

W=FT # 001: Tufted. Discovery research and development of post-market textile products

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Contextual Review. A significant opportunity exists to capture value from unused textiles and clothing, using recycled rather than virgin materials also offers an opportunity to drastically reduce non-renewable resource inputs and the negative impacts of the industry. The Ellen MacArthur foundation report *A new textiles economy: Redesigning fashion's future* (2017) offers a vision of a fashion system that is circular, ideally creating no waste by design, while strategically capturing value from recycled content. Goal three of the report findings suggest the radical improvement of recycling by transforming clothing design, collection and reprocessing.

The W=FT initiative is an design collaboration aimed at determining post-market manufacturing opportunities that re-define the textile waste stream (i.e. deadstock textile and post-consumer garments) as a value stream. The research/discovery team specifically focused on fast-fashion “fancy” polyester crepe blend, while designed with “luxe” appeal, this blended textile is extremely problematic and difficult to recycle. This fabric holds little value in secondary markets in its current iteration, and is, according to prior research, the primary material surrendered to thrift stores (Clarke-Sather, 2016). McDonough and Braungart (2000) propose the cradle to cradle concept, suggesting that one organism's waste is food for another cycle. Nutrients and energy flow perpetually in closed-loop cycles of growth, decay and rebirth. The W=FT (waste = food) Initiative is an ongoing partnership between an academic design researcher and a small textile company. The small enterprise functions as a B2C e-commerce market. The company is unique in that it primarily functions as direct to consumer via Instagram, with over 17,000 followers. **The design challenge for W=FT # 001: Tufted was to** (1) develop systems of processing W=FT materials, retrofit or re-develop machinery that can develop W=FT product and post-market (2) W=FT textile yardage (3) textile product artifact with a focus on redefining waste as value. This phase solely focused on discovery and textile production and engineering. While future phases will focus on the development of three-dimensional textile products, they will not be discussed in this abstract. The design should be reviewed as a textile design development. The textile design development is photographed as yardage and upon acceptance, will be displayed as textile yardage.

Process, Technique, and Execution. To develop W=FT # 001: Tufted, the research team sourced garments and deadstock through regional goodwill distribution center “dump” markets as well as fabric jobbers. The pilot consisted of two phases. The discovery phase involved

experimenting with a variety of techniques and technologies by hand to understand requirements. Garments and deadstock yardage were disassembled and cut by hand lengthwise into continuous strips, ends were hand-tacked with thread. Components (plackets, buttons, collars, pockets) were saved for a forthcoming W=FT pilot focus on non-woven. Two tufting machines (the AK II low pile loop and AK III high pile loop) were experimented with through a process of discovery. As well, this phase involved testing various finishing glues for backing. The Prototype phase involved testing best practices developed in the discovery phase toward tangible finished artifact scaled for current capacity. To develop market prototypes of (1) textile yardage and (2) tufting ribbon, the cutting process was automated through the introduction of a Piano cloth cutter. This enabled one sewist to process 50-75 yards of dead stock in one day. Fabric preparation for the cloth cutter involved taking flat deadstock fabrics, sewing them into tubes in preparation for the strip cutting machine. Garments were broken down into panels, stitched into patchwork fabric and sewn into tubes for the strip cutter. The tufted textile was developed on a cotton mid-weight tufting cloth backing stretched on a customized what x what tufting frame. W=FT # 001: Tufted textile measures 42" x 42" tufted piece and is constructed of a mixture of 49 fast fashion fabric and garments tufted on a AK II loop tufting machine and backed for durability with high quality latex glue. W=FT # 001: Tufting ribbon measures ½ in width. The products were completed on May 12, 2019.

Elements and principles of design. Historically in the design phase, designers choose materials for aesthetic and functional reasons. Elements and principles of design in terms of remanufacture require a reconsideration. In this scenario, working with unwanted stock and or surplus materials, the designer has a new level of constraints that guide the design phase. This reconsideration, while not fully explored in this project, is compelling to the researchers and worthy of future inquiry. For the sake of this work, W=FT # 001: Tufted layers different colors and textures through a linear meandering created in concert with artist and tufting machine. The resultant yardage is painterly, harmonious and sensorial satisfying both the visual and tactile.

Significance, Rationale, Contribution. McDonough and Braungart in (2016) "Upcycle" pose the question to the field of fashion: What's Next? Not what is going to be next year's coolest most technically amazing, or most fashionable ide but is this product being rejuvenated as material for new cycles? W=FT # 001: Tufted expands upon important research focused on re-manufacture and process development for sustainable textile and garment production Ruppert-Stroescu (2018). **Originality and Innovation.** The W=FT Initiative benefits from being a small business enterprise, enabling creative discovery and agile research with less hierarchies to negotiate. Scalable re-manufacturing pilots such as Waste no More by Eileen Fisher and Remake Workshop offer strong examples of sustainable and accountable business models. Ideally, W=FT Initiative will, as well, serve as a scalable remanufacture best-practices, defining waste as value.

References

- Circular Fashion - A New Textiles Economy: Redesigning fashion's future. (2017). Retrieved May 31, 2019, from <https://www.ellenmacarthurfoundation.org/publications/a-new-textiles-economy-redesigning-fashion-future>
- Clarke-Sather, A., (2016) Community Engagement in Two Fashion Merchandising and Apparel Design Curriculum Courses to Motivate Students to Learn about Sustainability Concepts. International Textile and Apparel Association (ITAA) Annual Conference Proceedings. 20.
- McDonough, W., & Braungart, M. (2002). Cradle to cradle: Remaking the way we make things. New York: North Point Press.
- McDonough, W., & Braungart, M. (2013). The upcycle.
- Kerr, J. and Landry, J. (2017) Pulse of the Fashion Industry, 2017. Global Fashion Agenda: Boston.
- Ruppert-Stroescu, M. S., Schrantz, E., Gabilheri, C. E., & Dowdell, L. J. (2018). US20180125139A1. Retrieved from <https://patents.google.com/patent/US20180125139A1/en>