Sustainability Optimism: On Pace for a Healthier Fashion Industry

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Monday, March 4, 2019

Sustainability Perspectives Series

Wells College Center for Sustainability and the Environment
The Fashion Industry

- US market value: $385.7 billion
- Employs 1.8 million workers
- Mean income: $26,440 dyeing machine operators; $84,600 sales and marketing
- Americans spend 4% of their annual income on clothing and footwear
- Exports: $24.04 Billion
- Imports: $133.8 Billion
Clothing and Textile Exports
$22.9 billion (19% raw cotton)

fashionunited.com/global-fashion-industry-statistics/
Footwear and headwear
Exports $1.14 billion (27% leather footwear)

fashionunited.com/global-fashion-industry-statistics/
Clothing Imports $105 billion (13% sweaters, pullovers, sweatshirts)

fashionunited.com/global-fashion-industry-statistics/
Footwear Imports $28.8 billion (42% leather)

[Diagram showing the breakdown of footwear imports with percentages and categories, including:
- Footwear, with leather body (42%)
- Footwear, with textile body
- Other footwear of rubber or plastics (23%)
- Wigs
- Hats, knitted or crocheted
- Other headgear
- Umbrellas
- Parts of footwear]

fashionunited.com/global-fashion-industry-statistics/
SCOPE OF THE FASHION BUSINESS

THE LEVELS OF THE FASHION INDUSTRY

primary level  secondary level  retail level  consumers

- Farms/Laboratories
  - Fibers
  - Yarns
  - Greige Goods
  - Converters
  
  Sell To

- Designers
  - Manufacturers
  - Contractors
  - Wholesalers
  - Vendors
  
  Sell To

- Department Stores
  - Specialty Stores
  - Chain Stores
  - Mail Order/Catalogs
  - Boutiques
  - Discount Stores
  - Off-Price Stores
  - Factory Outlets
  
  Sell To

- Category Killers
  - Wholesale Clubs
  - Flea Markets
  - Mom & Pop Stores
  - Mass Merchants
  - Superstores
  - Internet

AUXILIARY LEVEL

- Buying/Merchandising/Product Development Offices
- Fashion Forecasters
- Specialists/Consultants
- Trade Associations

- Magazines
- Newspapers
- Advertising Agencies
- Research Agencies

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The Fashion Industry - Retail

- Largest Nike (Converse) $30.6 billion annual revenues and $105 billion market value
- 2nd TJX (TJ Maxx, HomeGoods, Marshalls) $26.7 billion annual revenues
- 3rd VF Corporation (Lee, Vans, The North Face, Timberland) $12.4 billion annual revenues
- 4th L Brands (Victoria’s Secret) $25.3 billion
- 5th Under Armour $4 billion
The Fashion Industry
Factors for Success

- Modern fashion industry members must consider new factors:
  - Severe Competition / Store Saturation
  - Sustainability
  - Global Industry
  - Rapidly Changing Consumer Expectations
  - Omni Channel Marketing
The Fashion Industry
Omnichannel Marketing
Consumer Driven Fashion Change

- Fashion trends change with the zeitgeist, dominating social groups, events, technology, consumer ideas and attitudes.

- Consumers:
  - frustrated by perceived lack of product choices
  - the heart of business decisions - do not recognize their purchasing power
Desires of Modern Consumers

- Business practice transparency
- Genuine, authentic brand values
- Sustainable practices
- Retail technology
- Personal goal assistance
- Competitively priced products
- Efficient services
- Provide an experience
- Sharing economy
- Personalized products and services
Fashion Sustainability

Barriers

- Political
- Industrial
- Consumer

- Result in non-sustainable practices
  - Economic
  - Equity
  - Environmental
Politics & Fashion

- Sensitive to policy change
  - Size of industry
  - Impact of fashion on other industries
- Number of employees
Politics & Fashion
Economic Impacts

- Trade war - increase prices for consumers
- Difficult for US companies to compete with China
- Trade deficit China - 50% vs 17%
- American Apparel & Footwear Association President, Rick Helfenbein has referred to Trump Administration 2018 tariffs as, “hollow, vindictive and reckless”
- Holiday 2018 was down 6.6% - Retailers offering up to 9% additional markdowns

https://medium.com/@stitchdiary/how-will-trumps-trade-war-affect-the-global-apparel-industry-88e2e9044d26
Politics & Fashion
Equity Impacts

- H.J.Res.83 – concerning employers’ ongoing obligation to make and maintain records of work-related injuries and illnesses.

Politics & Fashion
Environment Impacts

- reduced EPA budget
- Reduced persecutions of violators
- Administrators of EPA are prior coal lobbyists
- Chlorpyrifos used on cotton
- China no longer buying our trash (2018)
- National Geographic’s, “A running list of how President Trump is changing environmental policy.”

Fashion Industry Economic Impacts

- Limited, American Apparel, BCBG, Wet Seal, Payless, Rue 21, Sears, K Mart, Macy's,
- Current fashion model sustainable only with equity and environmental casualties
Fashion Industry Equity Impacts

- Worldwide workers rights violations
- Positions do not provide a living wage
- Child labor
Equity

- Gazipur fire – 4 dead February 2016
- Rana Plaza -1,134 dead May 2013
- Dhaka fire – 7 dead May 2013
- Tazreen fire-117 dead November 2012
- Indian farmer suicide – 2900 dead since 2013

- Dangers of pesticides
- Monsanto GMO seeds and practices
- Disease and birth defects India and Argentina
Fashion Industry Environmental Impacts

- Over 13.6 million tons of textiles into landfills each year (U.S. Environmental Protection Agency, 2016).
- Contributes to water, earth, and air pollution from farm to distribution.
- Textile waste cannot be safely burned or buried in landfills due to its chemical composition and slow decomposition rate (Hethorn, 2015).
Consumer Impacts
Closet Expectations
Counterfeit Goods

- In 2017
  - 17,010 shipments seized
  - $811 million in counterfeits destroyed
  - Lost sales tax revenue of $38.5 million
  - Profits fund human trafficking and terrorism attacks
Fast Fashion
Fashion Industry’s Response
Fashion Industry’s Response

- Eileen Fisher & Patagonia poster children
- Beth Cosmos – Billygoats and Raincoats
- Zero waste design
- Digital Printing on demand
- 3-D printing
- Computer aided marker making 15%
- Bereavement Quilts
  - Rhino Quilting
  - Project Repat
  - Lori Mason Design Studio
Eileen Fisher
Fashion Sustainability
Industry’s Response

- Smart Fitting Rooms
- Magic Mirrors
Fashion Industry’s Response

- 3D body scanning
Concierge Services + Subscriptions

Farfetch
StitchFix
Jet Black
Apparel Rental

- Rent the Runway
- Armoire
- Gwynnie Bee
- Le Tote
- Zent – snow apparel
Experiential Retailing
Dover St. Art Exhibit
Experiential Retailing
Samsung Meatpacking District
Experiential Retailing
Showrooming
Waste as Resources
Visual Merchandising
Anthropologie
Consumer Response

So What Am I Supposed to Do???
Consumer Response

- Change perception of apparel
  - Will of Hannah Lovell 50.7% of items listed in will are textile

- Care for your apparel
  - Green dry cleaners
  - Switch to mineral laundry system (Eco Egg)
  - Remove stains
  - Alter garments to avoid damage
  - Repair before replacing
Consumer Response

- The least expensive garment is the one you already own
- Cost per wear
- Do not confuse name brands with quality
- Borrow
- Purchase 2nd hand
- Develop your unique personal style

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"Buy less, choose well, make it last."

VIVIENNE WESTWOOD
Consumer Response

**Fast Fashion**
- Inexpensive
- Low quality
- Short lifespan
- High cost per wear
- Reactive to trends
- Spontaneous purchases

**Slow Fashion**
- Expensive
- High quality
- Long lifespan
- Low cost per wear
- Impervious to trends
- Intentional purchases
Consumer Response
Consumer Response
Consumer Response
Time to organize your closet!

- Maria Kondo technique (Netflix)
  - Donate items you do not use
  - Consider why they were purchased
- Dispose of items properly
  - Donate even “unsellable” items
Academia/Research Response

TO DO List

1. SO
2. MANY
3. THINGS
Fashion Sustainability Research Solutions

- Dr. Addie Martindale dress research
- Faux leather
  - Dr. Young-A Lee Komucha tea mother
  - Mycelium
- Zero Waste Design
- Found Fabric Design
- Non-traditional Design
- New textile applications
Case Study of Zero Waste Bag Design Utilizing Pre-Consumer Upholstery Fabric Waste

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November 17, 2017
Introduction

- Pre-consumer upholstery waste contributes to the addition of over 13.6 million tons of textiles into landfills each year (U.S. Environmental Protection Agency, 2016).
- Upholstery waste cannot be safely burned or buried in landfills due to its chemical composition and slow decomposition rate (Hethorn, 2015).
- In the U.S., 100 billion plastic bags are sent to landfills each year (Reidman, 2007), taking decades to decompose (Siegel, 2009).
Justification of the Study

- Upholstery pre-consumer textile waste is too small to be used in the upholstery industry.
- The large dimensions of the fabric waste are sufficient to be used for other types of consumer products; offering a unique opportunity for sustainable design practices.
- Upholstery fabrics can be upcycled to develop products, such as luggage and grocery bags, that require a high level of durability.
- The number of plastic bags used and disposed of each year can be reduced if consumers are aware of its negative environmental impact and uses a reusable bag when shopping.
Purpose of the Study

Explore a potential use of pre-consumer upholstery fabric waste under the framework of five sustainability factors for product service system (S-PPS) business model (Barquet, Seidel, Seliger, and Kohl, 2016)

- Apply Designs for Environment (F1; e.g., reduce material, design for disassembly, optimize product lifespan)
- Identify Economic Value (F2; e.g., cost saving from reduced materials)
- Promote Behavior Change (F3; e.g., increase customer satisfaction)
- Act Towards Social Well-being (F4; e.g., create new jobs, regenerate local economies)
- Innovate in Different Levels (F5; e.g., innovations in technology, value chain or product-service).

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Research Objectives

- To gather and save upholstery fabric from disposal into a landfill.
- To create durable consumer products by utilizing zero waste design techniques, maximizing upholstery fabric usage.
- To create durable consumer products that meet the criteria for Barquet et al.’s (2016) five sustainability factors for product service system (S-PSS).
- To determine if there is value in utilizing pre-consumer waste for consumer products.
Research Procedure

- Step 1: collect upholstery fabric waste
- Step 2: research for the best use of waste
- Step 3: implement zero-waste design approach and the five sustainability factors in bag manufacture
- Step 4: Analyze the waste usage and calculate retail product value
Step 1: collect upholstery fabric waste

- 13 yards and 15.5 inches (234.48 oz.) destined for landfill was donated
- Woven double and spot weave, printed and flocked canvas, and jacquard
- 5 color story cohesive fabrics
Step 2: research for the best use of waste

- Previous practice supports upcycling upholstery fabric into bags (Holley, 2015)

- Previous literature supports the durability of upholstery fabric as ideal for bags (Van Arsdale Shrader, 2009)

- Zero waste design techniques chosen to minimize waste of textiles
Step 2: research for the best use of waste (cont.)

Barquet et al. (2016) Five sustainability factors (F):

- F1 – Apply Designs for Environment
- F2 – Identify Economic Value
- F3 – Promote Behavior Change
- F4 – Act Toward social Well-Being
- F5 – Innovate in Different Levels
Step 3: implement zero-waste design approach and the five sustainability factors in bag manufacture

- Conducted market research and analyzed 36 tote and grocery bags for dimensions and construction techniques
- Drafted 2 side and 1 bottom pattern pieces, with optional pockets and self-fabric straps
- Bottom of each bag curves up all 4 sides
- Altered bottom and side pattern to fit fabric while retaining overall bag dimensions and function

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Step 3: implement zero-waste design approach and the five sustainability factors in bag manufacture.
Step 3: implement zero-waste design approach and the five sustainability factors in bag manufacture

- Each fabric was considered separately
- Optional pockets and self straps
- Did not allow larger than necessary seam allowances
- Creative attention given to selvages

Selvages used as trim in seams and on pockets
Step 4 – Study Findings
Positive linkage with four of the five S-PSS factors

✓ F1 Apply Designs for Environment – removable bottom allows for easy disassembly and replacement, lengthening product lifespan

✓ F2 Identify Economic Value – decreased cost of waste disposal fees and material costs

✓ F3 Promote Behavior Change – increased sustainable manufacturing awareness, customer satisfaction and use of reusable bags

✓ F4 Act Toward social Well-Being – manufacturing may increase job offerings and benefit local economy

✓ F5 Innovate in Different Levels – no direct linkage, innovation may occur in production, technology, product-service, or value chain
Step 4: Study Findings

- 98.88% fabric usage achieved - 2.625 oz. waste
- 30 durable tote/grocery bags created
- Estimated retail value of $1,300, excluding upcycling value
Limitations

- Disproportionate amount of time required to plan marker and cut bags
- Large scale production may not be possible using this zero waste design techniques
- Recreating study results may be difficult as textile waste will be inconsistent sizes
- A consistent source of waste needed for long term production
Summary and Implications

- Using upholstery fabric waste is a cost effective option, requiring minimal to low material cost for bag production.
- Further study is needed to determine optimal fabric choices to create various products.
- For long term business application, a system must be developed to source continual and consistent fabric waste.
- Finding suggest this upholstery fabric waste should not be considered waste, but a valuable resource for product development.
- Crucial for the public and upholstery industry to recognize the value of this waste.
References

- [https://atlas.media.mit.edu/en/](https://atlas.media.mit.edu/en/)
- [https://fashionunited.com/i/top100](https://fashionunited.com/i/top100)
- [https://seedfreedom.info/monsanto-illegally-introduces-round-up-resistant-gmo-cotton-in-india/](https://seedfreedom.info/monsanto-illegally-introduces-round-up-resistant-gmo-cotton-in-india/)
- [https://www.inta.org/INTABulletin/Pages/FakeGoodsSupportTerrorism.aspx](https://www.inta.org/INTABulletin/Pages/FakeGoodsSupportTerrorism.aspx)
References continued

- https://www.epa.gov/ingredients-used-pesticide-products/chlorpyrifos
- https://www.flickr.com/photos/cbpphotos/20102102469
- http://dirtssastudio.com/professional-displays/highlights
- https://www.youtube.com/watch?v=ONpeY0RAZVQ
Thank you!

- Questions?