 600% more force in terms of delamination compared to standard lamination techniques.

More than 13,500,000 skateboarders will take to the streets in the U.S. this year.

David Russell Schilling, “Hydroflex Technology’s new Composite skateboards are bonded with Tech”, 2 October 2013
http://skateexpo.com/history.html
Technology Shaping Sports

• The hottest new tech devices won’t be stored in purses or pockets. They’ll be worn on our wrists, plugged into our ears and even embedded in our shoes, Mike Bell writes in his article, "How Wearable Technology Will Shape the Future of Sports”

• Combined with insights gained through data analysis on performance and quality of sleep, athletes can track everything from calories burned to sleep quality to improve their training, workouts and overall well-being

• “Wearable technology is creating a new playing field for innovation as lifestyles and sports brands team with tech companies to develop groundbreaking new products”

Source: USA Today, “How Wearable Technology Will Shape the Future of Sports” – Mike Bell, 20 March 2015
• “Innovations like this are one reason why Intel views wearable technology as the new frontier of computing”. The level of intimacy of wearable technology opens up a world of transformative experiences that is different from a smartphone. These devices enrich the athletic experience—can provide data that increase motivation; enhance training and ultimately improve performance.

• The trend of smart fabrics where sensors are embedded directly into the fabric vs. existing on external devices is another example of where fitness-oriented wearables are headed.

• Wearables offer a level of intimacy and personalization that cannot be matched by a smartphone.

Source: USA Today, “How Wearable Technology Will Shape the Future of Sports” – Mike Bell, 20 March 2015
The defining characteristic of smart fabrics is their ability to interact with their user or environment. According to smart textiles researcher Rebeccah Pailes-Friedman, this can include everything from the ability to transform themselves, conduct energy, communicate with other devices, and, in some cases, even grow.

On a very basic level, smart fabrics can be categorized according to whether or not sensors have been embedded into the textile. Sensor-embedded smart textiles are also referred to as “e-textiles,” and examples include textile electrodes that can be knit or woven directly into clothing to monitor heart rate and other vital signs.

According to Business Day at the NY Times, there is “an arms race to offer the newest, most high-tech garments as often as possible”, as active wear has become popular street wear. Some of the newest fabrics created by mainstream athletic companies include Kevlar, Lycra, and Luon. A major focus of textile innovation in this field is centered around “anti-odor” technology.

Sports and Fitness Applications: Applications for sports and fitness include clothing that can monitor biometrics such as heart activity zones, breathing rates, and muscle activity, as well as physicality including movement and gait. Also, researchers are currently developing headgear for concussion monitoring, which has major implications for both youth and professional sports. The advantages of using smart fabrics rather than smart watches, wristbands, or other types of wearable devices include more accurate biometric data, increased comfort, and the ability to integrate sensors into fashionable clothing and accessories.
• Forrester Research predicts that 2015 will be a breakout year for wearables as the technology becomes more appealing for consumers

• Another research firm, Tractica LLC, projects that the world market for smart clothing will grow from a base of $17.2 million in 2013 to approximately $600 million by 2020, an increase of nearly 3,400 percent

• This growth is likely to be driven by sporting goods manufacturers adopting smart clothing as a part of their product mix, though Tractica’s research indicates that it will probably remain a premium product for now and account for a very small percentage of the overall sports apparel market

The introduction of smart fabrics to the sporting goods arena has opened up tremendous possibilities ranging from increasing comfort and maximizing athletes’ ability to endure temperature extremes to improving their performance and monitoring and transmitting vital signs. We’ve only scratched the surface of what is possible. But as we continue to refine, improve and innovate smart fabrics, we also need to help consumers understand and embrace these garments. Consumer education will be as critical as engineering, design and manufacturing.”

Nancy L. Cassill  
Professor and Interim Department Head  
Textile and Apparel, Technology and Management  
NC State College of Textiles
“The number of portable/wearable technology brands exhibiting at Outdoor Retailer has increased nearly 60% in the last four years”

- Business, Outdoor Consumer

“Wearable Technology Social Media Listening Report Now Available”, 17 September 2014
Global Market

**Worldwide market size/growth rates smart fabrics**
(Consumption based on value; value in millions of USD)

*Annual growth rate is 18 percent per year*

**Source:** Jeff Rasmussen, IFAI Market Research Manager, November 2014
Growth Rate Projections

• An estimate from a study by the Consumer Electronics Association (CEA) states that the consumer electronics industry is projected to increase 3% in 2015, to reach a new high of $223.2 billion.

• This report also indicated that the revenue for new product categories, like health and fitness devices, and smart watches, are expected to more than double at a 108% increase.

• CEA president and CEO, Gary Shapiro said, “Consumer technology is all about continued innovation. In the blink of an eye, consumer demand has taken off for emerging categories such as wearables, unmanned aerial vehicles, and 4K Ultra HD – categories that were too small to track just three years ago.”

Garmin Swim Watch

- Garmin Swim detects your stroke type automatically
- A slim profile allows it to glide through the water
- Focus on your technique, not your lap count
- Garmin Swim tracks lengths, strokes, distance and more
- Easily log drills or start new sets when needed
- Wirelessly upload workouts to Garmin Connect™
- View time, pace, efficiency and more
- Share your workouts with friends or coaches

Fashion Goes High Tech – Ralph Lauren

- Biosensing silver fibers are woven directly into the core of the shirt
- Moisture-wicking compression fabric increases blood circulation and muscle recovery
- Tracks distance, calories burned, intensity of movement, heart rate, stress rate, and more all on your smartphone or tablet

Source: http://www.ralphlauren.com/shop/index.jsp?categoryId=46285296
“Incredible” Sports Bra

- Victoria’s Secret has released a new sports bra that has heart-rate sensors built in.

- The “Incredible by Victoria’s Secret Heart-Rate Monitor Compatible Sport Bra” includes sensors and technology from the Finnish fabric maker Clothing+.

- The sports bra has the same level of comfort and functionality as a typical one, but with new technology included.

Source: http://gearjunkie.com/victorias-secret-hrt-sports-bra
MAD Apparel Inc. is an investor-backed startup out of California that was founded in 2012 and is the manufacturer of ATHOS Gear.

ATHOS gear is designed for the fitness industry and its target consumers are athletes and individuals who want to monitor and personalize their workouts.
Connected Footwear

- Indian shoe company, Lechal, has created an athletic shoe that can track distance, calories, and pace.

- "The footwear uses Bluetooth capabilities to connect to the wearer’s smartphone. Using simple foot gestures or voice commands, they can be used as a navigation tool or to track activity, the shoes then respond with vibrations. The Lechal App also syncs with Google Maps to allow for route guidance."

Google’s Advanced Technology and Projects (ATAP) and Levi’s create partnership to produce “connected clothing” in an initiative titled “Project Jacquard”

Tara Donaldson noted, “In short, this project makes it possible for touch and gesture interactivity to be woven into any textile using standard industrial looms, which means clothing, or furniture, can be swiped and tapped like touchscreen surfaces to activate functions like silencing cell phones or sending text messages”

The yarn structures “combine thin, metallic alloys with natural or synthetic yarns like cotton, polyester and silk, which makes them strong enough to be woven on traditional industrial looms”

The way it works is that “touch and gesture data captured by the tiny technology gets wirelessly to smart phones and other devices and can connect the user to online services and features”

Due to the yarn’s similarity to traditional threads, designers would not have to alter existing designs or fabric choices to accommodate this new technology, Donaldson underscored

Tara Donaldson, “Google and Levi’s Partner to Turn Textiles Into Touchscreens”, 29 May 2015
“Millennial women are flocking to athleisure clothing-fashionable, dressed up sweats and exercise clothing- for their casual go-to clothing for both leisure and work. For millennials, jeans have dropped to a distant second for weekend wear”

-USA Today, Natalie DiBlasio
“Analysts at Barclays estimate the U.S. athletic apparel market will increase by nearly 50% to more than $100 billion at retail by 2020”, even if the apparel is not intended for the gym

For example, the “demand for yoga gear is outpacing growth of the sport itself”

Yoga participation grew 4.5% in 2013, according to the Sports & Fitness Industry Association, while sales of yoga apparel were up 45%, according to Matt Powell, an analyst for SportsOneSource

The trend isn't limited to yoga. Organizers of a trade show for traditional outdoor and camping retailers earlier this month debuted a new exhibit devoted to so-called urban wear for "millennials" who wear their boots and flannels with no intention of actually hiking.
Much of the technological innovations that Cotton Inc. currently targets are specifically aimed at reinventing cotton with performance attributes.

They focus primarily on knits as this category is the largest within the activewear market.

Some forward looking developments include the use of cotton to better regulate temperature, whether that is a warming or cooling effect, and moisture management that hides perspiration, which the company believes will fit nicely into the athleisure market.

Related to moisture management and water repellency, these technologies have been based on the use of PFC or fluorochemical products. Non-fluorochemical versions are currently being implemented as well.

Source: David Earley, Cotton Inc., cottoninc.com; dearley@cottoninc.com
A new video presentation from Cotton Inc. reveals that consumers are quite interested in the performance features of their activewear:

- 56% say they seek activewear with moisture management in addition to odor resistance
- 49% seek water repellency
- 45% seek thermal regulation
- 34% seek antimicrobials

Currently, while 49% of activewear at key U.S. retailers is marketed as having moisture management, stores offer just:

- 6% with odor resistance
- 5% with thermal regulation
- 2% with antimicrobials
- 1% with water repellency

Additionally, while synthetics still account for two-thirds of the activewear market, nine out of ten consumers say they would choose cotton if it offered these performance features.

Source: In Activewear, Breaking From the Pack With Cotton, Sourcing Journal Online
Engineered Cotton For Activewear

- **TransDRY®** technology for cotton is a patented, high-performance moisture management application that allows fabrics to wick and spread perspiration as well as, or better than, most high-tech synthetic fabrics. You get the comfort and softness of your favorite cotton t-shirt, along with wicking and fast-drying performance.

- **WICKING WINDOWS™** technology is a unique moisture management application for cotton that eliminates the feeling of wet, saturated fabric against the body. The technology forces the transfer of moisture away from the skin to the outside of the fabric where it can evaporate, keeping you drier and more comfortable during exercise.

- **Storm Cotton™** technology does not affect the natural ability of cotton fabrics to breathe and keep you cool. Although it repels liquids, the finish still allows moisture vapor to pass through the fabric where it can dissipate into the environment, naturally keeping you more comfortable.

- Since the STORM COTTON™ technology minimizes the amount of water the fabric will hold, garments dry much faster than untreated cotton, minimizing the amount of time and energy required for laundering.

Source: David Earley, Cotton Inc., cottoninc.com; dearley@cottoninc.com
PurThread: An Answer to Odor

- PurThread, based in Cary, NC, has developed new technology offering extremely powerful antimicrobial and odor fighting capabilities.
- Silver, long used as an antimicrobial agent and applied topically or as a coating, can now be seamlessly extruded into fiber/yarns using a novel technology.
- PurThread protection does not “wash off” and is available in different strengths, depending on the degree of antimicrobial activity required.
- Because this technology uses a silver-salt – and not metallic silver – it is not conductive, and thus does not interfere with other conductive fibers or sensors in smart textile fabrics or knits. Therefore, PurThread Technology cohabits all types of smart textiles and e-textiles easily.

Source: Jenifer Smyth, Senior Vice President, PurThread, www.purthread.com
Polartec’s Innovations

• **Polartec® Alpha®** creates an entirely new category of active insulation that dries faster, regulates temperature and enables breathability. This adaptable performance improves overall comfort and reduces the need to adjust, add or remove layers in changing conditions.

• **Polartec® NeoShell®** is a truly breathable, fully waterproof fabric that offers the best of both waterproof and air permeability fabrics.

• **Polartec® Power Wool™** is another step in the company’s continued pursuit to further the science of fabric by isolating and elevating the unique benefits of wool fibers and other materials.

Source: Oswald Palomo, Polartec

Image courtesy of: business.transworld.net
New Fabrics At ORSM ‘15

• **Fabriclink Network** alerted visitors and buyers at the ORSM ‘15 of the technical textile advancements that can be found at the show

• **Nilit® Innergy** converts our body’s naturally occurring thermo-energy into Far Infrared Rays (FIR) which reflects gentle heat back to the skin. Research has even shown that Nilit® Innergy helps stimulate the body

• **CoolVisions® dyeable polypropylene WoolVisions™ pp+wool** delivers enhanced performance, lightweight, moisture control and quick drying. **CoolVisions® UltraFill™** is ultra-warm, ultra-light, ultra-dry, sustainable. New **CoolVisions® FILAMENT** is luxurious, drapeable and DYEABLE

• **Outlast** Presents New High Performance Acrylic Fiber Outlast Technologies, market leader in phase change materials (PCM), launches a new generation of PCM acrylic fiber. A new production process allows this fiber to provide four times the performance and offers climate comfort for use in apparel. Using a non-encapsulated pPCM system, compared to the previous encapsulated mPCM, this new acrylic fiber has better color absorbency during the dyeing process

• **Schoeller®-naturetec-fabrics** with quality mulesing-free Merino wool are the core of our natural fiber fabrics. Available as a superlight summer soft-shell or in a heavy and highly abrasion-resistant version. These comfortable, bluesign® approved wool-based year-round textiles make an impact with natural functions such as breathability, moisture transport, temperature-regulation and heat-retention

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New Fabrics At ORSM ’15- cont.

- **Drirelease** yarns from Huayuan, are for products with direct contact to skin and meet the human-ecological requirements of Oeko-Tex standards

- **Teflon EcoElite™** finish is the first renewably sourced, non-fluorinated fabric treatment for durable water repellency, up to 3X more durable than existing non-fluorinated repellents

- **MFI International** is a North American manufacturer of soft goods for the performance apparel and work-wear industries. MFI's services and benefits include: • 1-3 week lead times for established lines • Private label and build to specs • Material Sourcing • Inspection, cutting, sewing and assembly • Packaging and fulfillment

- **CORDURA®** fabric will showcase brand adoptions with The North Face, and MountainSmith at ORSM. These brand collaborations showcase durable products without surrendering style. Whether you are climbing a mountain or shredding a half-pipe, CORDURA® fabrics are ready to rival the elements, no matter the journey

- **eVent** windproof laminates are just short of tornado proof. Fully windproof fabrics use air permeable **Direct Venting™** membrane technology to let the sweat out™—wind cannot pass through even at high speeds, but moisture vapor can escape. Northwave’s Arctic Jacket uses **DVstretch™** for cold season cycling. This stretchable, ePTFE laminate is ideal for sports where trapped body heat, fast descents, wind and weather can disrupt comfort

Patagonia Introduces “The World’s Most Advanced Baselayer”

- Eco-conscious outdoor retailer Patagonia has developed what it dubbed “The World’s Most Advanced Baselayer” made with responsibly sourced wool.
- Merino Air, as the innovative baselayer will be better known, offers warmth, greater breathability and better fit than other baselayers, and still has wool’s natural odor-fighting abilities.
- The wool for Patagonia’s new product was sourced straight from the grasslands of its namesake region using regenerative agricultural practices the company says actually reverse damage done to the environment (the practice involves managing sheep herds so their grazing activity helps build the soil, transport seeds and deepen plant roots).
- Wool for each garment is treated using an innovative air-jet process that creates yarn with greater loft and insulation value than that of the conventionally spun kind.
- Then, a computerized knitting machine knits the lofted wool plus 100 percent polyester yarns into a “seamless performance fit garment with minimal waste,” according to the company.
- “The result is a perfect blend of technical product with best in-class performance and sustainable sourcing,” Jenna Johnson, senior director of technical outdoor, explained.
- Merino Air top and bottom baselayers are available for men and women in Patagonia stores and online.

Under Armour Launches Latest Women’s Focused Campaign With New Armour Bra Collection

- Athletic apparel and footwear giant, Under Armour has launched its latest women’s-focused campaign centered around what the brand calls the most important piece of workout gear for women, with the launch of the all-new Armour Bra Collection.
- This campaign, which is the next installment of the I WILL WHAT I WANT campaign, featuring “UA Women of Will”, well-known female athletes.
- This campaign ad showcases these women and their comments on overcoming doubt and setbacks related to their womanhood, while also giving voice to what women want from their sports bras.
- “Woven into the UA Bra product launch is a deeper goal of connecting women at all levels of sport and at all stages of their lives, and changing the way they think about sports bras” – Adrienne Lofton, SVP brand marketing.
- The UA Bra is made with lightweight gel shoulder straps, a gel encased underwire, soft molded cups and a mesh back panel, in addition to moisture wicking fabric.

“Adidas created a world-first with a shoe upper made entirely of yarns and filaments reclaimed and recycled from ocean waste and illegal deep-sea gillnets”

As Adidas adapts the material, it may eventually start to include it in other products. "We don't have to limit ourselves," says Lietke, Adidas Group executive board member of global brands. "We can put this in T-shirts, we can put this in shorts, we can put this in all kinds of stuff.”

Adidas plans to use these fibers in their products by early 2016

http://www.fastcoexist.com/3048033/adidas-knit-these-sneakers-entirely-from-ocean-plastic-trash
Adidas partnered with Parley for Oceans, a group dedicated to collecting plastic from the oceans to complete the project.

“Our objective is to boost public awareness and to inspire new collaborations that can contribute to protect and preserve the oceans. We are extremely proud that Adidas is joining us in this mission and is putting its creative force behind this partnership to show that it is possible to turn ocean plastic into something cool.” –Cyrill Gutsch, an award-winning designer, brand and product developer

http://www.parley.tv/oceanplastic/#oceanplastic1
Ms. Mary Lynn Landgraf
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http://otexa.trade.gov
“Futurists say that 90% of what will be known 50 years from now has yet to be discovered.”

– Matthew Freedman, Defense Intelligence Agency

Source: ASD News – “Unprecedented Technology Poses Challenges for Special Ops” 28 January 2015