“INNOVATE!
HOW SUCCESSFUL MANUFACTURERS LEAD CHANGE IN DISRUPTIVE TIMES

NOVEMBER 2-3, 2016
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What is Innovation?

➢ The process of introducing new ideas, new technology, new workflows, new methodologies, new products, services and solutions to attain valuable results.

➢ Innovation is about the successful exploitation of new ideas...
IS THIS INNOVATION?

Autonomous *Ubers* hit the road in Pittsburgh

Uber sees real-world testing as critical to the Success of Autonomous Driving Technology.

Amazon.com, Inc.
Electronic commerce company

The **LARGEST** Internet-based Retailer in the world by total sales and market capitalization.

The **124-Year-Old Software Start-Up**

*Tesla Motors* **PROBABLY SHOULDN'T EXIST.** The last successful American car startup was founded 111 years ago.
IS THIS INNOVATION?

Apple
The heart of Apple is its power to Create Products everyone wants to have, including its competitors. We simplify, we perfect, we start over, until everything we touch enhances each life it touches. Only then do we sign our work: Designed by Apple.

eBay, Inc.
Since the company was founded in 1995, eBay Inc. has long led through Innovation. It reinvented the concept of auctions, applying technology to help facilitate commerce globally.

Google
Nurturing a culture that allows for Innovation is the key. As we’ve grown to over 26,000 employees in more than 60 offices, we’ve worked hard to maintain the Unique Spirit that characterized Google.

JOHN DEERE
“Innovation is at the core of what John Deere has stood for in its entire 176-year history”
“Our Customers depend on John Deere to develop Innovative Solutions that enhance their Productivity”
HOW ABOUT INNOVATION!
In The Textile & Sewn Products Industries?
Under Armour’s vision for the future of manufacturing – bringing products closer to where the brand’s products are sold – began taking shape with the opening of UA Lighthouse, the company’s New Manufacturing and Design Center in Port Covington, MD.
ADIDAS NEW USA MANUFACTURING PLANT...

“SPEEDFACTORY”

Cherokee County, Georgia
Exterior view of the Coleman Manufacturing Company, the first African American owned and operated textile mill, located in Concord, North Carolina, late nineteenth century. January 01, 1890

nchistorytoday.wordpress.com
NEW BALANCE, Boston, MA. **FIVE** Manufacturing Facilities in the USA; **FOUR** Million Pairs of Athletic Footwear per Year that Are Made in America

“**MADE IN AMERICA MATTERS**”

“Let’s challenge the Conventions of the Industry”  *Jim and Anne Davis*
Nike is yet again breaking new ground in sports footwear with the introduction of its new Nike Vapor Ultimate Cleat American football boot, which combines its proprietary flat knitted Flyknit technology and game-changing 3D printed carbon fiber sole plate technology for unprecedented lightweight speed and strength.
At Home in Neodesha, Kansas, we're Tirelessly Designing and Crafting the Most Innovative, Well Engineered, and Best Performing Boats Imaginable. We Seek Out the Appropriate Balance Between Hand Craftsmanship and Technological Advances that Will Deliver the Most Innovative, Well Appointed, Stylish and Best Built Boats.

cobaltboats.com
NANOTECHNOLOGY IN TEXTILES
SMART WEARABLE TECHNOLOGY

Wearable technology industry is worth US$24.2 billion in 2015 and will grow to Three Times that size in Ten Years – creating a market of $74 billion in 2025

Source: ID TechEd Research
Researchers at Georgia Tech have developed a fabric that can harvest energy from the sun and movement at the same time. The fabric can be woven into a variety of wearables, clothes, tents, curtains and other textile products. (Credit: Georgia Institute of Technology)
VISION SYSTEMS INTEGRATION INTO SEWING

VISION “DIRECTED” SEWING

The system is designed using the programmable PC Custom Camera and lighting to automatically Create a Stitch Pattern around irregular shaped objects like Patches, Labels, Appliques, Letters, Numbers, etc.
FACTORY AUTOMATION

Automated Machines and Devices Producing Products with Electronic, Interconnected Reporting of Production Output, Maintenance Issues and Efficiencies of Operation
THE INTERNET OF THINGS

ALL Things Internet-Connected...Devices and Machines Working Together to Optimize Production and Efficiency EVERYWHERE!
THE IMPORTANCE OF INDUSTRY 4.0 IN MANUFACTURING

Industry 4.0 has six key design principles:

• Interoperability - The ability of cyber-physical systems, humans and digital factories to connect and communicate via the Internet.

• Virtualization - Monitoring actual processes that take place in the physical factory to create virtual models or simulations.

• Decentralization - The ability of systems within digital factories to make decisions on their own, with no human intervention.

• Real-Time Capability - The gathering of data in each step of the process, including feedback and monitoring, in real time. This is in contrast to legacy systems that tend to “batch process” data, and produce reports that are hours or days old.

• Service Orientation - Offering cyber-physical systems services via an Internet of Services.

• Modularity - Adapting to changing circumstances and requirements.
AUTONOMOUS WORK CELLS

“Making Products with Little or No Human Intervention”
CARBON FIBER
SEWING
“THREE” Dimensional Sewing

3-D Sleeve Set

3-D Post Bed Sewing Station

3-D Shoe Sewing

3-D Dash Board Sew
INNOVATION BRINGS ...

DISRUPTIVE TECHNOLOGY

WHAT IS DISRUPTIVE TECHNOLOGY?
DISRUPTIVE TECHNOLOGY refers to any ENHANCED OR COMPLETELY NEW TECHNOLOGY that REPLACES AND DISRUPTS AN EXISTING TECHNOLOGY... RENDERING IT OBSOLETE....

IT IS DESIGNED TO Replace SIMILAR TECHNOLOGY THAT IS ALREADY IN USE.
Repetitive Motion Manufacturing is DISRUPTIVE TECHNOLOGY!

Auto Drapery Pleat

Robot Load-Sew Auto Interior

Robot Load-Sew Overlock Panel
Repetitive Motion is DISRUPTIVE!

Robot Towel Sew

Robot - Carbon Fiber

Robot Auto Head Rest

Dual Arm Robot Assembly
Automated Machines and Robots are DISRUPTIVE!

ROBOT - Ironing Board Covers

ROBOT - Auto Air Bag Operation

ROBOT - Auto Elastic Ring
Routine Jobs Performed by Robots are DISRUPTIVE!

Auto Air Bag Autonomous Cell

Auto Panel Sewing Robot

Tee Shirt Production

Auto Bra Pad Production
Sewbo, Inc. is pleased to announce that it has used an industrial robot to sew together a T-shirt, achieving the long sought goal of automation for garment production.

Jon Zornow ... Inventor
Robotic End Effectors are DISRUPTIVE

ExoHand-Human Machine Interaction

SynTouch Texture Discriminating Robotic Finger

Specialized Needle End Effectors

Robotic Human Hands
Flexible Automation is DISRUPTIVE!

ElectroAdhesion Pocket De-Stacking

Vision Guided Collar Assembly
Affordable Automation *is* DISRUPTIVE!

Universal Dual Arm Robot

Baxter Dual Arm Robot

Adept Autonomous Mobile Robots

Omron Adept Scara Robot
AUTOMATED Devices are DISRUPTIVE!

Auto Bobbin Checker

Auto Skip Catcher

Auto Bobbin Changer

Auto Bobbin Changer

Rotary hook type DB-100
Robots and Automated Machines are DISRUPTIVE!

- Autonomous Strap System
- X Y Theta Turning Head
- Auto Collar & Cuff Sewing Unit
- DAB Air Bag Robot
Automated Work Cells are DISRUPTIVE!

- Parachute Line Cord Automation
- Twin Head, Auto Velcro Loading, Medical Unit
- Webbing End, Turn and Tack
- Bottom Velcro Load with Name Tape on Top
Our Industry is Dynamically Evolving
Made in the USA/Apparel Reshoring...Hot Topic in the Apparel Industry These Days. Walmart’s American Manufacturing Commitment Is to Buy an Additional $250 Billion of Goods Made in America...
The USA is Cost Competitive Today

Source: Walmart/Boston Consulting
U. S. Manufacturing is on the Rebound, having Added More Than 730,000 Jobs Since the End of 2010, and Industry Analysts Expect the Sector to Create at least Another 700,000 Jobs by the End of the Decade, according to the Manufacturing Institute.
ATLANTA (AP) — Manufacturing and engineering company Honeywell announced that it will create a software development center in Atlanta... totaling about $19 million and requiring about 800 employees.
REEBOK IS BRINGING SOME SHOEMAKING BACK TO U.S.

New manufacturing process uses liquid material.

Reebok is bringing some manufacturing capabilities to the United States as the athletic-gear maker unveiled plans to open a new manufacturing lab that relies on futuristic liquid material and 3D drawing.
ABB Opens Advanced Manufacturing Facility in Mississippi

ABB has opened a new advanced manufacturing facility in Senatobia, Mississippi... for the U.S. market. The 85,000-square-foot facility will manufacture products previously made overseas. In the last ten years, ABB has invested $10 billion in the U.S.
“Getting into McLaren would give Apple engineering and carmaking competency at the pointy end,” said Ferdinand Dudenhoeffer, director of the Center for Automotive Research at the University of Duisburg-Essen. “This is about gaining research and development knowledge, not about buying a carmaker with mass-production capabilities.”
We Can Compete in America Today
INNOVATION? DISRUPTIVE TIMES?

...IN THE SEWN PRODUCTS INDUSTRY INVOLVES

Control, Synchronize and Support Machines & Robotics

Machine Automation

Robotic Automation
SUMMARY ... 

- **A CULTURE OF CONTINUOUS IMPROVEMENT**

- **BEING AT THE FOREFRONT OF OPERATIONAL EFFICIENCY AND TECHNOLOGY INNOVATION IS ESSENTIAL**

- **SUCCESSFULLY INCREASING PERFORMANCE TO MANAGE COST AND DRIVE SUSTAINABLE GROWTH AND DEVELOPMENT**
THANK YOU!
FOR YOUR ATTENTION