CAN TRASH BE TRENDY?
polish the image of plastic

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ABSTRACT

For every three breaths humans take, two originate from the oceans. But plastic pollution is taking its toll on the giant body of water that covers 70% of the Earth. Aside from the 8 million tons of plastic currently floating in the world’s oceans, plastic production is said to increase by 10% annually. Not only does the plastic waste integrate into its surrounding in the form of microplastic, it also poisons and thereby imbalances ecosystems and poses serious health risks on humans. After the oil industry, fashion is the second most polluting industry in the world, adding 78 million tons of solely plastic into the system yearly and feeding into the amplification of ocean plastic waste. Only 14% of global apparel consumption is currently being recycled, but by closing the loop, recycling ocean plastic waste and giving it a new life cycle, raw materials are being preserved and the oceans are purged from their plastic pollution. By connecting organizations that retrieve and recycle ocean plastic waste with fashion companies, the recycled material can be implemented into supply chains and replace virgin Polyester and Nylon entirely. To effectively revitalize the image of plastic waste as being a resourceful material instead of trash the luxury industry has the capabilities to create desire and add value to the material. Especially in today’s conscious consumption zeitgeist, the fashion industry has been a crucial driver of controversial subjects, acting as a messenger to animate society and inspire further industries to act on certain global issues.

Keywords: ocean plastic waste, plastic pollution, ocean, recycling, fashion industry, sustainable fashion, closing the loop, conscious consumption, Polyester, Nylon
Every year, **300 million tons of plastic** are produced globally, of which 8 million have accumulated in one of massive gyres found throughout the Ocean. Currently, there is a **1:2 ratio of the amount of plastic to plankton**, and if the rate of waste production continues to grow at current speed, by 2050, plastic will outweigh the fish population (Wearden, 2017). Not only do marine animals digest broken down particles of plastic, humans also ingest microplastic by consuming from this marine food chain. Supporting the rising issue of climate change and pollution that is sparked through controversial political decisions and climate agreements, documentaries such as “Before the Flood” (Fischer, 2016), “A Plastic Ocean” (Leeson, 2016) and “The Inconvenient Truth” (Guggenheim, 2006) enlighten society, brands and the consumers of the state our planet is in.

Corporations such as Parley For the Oceans cross-collaborate with varying industries, reusing oceanic plastic waste (from here on forward referred to as OPW). One of these collaborators is adidas: “We are working with Parley to keep plastic out of our oceans and transform it into high performance sportswear. Spinning the problem into a solution, the threat into a thread” (adidas, 2018). Amongst the innovators pushing for an ocean cleanup and reusing OPW for a continued product lifecycle, are The Ocean Clean Up (The Ocean Clean Up, 2018), Parley for the Oceans (Parley, 2018c) and Aquafil (Aquafil, 2018), aiming to transform ocean debris and marine trash into textiles to be used in industrial design, furniture and fashion. These companies have collaborated with varying fashion brands such as adidas, Stella McCartney, Patagonia, Gstar and Outerknown. With the fashion industry persistently reinventing itself, innovative and creative advances as well as the need to be ahead of trends, can OPW act as an influencer to elevate fashion to the next level? Industrial designer and winner of the Creators and Innovators Upcycle award Taylor Lane sees immense opportunity for change: “There is a lot of work to be done, but a whole new generation cares about their future and is open to finding a new way to doing things. We have to continue to take actions and inspire others – especially young people. If we demand change, it will come.” (Grygiel, 2018).

The fashion industry generates 1,5 trillion USD annually and employs roughly 60 million people all over the world (Leach, 2017). Everyone is prone to the exposure of fashion, as clothing is not only a luxury, but a necessity. **Fashion also functions as a messenger** to the larger public, no matter if solely telling a brand’s story or addressing a larger, societal or environmental issue.

So the question that presents itself is: how can the oceans be cleaned up through the influence of fashion? Can brands use this immense OPW, transform it into garments and thereby trigger other industries and society to engage with the topic of OPW? And lastly, how come the scale of reusing OPW in regard to fashion is so small, what are the limitations and opportunities arising, but most importantly, how can the fashion industry be beneficial to cleaning up the ocean?

**AIM**

The aim of this graduation project is to prompt a chosen fashion brand, and many more to follow, to introduce OPW into their collection, production methods and storytelling. This will lessen the amount of plastic in the ocean, give the waste a new lifecycle by closing the loop and make the fashion industry and its polluting practices more accountable. Ultimately, this research report identifies which types of brands are suitable to make use of OPW, how brands benefit from incorporating an accountable mindset and OPW into their brand, and how the larger issue of cleaning up the ocean is pushed through the help of fashion. The following questions will be assessed and answered to give a clear conclusion as to why OPW has solely been established in niche markets in the fashion industry:
1. WHAT IS THE CURRENT EXTENT OF OPW IN THE OCEAN AND WHICH GROUNDWORK EXISTS AROUND IT?

The first chapter elaborates on the extent of the problem and the state of the earth’s oceans. Causes and consequences are addressed, the magnitude of the issue as well as the technological progress of retrieving plastic waste from the oceans, innovations in terms of transforming this waste into yarns and industries that utilize OPW as a resource.

2. WHAT ARE THE OPPORTUNITIES AND LIMITATIONS OF REUSING OPW IN FASHION?

The focus of this chapter lies on the outcomes of incorporating OPW in fashion and the following costs. This means investments and resources in terms of monetary capital, capabilities and knowledge needed, as well as the induced benefits and pitfalls. Hidden costs such as possible health effects, microplastic and induced environmental impact are analyzed. Lastly, this chapter also addresses unknown variables and open research questions that OPW implicates.

3. HOW DO SAID OPPORTUNITIES AND LIMITATIONS AFFECT SCALABILITY IN TERMS OF COMPANY SIZE, MULTINATIONAL OPERATIONS AND PRODUCT CATEGORY?

For a directly applicable use of this report, scalability is assessed to gain an understanding which specific company types and product categories are suitable for OPW. This covers limitations and opportunities for varying company sizes and the impact that each brand and fashion category creates from incorporating OPW into their product lines.

4. WHICH FASHION BRANDS ARE CURRENTLY INVOLVED IN REUSING OPW?

To answer this question, three frontrunner brands are analyzed, that are already employing OPW in their production lines. Their motivation to the subject matter is investigated, as well as their extent of usage and subsequent impact.

5. HOW IS THE CONSUMER’S PERCEPTION OF OPW IN FASHION INFLUENCED?

This question focuses on the consumers opinion of OPW in fashion. Based on research findings and a survey conducted, this chapter addresses if the consumer can be animated to support OPW, whether there is interest and necessity to convince the consumer to engage with OPW waste, and how this influences the consumers attitude towards the brand.

6. CONCLUSION

The final chapter summarizes all findings and research provided in the report, and an answer to the research aim.

METHODOLOGY

The methodology used to answer and explore these questions is mostly qualitative, through interviews and case studies. For a bigger picture view from multiple perspectives, interviews were conducted amongst sustainability advisors, marketeers, product engineers and experts engaged with the problem of OPW. Additionally, three ‘frontrunner’ brands were assessed that already implement OPW for an inside-out analysis, to find similarities and differences about implementation processes, marketing approaches, pricing strategy and internal company motivation. The case studies were composed through the evaluation of fiscal annual reports, CSR publications and sustainability guidelines and strengthened through in-person interviews and media publications. To also include the consumers perspective on the issue, an outside-in analysis in form of a survey was conducted, measuring consumer knowledge about OPW, the perception of it in fashion and marketing approach effectivity. The results were then consolidated by combining the outside-in and inside-out methods to form one conclusion, taking the issue of OPW, brands actions and consumers perceptions into account.
The end product of this graduation project is a presentation to animate Vetements to participate in cleaning up the ocean through clothing. The presentation consists of a short video conveying the extent of the problem of plastic in the ocean, all facts regarding both the groundwork of retrieving and reusing OPW. By creating a video, the pressing issue of OPW and its large magnitude is communicated in an easily understandable and emotion targeting manner. After the video follows a pitch tailored to Vetements. This personal pitch targets the business incentive and rather emotional side of the issue, meaning personal accountability, the drive for the brand to partake in reusing OPW and the consumers engagement to this matter. This will not only address the issue of raising awareness amongst fashion brands, it also triggers the desire of the brands to be on trend and therefore feeds into creating a competitive advantage.

The video is also applicable to be published on platforms that are innovators of sustainable approaches and inspirational sources for brands, platforms such as Parley for the Oceans (Parley, 2018c), Business of Fashion (The Business Of Fashion, 2018), as well as a feature in the sustainability portal of WGSN (WGSN, 2018).

Additionally to the presentation, a short consumer facing article will be written to be published in InStyle. This closes the loop of using OPW in fashion that needs both, brands and consumers, to be on board to help clean up the oceans. Elle (Murray, 2018) has published articles about OPW in the past, and Porter Magazine went as far as devoting an entire issue to the topic of plastic waste (Porter, 2018), creating a base to take this a step further and publish an article about reusing OPW in fashion. This article targets both viewers that are not yet aware or have basic knowledge of the problem, and who are interested in fashion and retrieve inspiration from these magazines.
While the moon has been visited by twelve people, only three have been down to the deepest parts of the ocean. Seventy percent of the earth’s surface is covered by water, and yet, the depth of the ocean is still fairly unknown. However, one fact has been established: five massive gyres have formed through ocean currents collecting floating OPW (Image 1). These gyres are also known as Vortex’. Solely in the North Pacific, in the Great Pacific Garbage Patch, more than 40 million pounds of plastic have accumulated.

Parley for the Oceans is one of the leading platforms to engage with plastic waste found in the oceans. By connecting creative thinkers, visionaries and global influencers, the foundation aims to educate industries and consumers about the issue and find innovative ways to give OPW a new lifecycle (Parley, 2018c).

Plastic is a material created artificially. The word plastic comes from the greek word plasticos, meaning “to mold”. It is a synthetic, man-made material with the ability to deform, making it valuable for sealing and protecting, but also makes it extremely difficult to break down and decompose (Plastics and Polymers, 2007). Polyethylene Terephthalate, also known as Polyester, is a synthetic fiber characterized by resistance and transparency, making it extremely lightweight and low-priced. Nylon is chemically made from organic chemicals of petroleum and coal. It is a durable and wear-proof material, which makes it favorable for fishing nets as well as the clothing industry (American Fiber Manufacturers Association, 2018). Both types of plastic are easily recyclable - if discarded accurately in recycling facilities.

At current pace of global consumption, one garbage truck of plastic waste is discarded every minute (Liedtke, 2018). Most plastic ends up in landfills or is burnt, but 8 million tons finds their way into the oceans, where it decomposes and integrates itself into the ecosystem, drastically altering the balance of the environment, but also posing health effects on humans. In a study of the University of Exeter, alarmingly high numbers of Bisphenol-A (BPA) were found in the blood of teenagers: 81 of all 94 participants carry the chemical that gives plastic strength and flexibility, which increases the risk for breast and pancreatic cancer, as well as cardiovascular issues (Galloway et al., 2017). Furthermore, Orb Media released a report in September 2017 stating that 93% of all sampled plastic bottles contained microplastic particles (Tyree and Morrison, 2017).
According to the UN, marine pollution and floating plastic damages economies by 13$ billion yearly (Perret, 2014). The fashion industry is a strong culprit of the plastic waste issue, exhausting 78 million tons of plastic packaging waste, which translates to 90$ - 120$ billion USD annually (Leach, 2017). In a quest to raise awareness amongst consumers and brands about waste and a transition towards a more circular economy, the Ellen MacArthur Foundation launched a report about redesigning the future of fashion (Ellen MacArthur Foundation, 2017). With no Planet B to retract to, brands and organizations are beginning to find new ways to preserve natural resources and make use of what already exists through recycling.

Globally, sustainability is often times not governmentally or lawfully enforced. Especially in developing recycling systems are not professionally established and frequently waste is simply thrown into nature, creating an immense garbage problem affecting both the environment and human health. In December 2017, the island of Bali announced its “beaches were in a state of garbage emergency” (Parley, 2018a), causing an appeal to island residents to participate in Bali’s biggest beach clean up. The clean up resulted in the removal of almost 100 tons of rubbish daily (Parley, 2018a). However, Bali is not the only island to face such issues: Chile, Mexico and the Maldives amongst others have also been participants of massive beach and ocean clean ups to remove plastic and rubbish off of their ocean fronts.

However, the issue of plastic waste is much larger than solely found on shorelines. The majority of plastic waste is found deep in the oceans, at greater distance from land than any offshore oil rig. The arguably most influential innovator of collecting OPW is The Ocean Cleanup. A 20 year old engineering student, Boyan Slat, founded a non-profit organization in 2013 that invented a passive collecting system which makes use of ocean currents to captivate plastic. With floating barriers as collectors that clutter waste and debris, Slat won the Designs of the Year award in 2015; an award honoring designs that convey change to enhance societies daily lives (Design Museum, 2018). Launching mid 2018, the Ocean Clean up aims for plastic free oceans by 2050 (The Ocean Clean Up, 2018). CNBC goes as far as calling the Ocean Clean Up and it’s one-of-a-kind invention of retrieving OPW “the Unicorn of tomorrow” (UBS, 2017). Organizations such as The Ocean Clean Up, Waste Free Oceans (Waste Free Oceans, 2018) and the Plastic Bank (Plastic Bank, 2018) connect the collected waste to further industries. By coupling a network of recyclers, (garment) producers and brands, oceanic plastic waste is turned into something new with a prolonged life cycle.
Since the topic has gained global awareness through documentaries such as A Plastic Ocean (A Plastic Ocean, 2016) and Blue Planet (Blue Planet 2, 2017), especially the creative industries have taken upon themselves to make use of the OPW. Industrial designer and winner of the Creators and Innovators Upcycle award Taylor Lane designed a surfboard made of 10’000 cigarette butts gathered from the shorelines. Cigarette butts are the most common found litter, with 80% ending up in the oceans. Lane devised the cigarette surfboard during a competition challenging designers to “convert waste into want” (Lane, 2018). The Amsterdam based Plastic Whale foundation partnered up with interior design studio LAMA to make use of the 100’000 plastic bottles retrieved from the cities canals. Together, they designed furniture inspired by a whales characteristics, including a raised ridge boardroom table made of PET and birch, and PET and oak chairs resembling the tail of a whale. In an aim to create furniture capable of having a further lifecycle, the foundation ensures that all products can be further upcycled and given new use (Plastic Whale, 2018).

Summing up, the magnitude of OPW is much more extensive than previously assessed in the beginning stages of expeditions conducted by the Ocean Clean Up; the estimated amounts of plastic found floating in the ocean increase by hundreds of tons with every expedition the organization conducts. This waste presents a pressing issue for the environment, offsets the ecosystems’ balance and affects economic expenses of varying industries by billions. The cycle of using plastic, discarding it after single use and subsequently creating hundreds of tons of OPW seems to be infinite. Many brands are making a point to tackle the problem, with the starting point at the end of the cycle, namely recycling OPW and giving it a new lifecycle in further industries. Although this does not solve the problem or reduce the amount of plastic created in the first place, it is a step into the right direction of reduce the amount of existing OPW.

“Many of us ask what can I, as one person, do. but history shows us that everything good and bad starts because somebody does something or does not do something.”

- Dr. Sylvia Earle, European space astronaut
Before implementing OPW the opportunities and limitations that arise with the recycled material have to be assessed. That includes evaluating raw materials vs. recycled materials, the process of retrieving the plastic from the oceans, the recycling procedure, as well as financial and hidden costs induced.

3.1 RETRIEVING PLASTIC FROM OCEANS
The plastic debris found in the oceans is divided into three subcategories: Microplastic, Debris and Ghostnets (Image 2).

Roberto Brambini, Hydrodynamic Project Engineer at the Ocean Clean Up, sees the distribution of plastic throughout the ocean as one of the biggest issues. “Yes, there are 5 accumulation areas in the world. With the currents and winds, the ocean accumulates the plastic debris in these areas. But still, they are quite large areas” (Brambini, 2018). The Organization set the goal to eliminate half the plastic of the Great Pacific Garbage Patch within 5 years of the launch. Although the fleet addresses the issue at the already existing OPW, the cycle of plastic seems to be infinite. “If you don’t close the loop and reduce plastic input, you can clean up, but still more plastic will arrive.” (Brambini, 2018)

Depending on the waste desired, collecting OPW from can take months, entailing a timely retrieving process from the collector system, bringing it to shore and assessing its quality (Waste Free Oceans, 2018). One major issue with reusing OPW is its purity. Often times, the waste collected from the oceans contains traces of metals or antimony, which are neither usable, nor beneficial to put back into the loop. “You don’t know what you are getting when you are recycling. It’s not like you can collect all the trash and recycle it. If there is antimony in it and other heavy metals, why are you putting this in the circle again? There is a huge dilemma on how to control the purity of the waste.” (Galijasevic, 2018) Both separating hazardous byproducts from OPW and hereupon spinning it int a pure filament is timely and complicated, in return making the process more costly and complex. Until the purity of the developed yarn is not assured, many brands will shy away from replacing virgin materials through the recycled alternative.
3.3. Recycling

Optimizations in recycling facilities and technological advances with regard to machinery and processes allows the emergence of qualitative products to find a new lifecycle from previous waste. In fashion, the gathered plastic waste can be sorted, shred down into micro particles and redesigned for filaments and fibers to be used in textiles. The current leading manufacturer of synthetic fibers is Aquafil, transforming OPW into yarns through the regeneration system called Econyl (Image 3). Econyl has two main production lines, BCF (Bulk Continuous Filament) is mainly used for upholstery and carpets, and NTF (Nylon Textile Filament) for the clothing industry. In 2013, Econyl launched the Healthy Sea Collaboration, recovering fishing nets from natural environment in Europe. Since the company’s founding in 2011, 30’000 tons of waste were collected with the Aim to close the loop of resource usage (Aquafil Annual Report 2016, 2017).

(Image 3: Plastic debris and ghostnets collected are recycled in the Econyl regeneration system and transformed into fibers and fabrics to be used for upholstery and textiles.)

3.2. Raw Materials vs. Recycled

In a time where natural resources are getting scare and the price for virgin material is rising, already existing resources become more valuable and relevant. Global consumption currently exhausts roughly 1,6 times as much resources as the planet supplies (Leach, 2017). The Ellen MacArthur Foundation recently published that by 2020, consumption of raw materials of the textile industry will to triple compared to the 2017. With rising scarcity of raw materials, the fashion industries’ use of 97% raw materials is critical; especially if taken into consideration that almost two thirds of these raw materials are plastic feedstock (The New Plastic Economy: Catalysing Action, 2017). However, only 14% of all plastic produced is currently being recycled. The Foundation recently published a list of 100 companies to participate in a Circular Economy Pact, a program aiming to apply circular economy principles across various industries with participants such as Apple, Coca Cola, Ikea, and Thread International (Ellenmacarthurfoundation.org, 2018). Aside from the Foundations initiatives, individual brands’ internal sustainability and CSR guidelines are pushing to reach internal goals of becoming more circular and thoughtful of their resource consumption. For example, Timberland aims to replace all synthetic materials with renewable and recycled materials by 2020 (Timberland Product Materials, 2017), H&M, who currently takes back 35 truckloads of clothing into their recycle system (Leach, 2017), wants to use only recycled materials by 2030 (H&M Sustainability Report, 2017), and adidas is currently in the works of creating an entirely new supply chain solely for OPW (adidas 2020 Goals & Ambitions, 2016).

This shows evidence of the fashion industry slowly but steadily taking steps to replace raw materials through recycled alternatives by closing the loop and imposing eco-friendly material usage into their business models.

Econyl is the main supplier for brands like Outerknow, Volcom and Stella McCartney. Although the process of making Nylon is complex and timely, the material resembles the same quality and performance as regular nylon, suitable for all product categories from sportswear to luxury.

(The Econyl regeneration system transforms post-consumer waste into Nylon. This process of returning Nylon molecules into their original state ready for recycling can be repeated infinitely without loss of quality.)
In terms of characteristics and performance of the recycled OPW, there is a lot of opportunity and versatility to be derived. Polyester can be recycled into high quality polymers that can achieve the same characteristics without compromising the look and feel of the yarn, depending on the performance needed from the end product. Also, all colorways that are available in virgin polyester can also be achieved in the recycled equivalent through sustainable processes without further boundaries (Ecoalf, 2018).

Making use of OPW in production lines demands resources in terms of research and development (R&D) and requires a great deal of trial and error to achieve personalised performance and characteristics. Both Erik Liedtke, CMO of adidas and initiator of the Parley collaboration, as well as Adriana Galijasevic, Sustainability Expert at G-Star, emphasize the importance of willingness to engage on the matter of OPW. (Liedtke, 2018 and Galijasevic, 2018). This not only requires the brand itself needs to be eager to invest into the implementation, but also manufacturers need to be on board to engage and experiment with OPW during the R&D phase.

3.4 Financial Costs

Recycled OPW implies higher material and production cost than with the virgin equivalent. The new recycled yarn needs processes and applications that require adaptation in the supply chain; the yarn cannot simply be implemented into any existing supply chain. These implementations entail high costs. Currently, the process of retrieving, sorting, recycling and spinning adds steps in the production line that need to be paid, a price accounted for by the brand. However, Erik Liedtke, CMO of adidas and initiator of the Parley collaboration, sees this as the price one needs to pay for change in the industry: „The cost of innovation is always more expensive in the beginning than programs that you are scaling.“ (Liedtke, 2018).

Whilst many brands try not to make the consumer pay too much upcharge, Liedtke openly justifies a price raise of 20% through the added value of the innovation. Whereas regular adidas running and lifestyle shoes settle at a price range between 80 - 200$, the Parley UltraBoost and NMD shoes made of 11 recycled plastic bottles ranges between 180 - 230$ (adidas, 2018). Where large corporate firms can compensate with certain price raises, smaller labels often prefer ready-made fabrics to order, rather than creating new sustainable materials bespoke for unique own needs. This arises primarily from cost efficient incitement and too little minimum order quantities, but is also dependent on brand exposure and customer loyalty that is less steadfast and does not justify higher prices as with adidas or G-star. To intensify the use of OPW in fashion, especially fabric suppliers need to be pushed to supply larger volume at lower prices and be more accessible, so that more brands can benefit from OPW, higher quantities can be produced and the material thereby gains more ground in fashion.

In 2016, the Ocean Clean UP spent 3,7$ million, of which the majority was accounted for by projects such as the North Sea Project, research on plastic itself and offshore developments (Image 4). To date, the Ocean Clean Up continues its efforts based on donations. However, the goal of the organization is to become sustainable and profitable based on the plastic retrieved, meaning giving value to the plastic by upselling products made of OPW with the focus on cleaning the oceans while consuming (The Ocean Clean Up Annual Report, 2017).

If the material is advertised through the added environmental value of achieving cleaner oceans by buying into reused OPW, the consumer can project emotional added value to the product. Implementing OPW is certainly costly, but once the material has established itself in production processes and marketing purposes, economic profitability will follow with increasing volume and higher demand for the material itself.
3.5. Hidden & Environmental Costs

The Kering Group utilizes an Environmental Profit & Loss Statement to guide business practices and assess brands’ environmental impact. Yearly, planet Earth provides 72$ trillion in natural capital, meaning free goods, including “air, land, soil, biodiversity & geological resources” (Kering Environmental Profit & Loss 2016 Group Results, 2017). Company specific usage of these natural goods are then translated into fiscal value to outline costs and benefits of brands. Repaying such natural resources can only be done through substitution, such as replanting trees or restoring farming, which is timely. Without recreation of exhilarated resources, ecosystems run the risk of collapsing.

The primary benefactor of reusing OPW is the environment. By upcycling and closing the loop, the environmental impact of the fashion industry is reduced immensely, using 20% less water, 50% less energy and producing 60% less pollution than virgin material (Kering Environmental Profit & Loss 2016 Group Results, 2017). Giving products a new lifecycle has proven to reduce the carbon footprint by 75% (Aquafil, 2018). Adriana Galijasevic therefore does not see recycled plastic as a resource solely for fashion: “There is so much innovation, it’s not only the fashion industry that can use it.” (Galijasevic, 2018).

One influential hidden environmental cost that has only recently emerged publically, is microplastic. Microplastic is inflicted both by deterioration of OPW, but is also infused into water streams through the shedding of synthetic garments during the wash cycle (Image 4). Patagonia launched “The Cleanest Line” blog to educate and enlighten consumers about sources, prevention and newest findings on microfiber pollution (An Update on Microfiber Pollution, 2018). G-Star also joined forces with the Plastic Soup Foundation to further research into the topic of garment laundering and enhance washing machine manufacturing (G-Star Environmental Guideline, 2016). It becomes evident that the industry is putting its resources into this research topic to make further adjustments to existing and newly implemented materials and production lines, whilst addressing the topic of OPW from a different perspective.

Reusing OPW is a very complex innovation. It takes months to retrieve OPW and difficult to generate a pure yarn without traces of byproducts. The process of recycling and upcycling OPW implies not only high capital investment, but also adaptations to the supply chain in machinery and order of sequences. However, a handful of fashion brands (from which three examples will be examined in Chapter 5) are willing to take upon these restrictions and limitations, bearing in mind that reusing OPW helps balance ecosystems, cleans the oceans and preserves the planet.

“Everything we produce comes at a cost to the environment.” (Patagonia, 2018)
Having assessed the opportunities and limitations of OPW, it becomes clear that not all brands are equally suitable to implement the material into production lines.

Firstly, recycled OPW is more suitable for certain product categories than others (Image 5). It can surely replace 100% synthetic Polyester or Nylon products feeding into a circular economy, such as the category of swimwear. Research found that one large fishing net can be used to make approximately 1000 swimsuits (Morby, 2017). Seapia, an Australian swimwear brand founded in 2017, aims to make use of fishing nets found on shorelines and return them to the beaches, but instead of as waste, in the form of bikinis. The fishing nets recycled by Aquafil into Econyl (image 3) make it almost impossible to differentiate the recycled Nylon from the virgin equivalent: “The first reaction is ‘Is it really made from fishing nets? What does it feel like?’ But when they feel the quality and softness of the fabric, and understand its flexibility and durability, they quickly ask the question ‘Why isn’t all swimwear made this way?’” (Glover, 2017).

One product category that made immense progress in the past few years with using OPW, is the footwear sector. In April 2017, the sportswear giant adidas committed to producing 1 million pairs of OPW shoes, a goal that the company reached merely one year later. In 2017 alone, the brand launched three new versions of the UltraBoost shoe, with each pair consisting of 11 PET bottles incorporated into the lacing, lining, heel and upper. The goal was then elevated to producing 5 million pairs of shoes for 2018. Erik Liedtke announced that by 2024, the brand wants to eliminate all virgin polyester from products and replace it through recycled OPW (Liedtke, 2018). After creating a method to produce the upper of a sneaker in one seamless piece in 2012, adidas’ biggest competitor Nike also implemented OPW in the Flyknit (Woolf, 2017). Upon launching in stores, the shoe was sold out immediately and Nike began using the fabric in more silhouettes such as the Nike Vapormax, Kobe AD Flyknit and Flyknit Chuck Taylors. To date, 71% of Nike’s apparel and footwear contains recycled materials (Bain, 2017).

However, products consisting of material blends, such as denim, are not preferred to incorporate recycled polyester. As denim is primarily made of cotton, only a small percentage of further materials is applicable for OPW. Additionally, blended material require the adding of chemicals to mechanically recycled fibers, inflicting a further lifecycle for the product. Aside from a few examples such as Stella McCartney’s Falabella bag, who’s lining consists partially of recycled OPW (Stella McCartney, 2018), Calvin Kleins’ 2016 Met Gala Dress for Emma Watson made of woven recycled OPW (Sims, 2016) and Christopher Raeburn recycling an inflatable liferaft in his AW15 collection (Howard, 2015), there has not been much progress in the luxury sector in terms of reusing OPW. This might be due to the fact that luxury apparel often times includes embellishments and accessories incorporated into the garments, as well as blends and fabric mixtures, which make the recycling process more difficult and closing the loop rather impossible. On the other hand, this leaves much room for luxury fashion houses and visionary designers to turn trash into fashion, if not into Haute Couture and perceived luxury.

(Image 5: Polyester and Nylon (left and middle) are replaceable with OPW, whereas denim (right) and other material blends are not applicable for closed loop recycling.)
Primary markets in which OPW is used remains largely in leisure, performance and footwear. This is due to the fact that performance wear relies heavily on synthetic materials that can be replaced by recycled OPW fairly easily. Action towards substitution is mostly dependent on the brand’s engagement with the issue of OPW and willingness to implement sustainability conscious processes, not company size. Evidently, both large corporate firms, such as G-star and adidas, and smaller fashion labels, like Seapia and the Girlfriend collective, manage to implement recycled OPW into their companies. Depending on core values, sustainability strategy and resource allocation, brands invest a certain portion of their budget into adjusting production lines. Therefore, the monetary aspect is not decisive for the scalability for either small labels or big firms. However, startups and new brands have the opportunity to set up a business model and supply chains adequate for OPW, whereas existing brands, and large corporate firms such as adidas, need to invest into adjustments of already existing manufacturing lines before implementing the new material on large scale.
In the following, three frontrunner brands of different fashion segments will be analyzed. All companies take a fairly different approach to implement OPW, all considered successful in their own category. The first is sportswear giant adidas, who partnered with Parley for the Oceans, kicking off the collaboration through shoes and steadily expanding the project into further product categories. Second follows denim brand G-Star, who quickly but quietly is replacing virgin plastic with the recycled alternative throughout all collections. And lastly comes small apparel label Girlfriend collective, a startup that implemented OPW immediately as one of their core values, marketing it as their USP.

**ADIDAS**

adidas is known to be a fashion trendsetter in designing sports and athleisure gear, but also in terms of material and process innovation. Incorporating sustainability into their business model and seeing sports as a medium to change people’s lives, in 2015 adidas was looking for new ways to make a powerful statement. Selling organic cotton, recycled polyester and dry-dyeing clothing was innovative and sustainable, but not pivotal enough to excite large amounts of consumers (Liedtke, 2018).

Therefore, when Cyrill Gutsch from Parley approached CMO Erik Liedtke in 2015 about a possible collaboration, the brands quickly launched the long term initiative. Together, they started brainstorming about ways to solve the problem of plastics, and specifically, plastics in the oceans. Their collaboration started in the form of one single shoe. The shoe was first presented at the 2015 UN assembly, giving the collaboration the necessary spotlight to kick off the initiative, raise awareness and create a fanbase passionate about the topic. The category of shoes enabled large potential in terms of communication and marketing, especially to millennials, the drivers of change. "Footwear is just a sexier place to start, it’s what people get excited about." (Liedtke, 28 March 2018). From there on, adidas moved on into further categories, launching a swimwear line (Image 7) of OPW and limited edition launches of soccer jerseys. By 2024, adidas and Parley are aiming to create a supply chain exclusively for OPW, that will replace all virgin materials with recycled alternatives throughout all product categories.
G-Star launched the RAW Sustainability line in 2010 to boost the use of sustainable materials in fashion. Not only did this trigger a more sustainable approach for the brand, but also opened doors for further innovative material substitutions, creative communication methods and positioned the brand as a frontrunner to implement environmentally friendly approaches into their business (G-Star RAW, 2018).

While G-Star formalized its CSR department back in 2006, ‘RAW for the Oceans’ was the first sustainable capsule collection to be actively advertised in 2014 (Image 8). When co-founder Pharrell Williams pitched G-Star about the use of Bionic Yarns and the initiative to do good for the oceans through fashion, the brand was quickly on board to call ‘RAW for the Oceans’ to life. This presumed a long trial and error in the process, finding mills willing to work with G-Star during the R&D, adapting OPW to G-Stars needs and finding ways to communicate this message to the outside world. Although the capsule was as a pilot project, recycled OPW, like all other successful sustainable capsule collections, has since been strategically implemented throughout all production lines. G-Star’s goal is to thin out all virgin materials and replaced them with recycled alternatives and more sustainable options by 2020 (Galijasevic, 2018).

(Image 8: Pharell Williams, co-owner of G-Star, launched the collaboration with the aim to find a solution for OPW by implementing it into denim (G-Star, 2018))
Lastly, the Girlfriend Collective, a small sustainable athleisure label, took it upon themselves to use recycled polyester from Taiwan, the so-called “Garbage Island” and transform it into leggings. The brand transparently communicates all production stages, targeting women that care about where their clothes come from and how they are made. The Collective’s aim is to move away from the negative image that the fashion industry is taunted with and show that fashion can be eco-friendly and stylish at the same time (Image 9). The first splash was made in 2016 with the viral promotion of “free leggings”. This initiative asked customers to pay solely $20 for shipping expenses, and in return achieved over 10 thousand sales and sparked word-of-mouth publicity within the first 24 hours (Cheng, 2016).

The Collective has made it a point to be honest and traceable, creating a product that is not bought solely for its aesthetic and comfort, but with the mindset that doing good for the planet is fashionable. On their website, viewers have access to extensive and detailed information, from where the bottles are collected, under which circumstances they are recycled in mills, to the sorting process and ultimately the cut and sew of the garment. In April 2018, the Collective launched a new campaign under the slogan of “We like talking trash. We also like recycling it.” to continue efforts towards environmentally conscious clothing (Girlfriend Collective, 2018).

Concluding, fashion brands to currently work with OPW are majorly limited to performance and athleisure wear. This is due to its strong compatibility with the requirements and guidelines that the use of OPW implements, but also due to the fact that sports and athleisure promote a conscious lifestyle, that also induces conscious consuming. All three brands, adidas, G-Star and the Girlfriend Collective, have one major aspect in common: they acknowledge that caring for the environment is equally as important as economic success. If the brand does not prove to be profitable, there is not much time to promote change in the industry, meaning a healthy balance between environmentally friendly and economically successful practices needs to be maintained.” (Liedtke, 2018).
The inferential question to make OPW profitable in fashion evolves around the consumers’ perception of OPW and whether the consumer can be brought on board to buy into the use of this material.

By 2020, millennials will represent the largest demographic workforce, and thus the most buying power (Mellery-Pratt, 2017). As millennials, and in this matter also Gen X & Z, are laying more focus on sustainability, fashion brands need to cater into this mindset. These consumers concentrate on finding solutions for problems of our planet, making conscious decisions in regard to societal and political matters and thereby also trying to create personal growth. In return, they expect the same commitment from brands they interact with (Cone Communications CSR Study, 2017). Therefore, doing good socially and environmentally is no longer an added bonus for a brand, but rather a necessity. CEO of Patagonia, Rose Marcario, addressed this mindset at TechFestNW in April 2018: “Younger people see what’s going on, they know we’re using resources in a way that will murder the plant” (Marcario via Herron, 2018).

One of the most important approaches that fashion brands should consider when addressing OPW, is transparency. While analyzing varying company sizes and types, it became apparent that young small labels make a point to build a business model around the core value of sustainability, with a very open and honest approach to manufacturing. Small labels such as Sepia Swimwear and the Girlfriend Collective publish explicit and step by step traceable supply chain information on their websites and social media accounts. Larger brands, corporate firms and luxury houses however, often do not openly advertise their sustainability measures. Finding information on material use and environmental approaches is rather difficult. In annual reports and CSR publications (such as seen from Nike, or the Kering Group), the sustainability aspect is not actively advertised or the focus of attention, often even left out entirely. Instead, the issue is minimally addressed and sustainability goals set for the next decade are briefly outlined as a strategy. And while sportswear brands and fast fashion retailers are highly transparent in communicating sustainability measures (for instance the Girlfriend Collective and adidas), luxury brands such as Chanel, Versace and Dior ranked lowest in the Fashion Revolutions transparency index conducted in the beginning of 2018 (Fashion Transparency Index, 2018).
Ocean Plastic Waste in Fashion

For my graduation project, I am researching into the use of ocean plastic waste in the fashion industry. Therefore, I need the consumer's - your - perspective on this subject to assess the awareness of the issue itself and the potential for ocean plastics to gain ground in fashion.

Thanks for your participation!

- What is your age?
  - 77% 18-30
  - 13% 31-60
  - 5% 41-60
  - 5% 60+

- Are you aware of the plastic waste circulating in the ocean?
  - 100% YES
  - 0% NO

- Is the issue of plastic waste polluting the oceans a pressing matter to you?
  - 55% IT CONCERNS ME A LOT
  - 45% IT DOESN'T AFFECT MY DAILY LIFE
  - 0% I DON'T CARE

- Would you buy clothing made of OPW?
  - 93% YES
  - 7% NO

- Would you be more likely to buy a product if you knew it’s made of OPW?
  - 89% YES
  - 11% NO

- Do you actively help solve the issue?
  - 71% I TRY TO MAKE CONSCIOUS DECISIONS
  - 17% NOT REALLY
  - 12% ALWAYS

- Are you aware of the Girlfriend Collective initiative?
  - 92% NO
  - 8% YES

- Are you aware of the 6-Stars RAW for the Oceans collection?
  - 62% NO
  - 38% YES

- Are you aware of the Adidas x Parley collaboration?
  - 55% YES
  - 45% NO
All participants were aware of the plastic waste circling in the oceans; however, the data recorded show that it is only a pressing matter to roughly half. Of those who did rank OPW as a large concern in their daily lives, only 12% actively tried to make a change through recycling, avoiding single use plastics or reusing plastic products. When inquiring about the reasons why, most affiliated it with the limited possibilities that appear to hinder individuals from making significant changes. Recycling systems are difficult to access, recycled products are not actively advertised in retail environments, and the plastic packaging of many products makes it difficult to avoid. For example, Albert Heijn’s bio-avocados that are seen as the “good” choice, are protectively placed in a plastic container and sealed in a plastic outer, which makes it merely impossible to avoid plastic, even when making conscious buying decision.

Further, the familiarity of the campaigns assessed in the previous chapter showed that knowledge of OPW initiatives are not very widely spread. Merley 55% of participants are aware of the adidas x Parley collaboration, only 38% of G-Star’s RAW for the oceans campaign and a minimal 8% of know of the Girlfriend Collective. One factor to be considered when assessing these results is the recognition value of the brand. The Girlfriend Collective for example was almost entirely unknown, solely 6 participants were aware of the free-leggings campaign. This results to the fact that the Girlfriend Collective is a far smaller brand with much smaller reach, but also that the brand relies heavily on word of mouth and viral buzz marketing, with no campaign actively advertising the feature as much as is being done with adidas’ and G-Star’s campaigns. Overall, this concludes that although brands are tackling the issue of OPW in fashion, the publicity of these campaigns is not effective enough on large scale.

Lastly, the added value of OPW products was evaluated. Although 89% of participants stated they would be influenced and inclined to buy a product if they knew the product was made of OPW, only 69% would be willing to pay the extra cost induced by it. Amongst millennials, almost all stated that recycled OPW in clothing would influence their buying decisions, but would not be willing to pay for it. This can be lead back to the demand that sustainability and innovation should be a given in fashion, and that the consumer should not have to pay for it. However, Erik Liedtke stated that in the beginning phases, a brand can upcharge for the innovation: “You can charge more for innovation, and consumers are willing to pay for that for a million pairs.” But once the innovation is scaled to larger volume and has set ground, prices need to be normalized, especially if OPW should become a crucial material throughout all collections (Liedtke, 2018).

Now the underlying question arises whether it is necessary to advertise OPW as a prominent factor to attract the consumer. According to the research and survey outcomes, OPW is seen as a pleasant addition that adds value to a product, but it is not the only factor influencing purchasing decisions. It does however incline consumers, especially millennials, to invest into a product and brand that concerns itself with societal matters that are in line with the consumers personal core values. For the future, implementing sustainable approaches such as OPW, recycled material alternatives and less environmental waste will affect credibility and profitability of a brand, as sustainability is developing into a much needed prerequisite.
The extent of plastic circling in the world’s oceans is evidently increasing, with current plastic production of 300 million tons estimated to triple over the next 30 years. To effectively make a change against plastic, the material needs to be replaced entirely. As this provides itself challenging and most importantly first requires the invention of a substitute, eco-friendly alternative, measures taken to find solve for the problem at the opposite end of the spectrum are vital. Actions taken against ocean plastic pollution in this decade are crucial for the century to follow, as the plastic accumulated in the ocean will break down into microplastic, and the longer it remains in the ocean, the more difficult to retrieve.

It has been established that the implementation of OPW is complex and intricate. The retrieving process takes months, creating a pure yarn to close the loop requires extensive R&D processes and the implementation of OPW into existing supply chains is costly. But most importantly, recycled OPW is suitable for synthetic fibers and man-made fabrics, but inapt for material blends that render new life cycles of products. Therefore, replacing virgin polyester through OPW requires a brand that relies heavily on synthetic materials, positioning the recycled material as a niche material. Having analyzed both creative industries and fashion brands using OPW, it becomes evident that the implementation of OPW is mostly dependent on brands’ willingness to incorporate sustainability in the company’s business model. The underlying takeaway is ascribed to doing good for business, but also the eagerness to do good for the planet.

With millions of tons of OPW currently floating in the oceans and plastic production increasing by 10% annually, there is enough resource to supply the fashion industry and replace the use of the virgin equivalent. And pivotally, the consumer expects the transition to environmentally conscious approaches in fashion. Using OPW, and any other sustainable concept in this regard, inclines customers to buy into a product and builds brand loyalty that paves the way for a profitable and feasible future for the brand. The most crucial finding is that OPW does not infiltrate a limitation to be used in further product categories outside of sports and performance wear, such as the fast fashion sector as well as luxury and high fashion. All products made of synthetic materials and virgin polyester can be substituted by OPW, providing immense opportunity for the image of OPW to be polished through luxury brands. In a time where luxury is being redefined, streetwear is infiltrating its way into high fashion and the employment of a number of new, young, creative directors breathing fresh air into luxury, this market carries potential.
Luxury and Ocean Plastic Waste

Behind the scenes of luxury fashion houses, steps towards a sustainable luxury approach are slowly implemented. Stella McCartney continuously sponsors students of Central Saint Martins to pursue Masters courses in sustainability to educate about environmentally friendly practices, Donatella Versace announced Versace's split from its staple item fur in 2018, moving to eco-friendly alternatives, and the Kering group linked additional bonuses to enhance sustainable practices throughout their sub brands. But most importantly, with the blurring of lines between sports-, street- and luxury wear, the use of synthetic fibers is increasing in this market. As previously assessed, the footwear segment is the most alluring to attract attention and make a difference, and with luxury sneaker sales having increased by 150% in 2017, the possibilities for OPW in luxury are promising (Wang, 2018). High fashion can alter the image that waste is automatically trash, and instead give it an extravagant and luxurious reputation. And what luxury houses show on the runway and in their collections is quickly also picked up by fast fashion companies - the sector that creates the most mass in fashion. So whilst luxury acts as an initiator, the streetwear brands and vertical retailers will follow as the voluminous executors. OPW therefore does not have to be limited to niche markets or a small number of brands, but instead can break through into the fashion industry on numerous levels and sectors.

The fashion industry might not be the most efficient to use OPW in terms of quantity and profitability, however it functions a huge driver of controversial and influential issues. With its global exposure, it is an extremely effective messenger to communicate and shine light on the issue, ultimately animating other industries, society and individuals to make a change. We have no Planet B to fall back on. In order to make a substantial implementation of OPW amongst not only fashion, but also various industries, all parties along the supply chain - from the creative design department, material suppliers, manufacturers as well as retailers and marketers - need to be activated to urgently engage with the topic and adjudge OPW the momentum to become a relevant and a widely used raw material. The future seems auspicious: there is a wide array of powerful brands with the resources to make a difference in this world, young startups with the desire to embed closed loop production into their business models and an entire generation eager to support steps towards a “better” creating and consuming.
TRASH CAN BE TRENDY,
HELP POLISH THE IMAGE OF PLASTIC
AND CLEAN UP OUR OCEANS.

Good Sports: Player for the Planet, Parley For The Oceans


Brambini, R., Interview, March 18th (2018).


Watson, P. (2015). If our oceans die, we die | Captain Paul Watson | TEDxNoosa.


Personal Motivation:
Parley is “his baby”
Adidas was midst in resetting the brand around what they wanted to stand for, as the mission is that through sport you can change lives.
A strong statement means nothing on a powerpoint, but if you live it as a brand, it becomes a very powerful statement.

Wanted to be the first successful company to make business but do less harm to the earth & the people livin on it.
“It can’t just be about doing good. It must also be about doing good for your business.” (not exclusively one or another)

Looking at the options that Adidas was doing, but selling organic cotton, recycled Polyester and dry-dye clothing is not per se sexy to the consumer.

Erik Liedtke met Cyrill Gutsch, decided to start figuring out how to solve the problem of plastics & specifically plastics in the ocean.
Follow your passion, life is too short to do something out of obligation, you gotta do it out of love.

Cost:
Step 1: “The cost of innovation is always more expensive in the beginning than programs that you are scaling.”
Upfront cost has to be “eliminated” from the potential cost of the program, because you know going in that it is going to be an investment.
Step 2: “You gotta start somewhere. Let’s make one shoe, and then we will worry about what’s next.”

1st shoe 2,5 years ago of recovered gillnet
Fortunate enough to have a UN assembly where the shoe was presented, which led to 2017 selling 1 m, and will lead to 5 m in 2018, and all shoes in 2024 (completely off of virgin polyester in supply chain).
Scaling: cost needs to get down, and you can’t upcharge the consumer dramatically; in the beginning with limited edition and few thousands, consumer was upcharged by 20% more (modeled that its from ocean plastic vs. normal, added value to recover raw materials) “You can charge more for innovation, and consumers are willing to pay for that for a million pairs.”
When you scale into more mainstream: 1st more volume into market, you can’t afford to always upcharge consumers, you have to normalize prices.

Category:
Shoes & Shirts primarily - Shoes as initiators, the scale it

Big in apparel, but primary promotion is in footwear as it is easier to advertise to the consumer (better 11 bottles in 1 shoe then 1,5 bottles in a t-shirt)

Communication to consumer big influencer

Footwear is a sexier place to start - many sneaker blogs but no hoodie blogs
- it’s about what people get excited about and it’s no question that you win especially GEN X & Z (big drivers of change) through shoes.

Implementations: New production line x Parley in Taiwan

A (Awareness) I (Intercepting) R (Redesign)

A - educating & creating awareness about issue (always start with the oceans and who live in the oceans)
I - how to set up a system to recover what is in the ocean or stop what goes in (1 dump truck of plastic per minute), so turn off the faucet of plastic into shorelines & oceans; intercept on beaches & oceans through collecting agencies with UN in small islands (started in Maldives and moves to Caribbean & South Pacific)
R - redesign plastic to biodegradable and recycled materials, question the why of the use of plastic; cradle 2 cradle solution, what do you put in and what do you gain when recycling, make a lifecycle that is looped & given a new lifecycle
Only 30% of plastic in the world is really being recycled.

Consumers:
GEN Y & Z consumer (millenials) are willing & anxious to participate in the worlds problem and are willing to pay more for trusted resource when they know it’s not just greenwashed.

Run for Oceans e.g. - Initiatives starting, trying to spread word where can, easier said than done, one foot in front of the other

General feedback has been overwhelmingly positive

SXSW (South by SouthWest) - arguing in a new way, the awareness is not there yet, everyone throws away “but there is no away”, we as a species need to “solve the problem or pay the ultimate price”
Recycled Ocean Plastic:
Depending on the yarn there are issues (such as breakage during weaving) Not only implementation in existing Supply Chain, there is a lot of R&D (research and development) behind it To get the yarn to perform in a certain way and perform in certain ways takes new engineering When GStar started, there was a high waste in the beginning before it was fine tuned Barrier towards it is the start investment of this Trial & Error period to achieve a certain performance desired by the brand (it’s not just replacing yarns and simple as that)
Microplastic pollution (Plastic Soup Foundation) is being researched that depends on how the fiber is formed; Fleece e.g. has more plastic particles coming off of the yarn (filaments get into the system) but it is unknown which fabrics give off most into the water systems and which have the most impact
Still a Pilot Project “You don’t know what you are getting when you are recycling. It’s not like you can collect all the trash and recycle it. If there is antimony in it and other heavy metals, why are you putting this in the circle again? There is a huge dilemma on how to control the purity of the waste.” “It’s not about being circular, it’s about circulating good things.” A certain level of purity needs to be reached that is not there yet; if the recycled plastic retains heavy metals and hazardous chemicals Innovator brands: Patagonia, Levi’s, everyone does their own thing in their own way depending on their strategy and sustainability approach “We have to rethink how we design plastics. The waste is a design failure.”

GSTAR:
Approached by Pharrell (who is in charge of Bionic Yarns) All were on the same page, it came organically from a conversation that went hand-in-hand 2010 - RAW sustainability line (RAW organic, RAW Nettle, RAW Recycled) - capsule was stopped and integrated across all production lines 2014 - RAW for the Oceans as capsule collection (before integrating it across other collections) - The capsule was there to raise the Awareness, then the technology moves along deeper into the company

By 2020, Gstar has the goal of updating materials - 100% cotton, all polyesters replaced by recycled polyester, from ocean plastic but also from other recycled resources (e.g. Trays of airplanes, Repreve Recycled Polyester etc.) There is no information about how much and where and involvement until then, as it is being implemented across all collections and replacing all virgin polyesters; Gstar tries to replace everything that currently uses Polyester by recycled polyester Mills had to be found that are willing to go and test with you, find mills that are open to loose time and energy and resources of their own and invest in an R&D process (Find partners that are on the same page) Mills are all over the world (Turkey, Pakistan, Bangladesh) that depend on the product category and styles produced (Denim, Sweatshirts, T-shirts) “The industry is moving in the right direction” Work with Cradle-to-Cradle to think of ways for chemical recycling for the future - huge research to be done still

Why not adapted on a bigger Scale?
GSTAR is a denim brand that has 80% of the collection being cottom (so this only influences less than 20% of the collection); and when you have a monofiber it is easy, but when you have a blend, especially in denim - when polyester gets brought into it there is also Elastane - how will you separate it again? So many building stones to be thought of Blending it with other fibers is a big issues that cannot be recycled in a closed loop after it (what’s the point of this) Trial & Error and R&D is extremely expensive “It's not cheap” If there is a system and there is high demand, the price will go down. If it can be implemented seamlessly into the current systems of Supply Chains that is a bonus; if the entire production process needs to be changed then there have to be adjustments to introduce it More expensive than regular polyester due to the infrastructure (NGOs, retrieving, sorting etc.) Work in Progress Not every mill can use it; you need to find mills that are willing to invest in this Will it have a future? Should not only be in fashion, this can be a resource for something else (e.g. Fuel for cars) “There is so much innovation, it’s not only in the fashion industry that it can be used.

Communication:
RAW for the Oceans was the first time that the sustainable campaign has been
messaged to the outside, although the CSR department was formalized in 2006 already
Received positively, also led to RAW for the Planet; Most sustainable jeans;
Renewed Denim etc. (to raise it to another level of awareness)
Not just about the consumer, it is about everybody
Raising awareness across other industries, not only fashion industries
Even as far as EU and further research (Such as Greenpeace focusing on
Oceans, research into Microplastic)
“We noticed that by raising the awareness people actually get involved and
start to care”
“Widespread message to get the industry on board”

Interview Roberto Brambini, Hydrodynamic Project Engineer
The Ocean Clean Up

Roberto:
Develops the system of retrieving it
Studied Sustainability as Bachelor and Engineering as a master
Motivation to start with the Ocean Clean Up was during an internship during
studies (found the project very interesting and the idea of being in a start-up
with this technology)
Started with Mega Expedition in summer 2015, 1 month to the pacific on the
vessel to sample plastic and gain understanding on the plastic distribution
Small start up that in 2015 was still 20 people, grown to 60 people already
Separation between the different materials and quantities:
Details are still confidential on how the plastic will be sorted
Microplastic - tiny debris less than 5 mm (dimensions); hydrophobic
Plastic Debris - larger plastic debris up to 1m, any debris that is found in the
ocean in form of plastic (can be a can, can be a bag etc.) that over time
becomes microplastic
Ghostnets - Big amounts of ropes & fishing nets (discharged from vessels and
accumulated in rivers) that threaten the environment b/c turtles, dolphins &
进一步 marine animals to get entangled in them; also get into digestive system
of fish that further get into the human food chain; also threatening for fishing
industry as they entangle in propellers with ships
Microplastic is Hydrophobic, heavy metals (such as PCBs) that attach to the
microplastic debris; atm it is extremely difficult to receive this

Ocean Cleanup:
System aims to retrieve plastic debris from 1cm on (threshold)
Studies of vertical distribution of plastic that found that microplastic gets
pushed deeper down, whereas the larger debris can be captured at 1- 3m
below the surface where it accumulates
Focuses on category 2 & 3, as these will over time become microplastic
Microplastic will be tackled later on (biggest issue)
Plastic debris captured is brought onto shore to a developing system
Team of research & recycling that focuses on what happens after the plastic is
retrieved
Biggest issue: Distribution of plastic in the ocean
5 big whirlwinds where majority accumulates
“Yes, there are these 5 accumulation areas in the world. With the currents and
winds the ocean accumulates the plastic debris in these areas. But still they are
quite large areas. Also for this reason we develop a fleet; we will start with a
system and see how it goes.”
Biggest in the North Pacific, place of start of the fleet where Ocean Clean up
will be launched
“With expeditions that we did we saw that a lot of materials come from Asia,
then they travel north going to Alaska and then they go back south, and with
the end of the circle it accumulates between Hawaii and California.”
It takes time for the plastic to travel (1 year and more)
“What is kind of good in a way, mainly what you find in these areas is plastic,
it travels for years before arriving there. All materials deteriorate before, while
plastic is really strong and hard to destroy. 95% of the material in these areas
is plastic.”
It will take years and years to get the oceans plastic free
In the next 5 years the Ocean Cleanup wants to clean 50% of the Pacific patch
from the plastic
If you don’t close the loop and reduce plastic input, you can clean and always
more plastic will arrive
The inputs in the ocean are not decreased there is a finite problem of plastic
waste to be found in the ocean

Goal
Become sustainable and profitable based on our plastic
How to give value to this plastic is the focus to create revenue
Especially for fashion - there is not value only the product, but if there is also
environmental value, then there is added value to the product, that needs to
be communicated
At the moment the Ocean Cleanup continues based on Donations from all over the world
Most expensive part of the Ocean Cleanup are offshore operations
The system needs to be developed
“We have this system that will be operating for years in the oceans and the ocean is not really a friendly environment.”
Offshore operations are quite costly, such as repairing, vessel need to be transported from California to the middle of the ocean and the system functioning is key for the innovation to work

INTERVIEW DEREK SABORI, VOLCOM INDEPENDENT SUSTAINABILITY ADVISOR

Derek Sabori:
Independent Sustainability Advisor
Essentially created Volcom’s sustainability program in 2005 (then known as Volcom Verde)

Volcom:
Committed to being part of the New Future, strong oceans, stable climate, society playing active role in protecting the planet
Learned through Kering’s EP&L that a large part of environmental impacts is associated to the Supply chain in Tier 4 (Raw materials) and Tier 3 (Raw materials processing)
65% of Volcom’s impacts are due to fiber choices; if the source fibers are not associated with such intensity of virgin material (e.g. recycled fibers) that take a toll on earth through heavy processing and extradition and still have products with same quality it’s a win win for environment, brand and customers
Included recycled plastic in t-shirts, denim, swimwear and board shorts

Recycled Plastic
Brand uses recycled PET (rPET) from post-consumer plastic bottles from Repreve
Needs to find suppliers that can implement the fiber efficiently in existing supply chain
“Volcom has worked for years developing fabrics, and finishes with a selection of vetted suppliers so when we decided that we wanted to move to a recycled fiber option, we needed a company that knew how to integrate seamlessly into the types of fabric mills we were working with and in the regions we were producing”
Quality needs to be assessed - can the recycled fiber quality suit the needs of the fabrics being developed?; some require long fabric filaments, other shorter staple fibers
Design team works on look, feel and wear, as well as performance expectations; once that is established, performance and wear is tested
Recycled plastic is more limited than fully commercialized (niche role) because of the collecting and sorting ocean plastic is a complex business and so it can be difficult to ensure plastic grade for material use
Actively looking for other materials such as plant-based nylon as well as PHA (Polyhydroxyalkanoates, plastic which is fermented bacteria
Other bioplastics can be made from sugars, biomass and organic waste; harmless in the ocean and can be continuously looped
“All in all, it’s a great time to be in the space, because there are so many innovations that are in development. All in the hope of cleaning up the mess the apparel industry is known for”

Costs:
Last step of implementation is cost: “Lastly, we look at cost. How much will this decision/switch affect the cost of the fabric and thus the garment? Will it require us to raise the price of the product? Will the market bear price adjustments?”
Recycled fibers are a "commodity play: when oil is expensive, recycled fibers are more economic; as the price of oil drops, recycling can find itself costing more than conventional fibers making it tougher for some companies to stick by the choice.”

Communication:
Sustainability is become more and more part of Volcom’s marketing message
Work with Repreve for in-person and on-site experience to teach customer how processes work, why recycling is important and how likely they will not be able to tell that the product is made of recycled plastic
Videos, in-store displays and website to tell the story
Customers love when they know that the goods they appreciate are made more sustainably
To find out how many are actively shopping & seeking out those fibers and then making their purchase because of sustainability features is hard to qualify
Interview Annette Kres, Sustainability Expert

Personal Motivation:
Found that sustainability, overconsumption and ethics in the fashion industry was a topic, because main goal of each brand is to sell as many goods as possible and make money
Master “Interdisciplinary Design” in Basel, focus on sustainable innovation & alternatives
Currently Designer at Odlo

Costs:
Odlo, who is doing not financially great, does not see this as primary investment, does not see the potential added value for the customer that comes with a bit more money but also more value to the product
Might be more expensive in the short run, but do not consider the long run
Brands that implement it also want to communicate, that means the implementation does not stop at the production line and replacement of raw material, but there has to be investment in hangtags, marketing & communication to the customer, more difficult
“Rebound effect” - backlash from recycled material, if plastic can be reused I can use as much of the raw material as I want, contrary to aim

Consumer:
Having only a limited amount of products in recycled “better” approach makes the consumer question if the rest of the collection is automatically “bad”
Shopping has to still be a positive experience and the sustainable aspect should be a benevolent side effect that adds extra value to the product
Makes it interesting to give transparency and educate the consumer about how this works
Transparency attracts consumers, exact process behind the making & costs (e.g. Honest Buy)
Consumers are not yet entirely aware of the principle that waste does not have to equal waste (One customer asked “If this leggings is made from waste then why is it so expensive”) where the focus of recycling should shift away from the concept of waste to creating added value, upgrading it away from waste and putting it back into the loop
Scalability:
Has a small label which uses Econyl, quantities are very small (25 pcs e.g.) which makes it expensive, whereas Stella McCartney & Adidas have larger quantities
But it is accessible to all and depending on strategy of a brand and focus point it is possible to implement in small as well as large companies
“For some brands it might be difficult to position themselves as sustainable only for a few products as they are scared that the customer will say ‘What about the rest? Are those not sustainable?’” - makes brands vulnerable
Dependant on strategy (e.g. VD or Girlfriend Collective)
Does it have a future? - necessary to research into substitute materials; but it is not all B&W, there is a large grey zone because for certain goods plastic/PET is more suitable than 100% cotton e.g., therefore plastic is not just bad
From marketing perspective - Greenwashing & PR use, do you need to tell everyone if you want to be environmentally good or can you just implement it due to ethics without the storytelling and marketing? (depends on positioning of the brand, if its a “new brand” with the USPs in that direction then make it a point, but existing brands that want to be environmentally friendlier communicate small on the website due to conviction rather than PR)
What is your age?
- 77% 18-30
- 13% 31-40
- 5% 41-50
- 5% 60+

Are you aware of the plastic waste circulating in the ocean?
- 100% YES
- 0% NO

Is the issue of plastic waste polluting the oceans a pressing matter to you?
- 55% IT CONCERNS ME A LOT
- 45% DOESN’T AFFECT MY DAILY LIFE
- 0% I DON’T CARE

Do you actively help solve the issue?
- 71% I TRY TO MAKE CONSCIOUS DECISIONS
- 17% NOT REALLY
- 12% ALWAYS

Would you buy clothing made of OPW?
- 93% YES
- 7% NO

Would you be more likely to buy a product if you knew it’s made of OPW?
- 89% YES
- 11% NO

Would you pay more for products made of OPW?
- 69% YES
- 31% NO

Are you aware of the Girlfriend Collective initiative?
- 92% NO
- 8% YES

Are you aware of the G-Stars RAW for the Oceans collection?
- 62% NO
- 38% YES

Are you aware of the Adidas x Parley collaboration?
- 55% YES
- 45% NO
TRASH CAN BE TRENDY,
HELP POLISH THE IMAGE OF PLASTIC
AND CLEAN UP OUR OCEANS