The Circular Economy in Retail

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The Circular Economy

The circular economy is fundamentally a new way of thinking about how the economy operates, taking into account every step of the value chain. In the "linear" economy, products are created under the assumption that at the end of their lifecycle they will be disposed of, and then new products will be made. In the "circular" economy, products are designed from the outset with the intention of being restorative or regenerative. Through this intentional design, waste and pollution are eliminated, products and materials are reused or remanufactured, and nature is regenerated.[i] In essence, today's goods become tomorrow's resources. The environmental benefits of the circular economy are evident, but the economic benefits are strong as well. The World Research Institute estimates that transitioning to a circular economy "offers a $4.5 trillion economic opportunity", largely due to the better use of scarce resources on which business growth depends; separating economic growth from natural resources will allow our economies to grow without destroying the planet as a result.[ii]

While the true notion of the circular economy requires broad-scale change on behalf of all participants, individual companies can participate in the circular economy by building circular practices into their business models. Rental models, recycling programs, and resale offerings are three prominent practices companies in the market today are picking up in a move towards becoming more circular.

Consumer Attitudes and Trends

Over the past year and a half, the COVID-19 pandemic has heightened concerns around environmental, social, and governance principles in the world. Within the retail industry, sustainability concerns have become a top priority for consumers as they demand increasing levels of transparency across all levels of the value chain. IBM and the National Retail Federation found that millennials have the highest awareness of sustainability. However, the research suggests environmental, social, and wellness concerns transcend age, as 80% of all generations express high levels of interest in “clean” products and 77% act environmentally responsible. While overarching sustainability considerations are of undeniable importance for the majority of consumers across age groups, location demographics are the strongest indicator of the value a customer places on specific sustainability issues. Differences in geographic characteristics such as urban versus rural markets, or regional governmental regulations, influence customer demand for certain sustainability standards over others. [iii]

In a report published by *Forbes* in 2020, ING analyzed how consumers’ wishes are impacting how companies approach the circular economy. When attempting to determine whether questions of sustainability actively influence spending habits, the report found that consumers want to know about a product’s environmental impact and that this knowledge strongly motivates purchases. 83% of consumers believe their purchases can help address global environmental challenges. When ranking the most important factors in their purchase behaviors, the majority of consumers placed environmental impact above brand name and over one third of consumers have refrained from buying brands that have poor environmental practices. However, consumers have difficulties defining a circular economy and struggle to identify its relevance with respect to their personal lives. The study indicates that consumers will take “circular economy-related actions” when convenient, as 41% believe clothing rentals will call for substantially more effort and 36% claim that time hinders their ability to participate in environmentally conscious retail purchases. The cost of shopping sustainably is also a large deterrent, as just over half of all consumers choose less expensive fast-fashion over higher quality, sustainable options that are pricier. Finally, many customers feel their desire for more information is not being met, as four out of five consumers believe companies do not provide enough information about their environmental impacts.[iv]

Based on these conclusions, ING has categorized today's consumers into three groups: "circular champions, circular sympathizers, and circular non-engagers". "Circular champions" are most likely to make decisions based on sustainability practices and constantly exude a strong desire for more information when making purchases. "Circular sympathizers" are aware and engage with sustainable shopping, but are only likely to do so when it does not greatly affect their current lifestyle. They are most likely to be affected by the increased costs of sustainability when weighing their purchase decisions. Lastly, "circular non-engagers" are the least likely to adopt circular economy-related purchasing practices and will only do so when there is an external stimulus beyond the reduced environmental impact. [v]

Retailer Strategies and Practices

One prominent practice within the circular economy is rental goods, considered as a business model that has the potential to achieve high economic performance while still counting as "green" transactions that assist in making a "significant contribution to the protection of the natural environment".[vi] In the apparel industry, platforms allow customers to rent one or more articles of clothing for a predetermined length of time, either from other people or from the inventory of the company itself. The cost of doing so is dependent on the rental company, subscription fees if applicable, the length of the rental period, and often the label/brand of the apparel rented. By 2025, the rental market is expected to reach a value of $2.08 billion.[vii]

One clothing item shared between 20-30 people as opposed to purchasing and disposing of a single item after one or a few wears is said to reduce the environmental impact of that article by 95%.[viii] Additionally, the rental market presents a solution to temporary fashion needs such as maternity wear and formal wear. However, downsides to the practice do exist. Styles become obsolete quickly, and the off-trend apparel inventory for rental firms are disposed of, adding to textile waste.

On Running is one example of a shoe company offering a rental option to consumers. For $30 a month, customers can return an old pair of running shoes and receive a new pair when needed. Though contributing to the positive environmental impact of the circular economy in this way, some concerns are posed. First, is this better than just making more durable shoes? Second, does this encourage the idea that shoes are disposable?.[ix] An apparel company supporting the rental practice is Vince with the Vince Unfold initiative. For $160 a month, consumers receive free shipping and unlimited returns on 4 rental clothing items. Customers enter 10 items into their “Edit”, or cart, and Vince randomly sends 4 from the list. This practice enables consumers to test out the expensive brand before committing to a full ownership purchase. Though a quoted downside in terms of customer satisfaction, all 4 items must be shipped back at once, to cut down on the transportation and packaging impact.[x]

Another prominent practice of the circular economy is recycling. Clothing recycling is based on the recycling of textiles, and “end products include clothing suitable for reuse, cloth scraps, and fibrous materials”.[xi] The process of recycling begins with collection through bins for public disposal, clothing drives, and partnerships between retailers and collection companies. Next, sorting divides the clothing into three groups: reuse, rags, or fiber. This can be done by hand or by automatic sorting processes such as Textile4Textile. [xii] It is estimated that about 1⁄2 of clothing can be reused, with some sent as donations for developing countries, and some resold in thrift stores. Once these steps are completed, processing takes place.

The benefits of recycling clothing derive from the mere fact that 99% of what is thrown away can be recycled. Recycling cuts down on the amount of pesticides used for growing cotton and limits pollutants such as greenhouse gases released into water and air from manufacturing.[xiii] However, there are risks associated with the practice. Clothing made from recycled polyester releases microplastic particles into the water source when washed which can be detrimental to the environment.[xiv] Additionally, the re-dying process used when recycling textiles into a new item is high in cost and energy use.[xv]

MUD Jeans is a denim retailer that utilizes recycling as a form of the circular economy. By collecting old jeans (both their own brand and otherwise), it recycles the fibers to make each new pair. MUD carries two offerings, rigid jeans which are made with 40% post-consumer recycled cotton, and stretch jeans which are made with 23% post-consumer recycled cotton. Additionally, any recycled jeans that are in wearable condition are resold as vintage/pre-worn on the website. In the shoe wear industry, P448 is an upscale retailer that recently introduced its RE:New recycled line. Made from leather scraps from traditional production, this process reduces environmental impact by 80%, and cuts back on water and energy use that goes into leather production.

A third prominent practice of the circular economy is trade-in programs, also known as trade-back or “re-commerce”. Through trade-in programs, businesses can strengthen relationships with existing customers, lower cost of goods sold by decreasing the cost of materials, decrease risk related to scarce natural resources, and reduce their overall environmental impact. The success of trade-in programs is measured by the “total mass of the materials sold against those collected in a year”.[xvi]

The environmental benefits of these programs are clear, as an item purchased used versus new "displaces 17.4 lbs of CO_2 emissions… reducing its carbon footprint by 82%".[xvii] Additionally, consumer behavior has shifted in favor of the resale market, particularly attracting Gen-Z environmentalists, and thus promotes distancing from fast fashion. Unfortunately, this practice carries some negative effects as well. Trade-ins encourage continued consumption of pre-owned products through the discount incentives offered by firms for participation. Does this really solve the problem, or is it just a band-aid? Low prices may even encourage overconsumption. Regardless, the opportunities are rich for trade-in programs. The resale market is expected to grow 5.4x in the next 5 years and is accelerating post-Covid; in 2020, "223M consumers say they have or are open to shopping secondhand". [xviii]

A notable participant in trade-in practices is thredUP. With an entire business model dedicated to tradeback and resale, the online store is aiming to modernize thrifting and offer lower prices as compared to buying new. A key pillar of thredUP is to educate consumers and other retailers, and this is accomplished through partnering with other brands in the apparel space to promote industry-wide change.[xix] Another player is Madewell, offering both Trade-In and PreLoved lines through their e-commerce platforms. For trading in any brand of old jeans, Madewell offers customers $20 off of a new Madewell pair. Then, the company turns the old jeans into housing insulation in partnership with Cotton's Blue Jeans Go Green program. Again, this initiative appears to drive consumption of new items despite the positive benefits of trading in. In addition to this, Madewell has partnered with thredUP to start the "Madewell Forever" line, selling secondhand Madewell jeans. This allows customers to turn in old jeans for the $20 credit, but then thredUP sorts the items to be resold through Madewell's channels.

Case Studies

I. Rent the Runway: Rent the Runway is a rental clothing company that offers customers a "Closet in the Cloud: a dream closet filled with an infinite selection of designer styles to rent, wear and return".[xx] Its business model revolves around a value proposition that grants customers the chance to wear trendy, fashionable clothing at a reduced cost compared to owning these items while also participating in the circular economy practice of renting clothing. Its vision states, "women buy less, wear more and contribute to a more sustainable future". [xxi] This claim is backed up by the idea that the biggest driver of the fashion industry's environmental pollution comes from the production of new clothes. Therefore, Rent the Runway positions itself as an alternative to purchasing more personal clothing and discourages the industry from producing higher quantities of additional clothing. 89% of Rent the Runway customers claim to purchase less clothing items than prior to using the service. According to the company's sustainability report, renting a piece from its selection results in average net reductions in water usage (almost -25% per item), energy usage (-6% per item), and carbon dioxide emissions (-3% per item) instead of buying a new piece of clothing.[xxii]

However, Rent the Runway's rental clothing business also has many hidden environmental costs. First, the transportation of rental clothing is detrimental to the environment. In addition to clothing delivery, renters need to ship the item back to Rent the Runway which doubles the shipping. According to the U.S. Department of Energy, transportation is the largest source of carbon dioxide emissions, with "last-mile deliveries" accounting for almost one fourth of this footprint as a result of a sharp increase in the late 2000s/early 2010s with the rising popularity of online shopping.[xxiii] On top of its delivery, Rent the Runway ships its items in cardboard boxes that are often not recycled. These boxes contain non-recyclable items like tissue paper and a plastic bag. Second, while the rental industry is part of the circular economy by boasting pre-loved items, dry-cleaning facilities are stocked with high energy-consuming equipment. As a result, each rental piece often requires more energy than doing personal laundry.[xxiv] Rent the Runway washes each article of clothing that is returned for sanitary reasons, but this potentially leads to extra energy usage as it is not guaranteed that the customer wore the piece. Lastly, Rent the Runway ironically risks increasing consumers' desire for more clothes, a trait that the circular economy is actively trying to reduce. Unlike other rental companies like AirBnB or closet-exchange apps, no one owns the clothing Rent the Runway provides. This lack of ownership promotes an "unlimited closet," an attractive idea for trendy consumers, but increases production demand and the industry's overall environmental impact.

II. Rothy's: Rothy's, a DTC shoe brand founded on the principle of bringing more sustainability into the industry by using recycled plastic to make its products, recently set ambitious goals towards becoming fully circular by 2023, beginning with the implementation of a recycling program. This past October, Rothy's set up collection bins in its seven store locations across the country in an effort to take back customers' old shoes and remanufacture them into new ones. In exchange for turning in their old shoes, customers received a same-day $20 discount that could be used on any in-store purchase.[xxv] The "Recycling Pilot Program", as they called it, was backed by the expertise of a group of scientists and thought leaders named the Rothy's Sustainability Leadership Council.[xxvi] The council-backed plan demonstrates an intentional effort and interest in sustainability that rises above conventional "greenwashing" practices which exist solely for publicity and goodwill. The intentionality behind the program is further evident through its short duration - Rothy's stated that the program was meant to serve as a test on consumer interest, on collection and recycling infrastructure, and on remanufactured shoe quality. [xxvii] In contrast to other sustainability-toting companies quickly stamping on programs to their brand for the instant gratification of consumers, Rothy's slow approach lends a sense of authenticity to the company's story around sustainability.

Nonetheless, the recent implementation of the program and short duration of it leaves many questions unanswered as to whether Rothy's practice of recycling will become a circular economy success story or not. One concern is that it will not be scalable; given most DTC companies already struggle to turn a profit, the logistics of collecting and recycling or remanufacturing mass amounts of shoes may not be operationally or financially possible for a small brand like Rothy's. Another question is raised around the discount incentive - does this offer provide sufficient motivation for consumers to participate in the program, and is it financially viable for Rothy's to maintain this discount offering? While the brand's well-laid goals and intentional efforts sound good on the outset, it is nonetheless far from operating a developed and sustainable recycling model.

III. Patagonia's Worn Wear: Reporting as a B-Corp in the state of California as of 2012, Patagonia is an outdoor apparel and equipment retail company selling both through distributors and DTC that works to insert its company mission into its business operating model. Patagonia's mission statement is to "Build the best product, cause no unnecessary harm, use business to inspire and implement solutions to the environmental crisis".[xxviii] As impact and environmental consideration are key to its brand identity, the Patagonia business model heavily focuses on creating social and economic value through its sales and operations.[xxix]

A catalyst of Patagonia's commitment to sustainability, and a contributor to the trade-in practice of the circular economy, the Worn Wear initiative has been around in some sense since the 1970s. The premise is simple: gather old Patagonia items/clothing, find a store to drop off at or send them by mail, and receive Patagonia shopping credit in return. The overall goal of Worn

Wear is to extend the product life and usage and reduce Patagonia's impact on the environment. Worn Wear further develops into three core facets: Repair, Reuse, and Recycle. The Repair facet supports the extension of products in offering a free opportunity to consumers to repair their worn down or damaged Patagonia goods. The Reuse facet is the traditional Worn Wear cycle, as Patagonia repairs and prepares pre-owned clothing to be resold to a new home. Lastly, the Recycle facet supports the upcycling of old products into a newly fashioned piece for resale, the mechanical recycling of materials for industrial applications, and chemically recycling into closed loop processes.[xxx] Patagonia notes that holding onto an item of clothing for an extra nine months reduces the carbon footprint of replacing it by about 20-30% and buying used extends the life of a product by about two years.[xxxi] Therefore, contributing to Worn Wear both through trade-in or buying used allows the circular environmental benefits to continue.

The initiative continues to grow, with the addition of the "Recrafted" line in 2019 that offers hand-sewn, re-crafted, one of a kind Patagonia clothing items made from traded-in materials. As of April 2020, Worn Wear had successfully sold over 120,000 repurposed Patagonia items.[xxxii] Additionally, Patagonia's 70 global repair centers collectively fix over 100,000 items each year.[xxxiii] Due to the momentum behind the program and the positive growing brand awareness surrounding Patagonia's authentic operations, it is hard to argue that Patagonia's Worn Wear is not a successful implementation of trade-in programs and the circular economy.

Exhibits

Exhibit 1 - Circular Economy Diagram, Ellen MacArthur Foundation

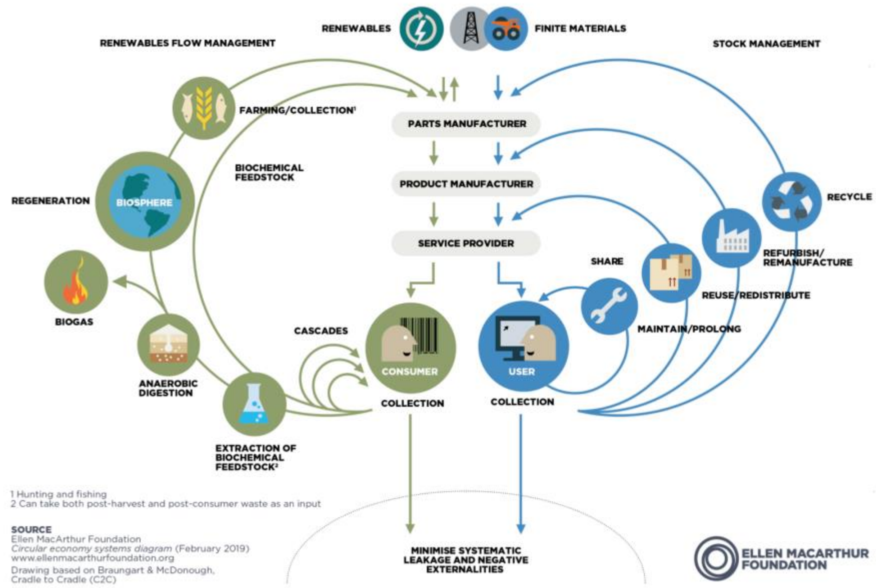

Exhibit 2 - Rent the Runway: Cleaning Process

Behind the scenes look at Rent the Runway's steaming and cleaning process for returned items at its dry cleaning facilities.

Exhibit 3 - Rothy's Recycling Pilot Program: Promotional Material

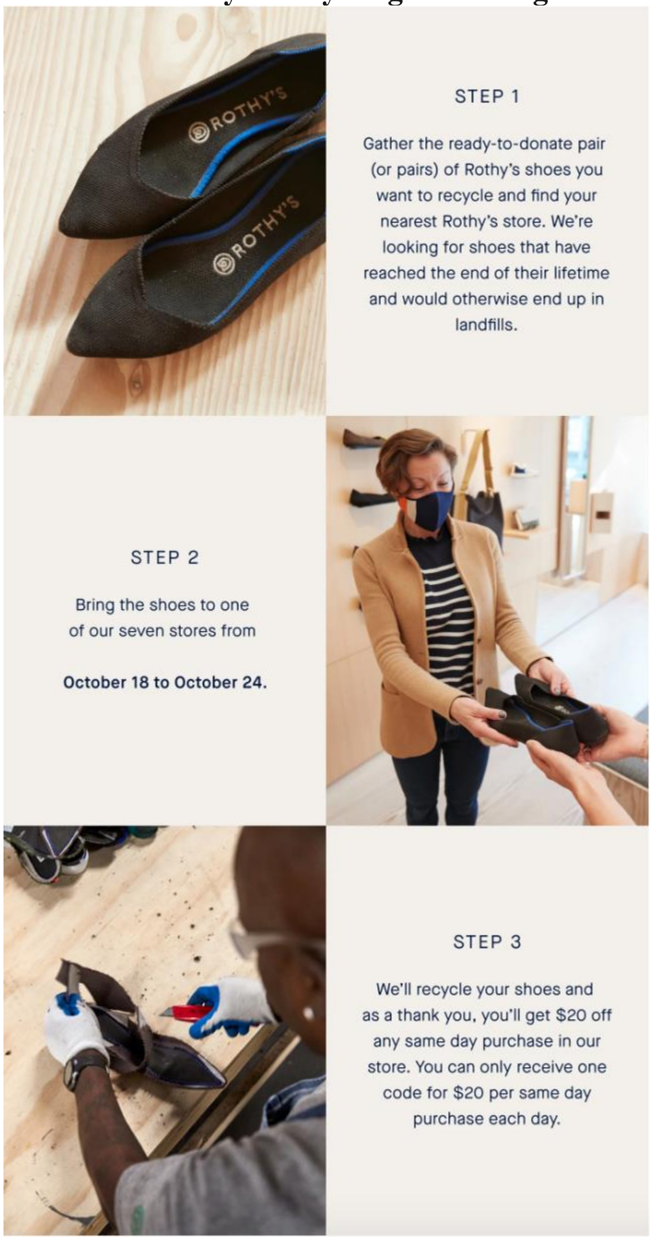

Exhibit 4 - Patagonia Worn Wear: Trade-In Credit Amounts

Trade-In Price	Product
$10	Kids/Baby Sportswear, Womens Dresses & Skirts, Pants - Sportswear & Technical, Stand Up Shorts
$20	Kids/Baby Alpine and Snow, Sweater (Non-Cashmere), Fish Technical Tops and Bottoms, Certain Sportswear Fleece: Micro D®, Classic Synchilla, Synchilla Snap-T Pants, Better Sweater® Fleece, (Vest & 1/4 Zip), Los Gatos (Vest & 1/4 Zip)
$30	Technical Fleece, Houdini®/Ultralightweight Weather Protection, Certain Fleece: Re-Tool Snap-T (Pullover & Vest), Better Sweater Jackets, Performance Better Sweaters (Vest & 1/4 Zip), Daypacks, Technical Trail Packs, Duffels (up to 60L)
$40	Cashmere Sweaters, Technical Insulation Jackets, Vests and Pants, Alpine Soft Shells, Sportswear Outerwear and Workwear, 2- and 2.5-Layer Shells/Snow Shells, Technical Alpine/Snow Packs, Certain Fleece: Retro Pile, Retro-X®, Re-Tool (Jackets), Performance Better Sweater (Jackets & Hoody), Lightweight Synchilla® Poncho, MLC® Luggage and Large Duffels
$60	Heavy Alpine Insulation, Sportswear Insulation-Vests, Jackets and Parkas, Insulated Alpine Shells, 3-Layer/ GORE-TEX® Shells, Stormfront® Luggage, Wheeled Luggage
$100	3-Layer Snow Shells, 3-in-1 Jackets and Parkas (must include all pieces), Insulated 3-Layer/GORE-TEX® Snow Shells, Special Collections

Exhibit 5 - Patagonia Worn Wear Pop-Up in Boulder, 2019

Over 500 people attended the event to check out pre-loved clothing and see the repair process firsthand.

[i] "Circular Economy Introduction - Overview." *Ellen MacArthur Foundation*, https://ellenmacarthurfoundation.org/topics/circular-economy-introduction/overview.

[ii] McGinty, David. "How to Build a Circular Economy." *World Resources Institute*, 6 Aug. 2020, https://www.wri.org/insights/how-build-circular-economy.

[iii] IBM Institute for Business Value, and National Retail Federation. "2020 Consumers Driving Change." *IBM*, IBM, June 2020, https://www.ibm.com/thought-leadership/institute-business-value/report/consumer-2020.

[iv] Field, Anne. "Consumers Like Circular Economy Practices-If They're Not Too Much Of A Hassle." *Forbes*, Forbes Magazine, 2 Mar. 2020, https://www.forbes.com/sites/annefield/2020/02/29/consumers-like-circular-economy-practices-if-theyre-not-too-much-of-a-hassle/?sh=276025277c43.

[v] Field, Anne. "Consumers Like Circular Economy Practices-If They're Not Too Much Of A Hassle." *Forbes*, Forbes Magazine, 2 Mar. 2020, https://www.forbes.com/sites/annefield/2020/02/29/consumers-like-circular-economy-practices-if-theyre-not-too-much-of-a-hassle/?sh=276025277c43.

[vi] Ionașcu, Ion, and Mihaela Ionașcu. "Business Models for Circular Economy and Sustainable Development: The Case of Lease Transactions." *Amfiteatru economic* 48.20 (2018): 361. Print.

[vii] "Clothing Rental Services: Everything You Need to Know About Renting Clothes Sustainably." *Good On You*, 9 June 2021, https://goodonyou.eco/clothing-rental-services/.

[viii] "Clothing Rental Services: Everything You Need to Know About Renting Clothes Sustainably." *Good On You*, 9 June 2021, https://goodonyou.eco/clothing-rental-services/.

[ix] Housman, Justin. "On Running Bets You'll Subscribe to a Recyclable Running Shoe Service." *Adventure Journal*, 25 Sept. 2020, https://www.adventure-journal.com/2020/09/on-running-bets-youll-subscribe-to-a-recyclable-running-shoe-service/.

[x] Rosmarin, Remi. "I'm a Regular User of Rent the Runway Unlimited - Here's What I Thought about Vince's Luxury Rental Service That's the Same Price." *Business Insider*, Business Insider, 24 Feb. 2020, https://www.businessinsider.com/vince-unfold-clothing-rental-service-review.

[xi] LeBlanc, Rick. "The Process of Recovering and Recycling Old Clothing." *The Balance Small Business*, The Balance Small Business, 27 Feb. 2019, https://www.thebalancesmb.com/how-garment-recycling-works-2877992.

[xii] LeBlanc, Rick. "The Process of Recovering and Recycling Old Clothing." *The Balance Small Business*, The Balance Small Business, 27 Feb. 2019, https://www.thebalancesmb.com/how-garment-recycling-works-2877992.

[xiii] Lee, Lexa W. "Recycled Clothing Facts." *Home Guides | SF Gate*, 17 Nov. 2020, https://homeguides.sfgate.com/recycled-clothing-79332.html.

[xiv] Lynggaard, Hella. "Recycled Polyester Pros and Cons." *The New Fashion Norm*, 23 Mar. 2017, http://thenewfashionnorm.com/2017/03/23/recycled-polyester-pros-and-cons/.

[xv] Weavabel. *What Are the Pros and Cons of Recycled Polyester?*, https://blog.weavabel.com/what-are-the-pros-and-cons-of-recycled-polyester.

[xvi] "Take-Back Program." *Circular Economy Guide*, https://www.ceguide.org/Strategies-and-examples/Dispose/Take-back-program.

[xvii] Inc., Thredup. "2021 Fashion Resale Market and Trend Report." *ThredUP*, 2021, https://www.thredup.com/resale/#resale-industry.

[xviii] Inc., Thredup. "2021 Fashion Resale Market and Trend Report." *ThredUP*, 2021, https://www.thredup.com/resale/#resale-industry.

[xix] "Our Impact." *ThredUP*, https://www.thredup.com/impact.

[xx] Hyman, Jennifer, and Jennifer Fleiss. "Our Vision - About Us." *Rent the Runway*, https://www.renttherunway.com/about-us?action_type=footer_link.

[xxi] Hyman, Jennifer, and Jennifer Fleiss. "Our Vision - About Us." *Rent the Runway*, https://www.renttherunway.com/about-us?action_type=footer_link.

[xxii] "The Real Sustainable Fashion Movement #RentReduceReuse." *Rent the Runway*, https://www.renttherunway.com/sustainable-fashion?action_type=footer_link.

[xxiii] October 2021 Monthly Energy Review. *US Energy Information Administration*, Oct. 2021, https://www.eia.gov/totalenergy/data/monthly/pdf/mer.pdf.

[xxiv] Cline, Elizabeth. "How Sustainable Is Renting Your Clothes, Really?" *ELLE*, 18 Feb. 2021, https://www.elle.com/fashion/a29536207/rental-fashion-sustainability/.

[xxv] Maake, Katishi. "Exclusive: Rothys Pilots an in-Store Takeback Program for Worn Shoes." *Morning Brew*, Morning Brew, 18 Oct. 2021, https://www.morningbrew.com/retail/stories/2021/10/18/exclusive-rothy-s-pilots-an-in-store-takeback-program-for-worn-shoes.

[xxvi] "Meet The Sustainability Council." *Rothy's*, 9 Aug. 2021, https://rothys.com/blogs/the-loop/meet-the-sustainability-council.

[xxvii] Maake, Katishi. "Exclusive: Rothys Pilots an in-Store Takeback Program for Worn Shoes." *Morning Brew*, Morning Brew, 18 Oct. 2021, https://www.morningbrew.com/retail/stories/2021/10/18/exclusive-rothy-s-pilots-an-in-store-takeback-program-for-worn-shoes.

[xxviii] Patagonia. "Our Business and Climate Change." *Patagonia*, https://www.patagonia.com.au/pages/our-business-and-climate-change.

[xxix] MS. "Patagonia: A Focus on a Sustainable Model." *Technology and Operations Management*, HBS, 10 Dec. 2015, https://digital.hbs.edu/platform-rctom/submission/patagonia-a-focus-on-a-sustainable-model/.

[xxx] Patagonia. "Patagonia Post-Consumer Recycling Strategy & Upcycling Policy." 2018.

[xxxi] "Better Than New." *Worn Wear*, Patagonia, https://wornwear.patagonia.com/trade-it-in.

[xxxii] "Circular Economy Introduction - Overview." *Ellen MacArthur Foundation*, https://ellenmacarthurfoundation.org/topics/circular-economy-introduction/overview.

[xxxiii] "Worn Wear Taking Off For Patagonia." *SGB Media Online | Active Lifestyle Market B2B Information*, 16 Jan. 2020, https://sgbonline.com/worn-wear-taking-off-for-patagonia/.