



FASHION FOR GOOD

INVESTING IN TEXTILE INNOVATION

The opportunities for investors in the
textile and apparel innovation ecosystem.

OCTOBER 2019

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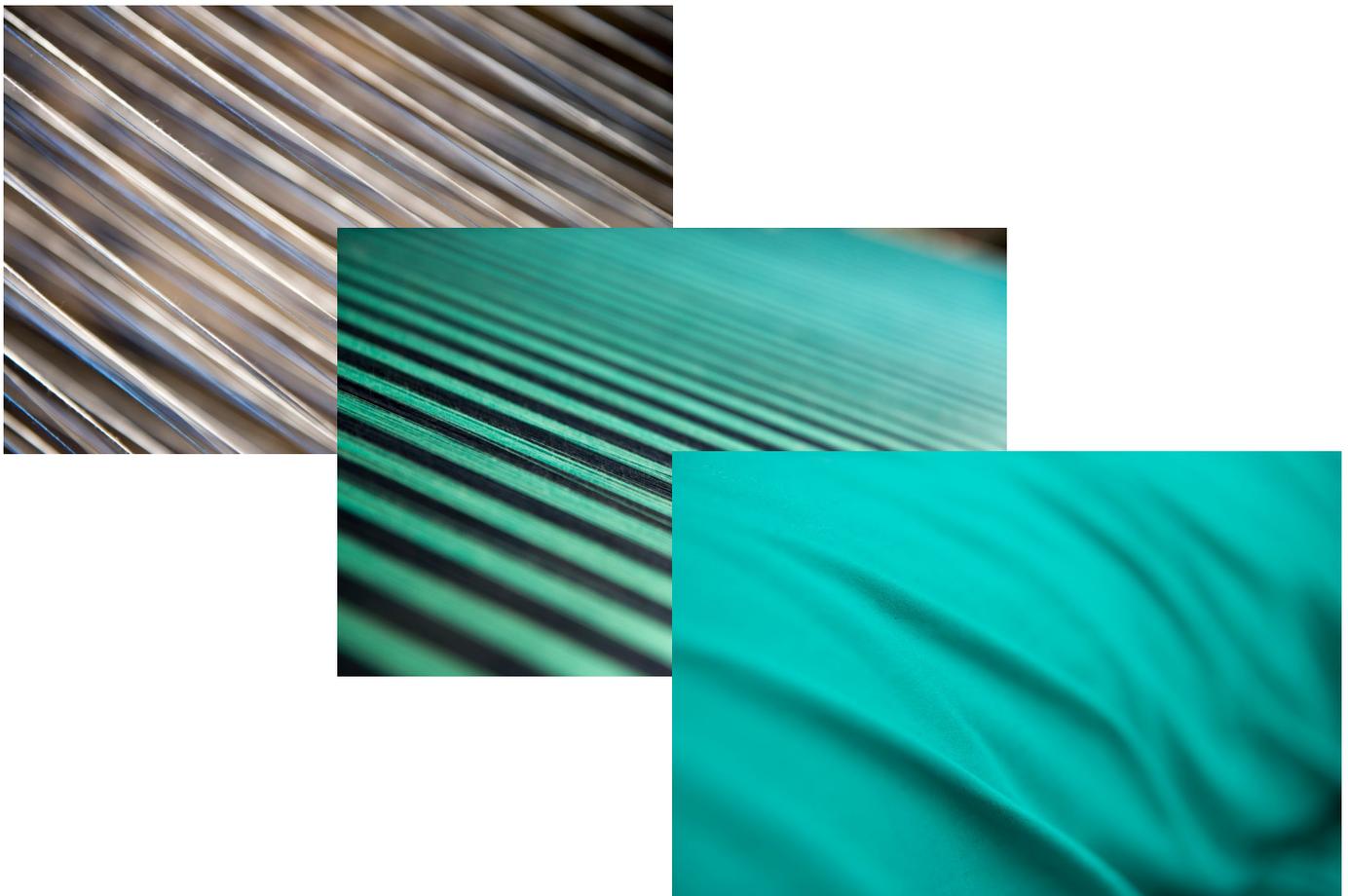
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INTRODUCTION

Textile tech is a relatively recent theme and despite the size of the Fashion Industry, a \$1.7 trillion market, over 2% of global GDP, only a limited number of investors are exploring the field in detail. Innovation is desperately needed to radically improve fundamental processes within the supply chain which is still largely based on century old methods.

The environmental and social impact of the industry is enormous, creating numerous opportunities to drive positive change. Also, it presents a highly compelling investment proposition, given that the space is new and comes with relatively little competition from other VC funds or strategic investors. The industry is clearly ready for innovative solutions, as evident in the ambitious sustainability targets set by many large brands and retailers, some of which are not attainable without innovation.

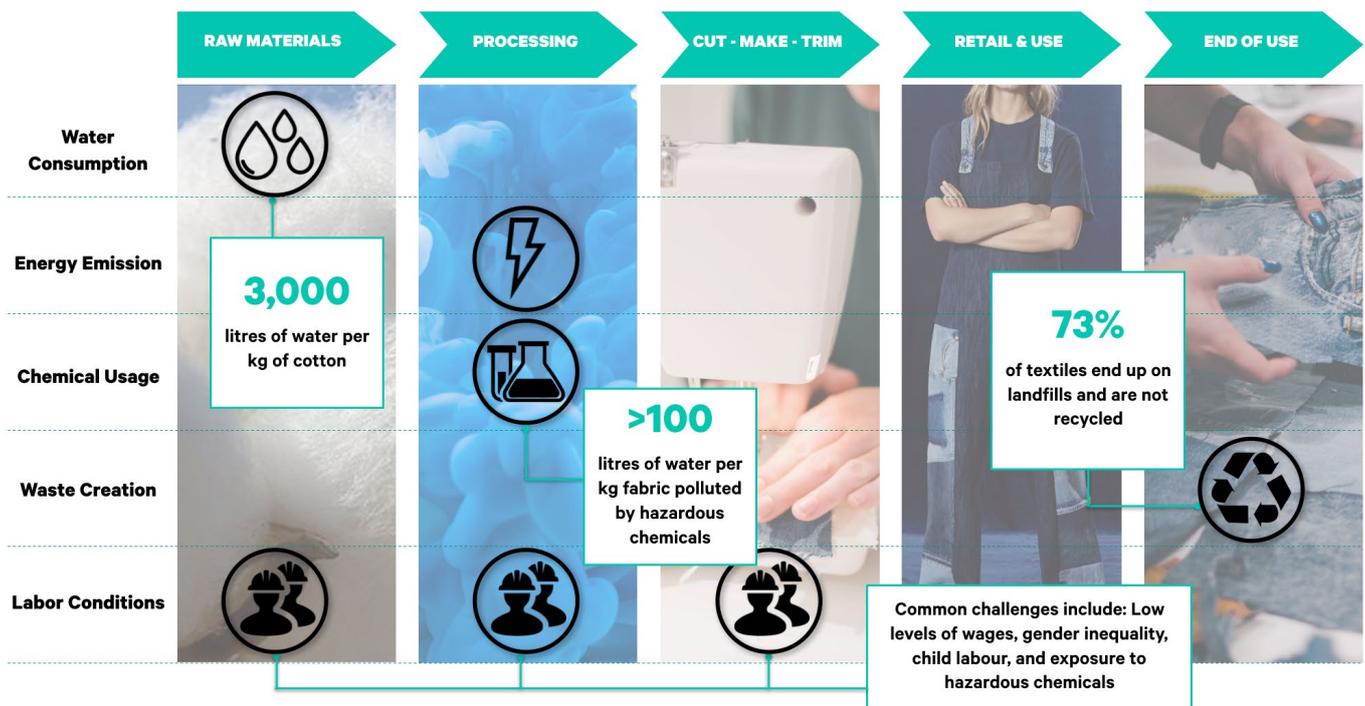


THE TEXTILE AND APPAREL INNOVATION OPPORTUNITY

Current fashion supply chains are ranked amongst the most wasteful and polluting on earth, built on extraction of large amounts of natural resources and a linear production and consumption process. Given this, apparel and footwear production and consumption have resulted in significant and irreparable effects on the planet. The effect of this industry, which is expected to continue its rapid growth in volume of ~4% Compounded Annual Growth Rate (CAGR) for the next 10-15 years, are most felt in terms of water consumption, energy emissions, waste creation and chemical usage.

Vital industry challenges include:

- 8.1%, or the equivalent of 3,990 million metric tons CO2 p.a., is attributed to the apparel and footwear industries
- More than 3,000 litres of water is required per kg cotton produced
- Greater than 100 litres of water per kg fabric is polluted by hazardous chemicals
- 73% of textiles end up in landfills or incinerators, less than 1% enters a closed loop recycling process



Source: Fashion for Good

THE TEXTILE AND APPAREL INNOVATION OPPORTUNITY

Many of the harmful supply chain stages in the fashion industry have yet to undergo significant or fundamental changes since the industrial revolution. Progress across the supply chain has primarily been made on the back of incremental, efficiency-focused initiatives, rather than implementing disruptive innovative technologies.

At the same time, brands and retailers are increasingly committing to radically improving their environmental footprint. Over the last 5 years, we have seen a record number of European and US brands commit to more sustainable operations. In order to meet and exceed these ambitious commitments, new technologies and innovative solutions must be introduced and implemented in order for the industry to move beyond the current linear “take, make, dispose” model, towards a model that is restorative and regenerative by design.

Consumer behaviour and government views are also rapidly changing around the globe. A growing awareness amongst consumers with regards to social and environmental issues tied to apparel and footwear production further accelerates the drive to move the industry forward. Stricter environmental regulation, and policies integrating circular economy, are increasing pressure on the industry to change.

The good news is that many viable solutions exist. However, there is a lack of capital available to scale these technologies within the supply chain. Innovation platforms, such as Fashion for Good, have seen a wave of new fashion and apparel innovations designed to drive transformation across the supply chain. In just two short years, Fashion for Good has identified over 1,500 innovators, each developing much needed innovation applicable to this industry, of which more than 80 have been selected for their Accelerator and Scaling Programmes.

These innovations intend to bridge the technology gaps in the industry, helping major brands and retailers to go from today's practices to meeting their future sustainability goals.

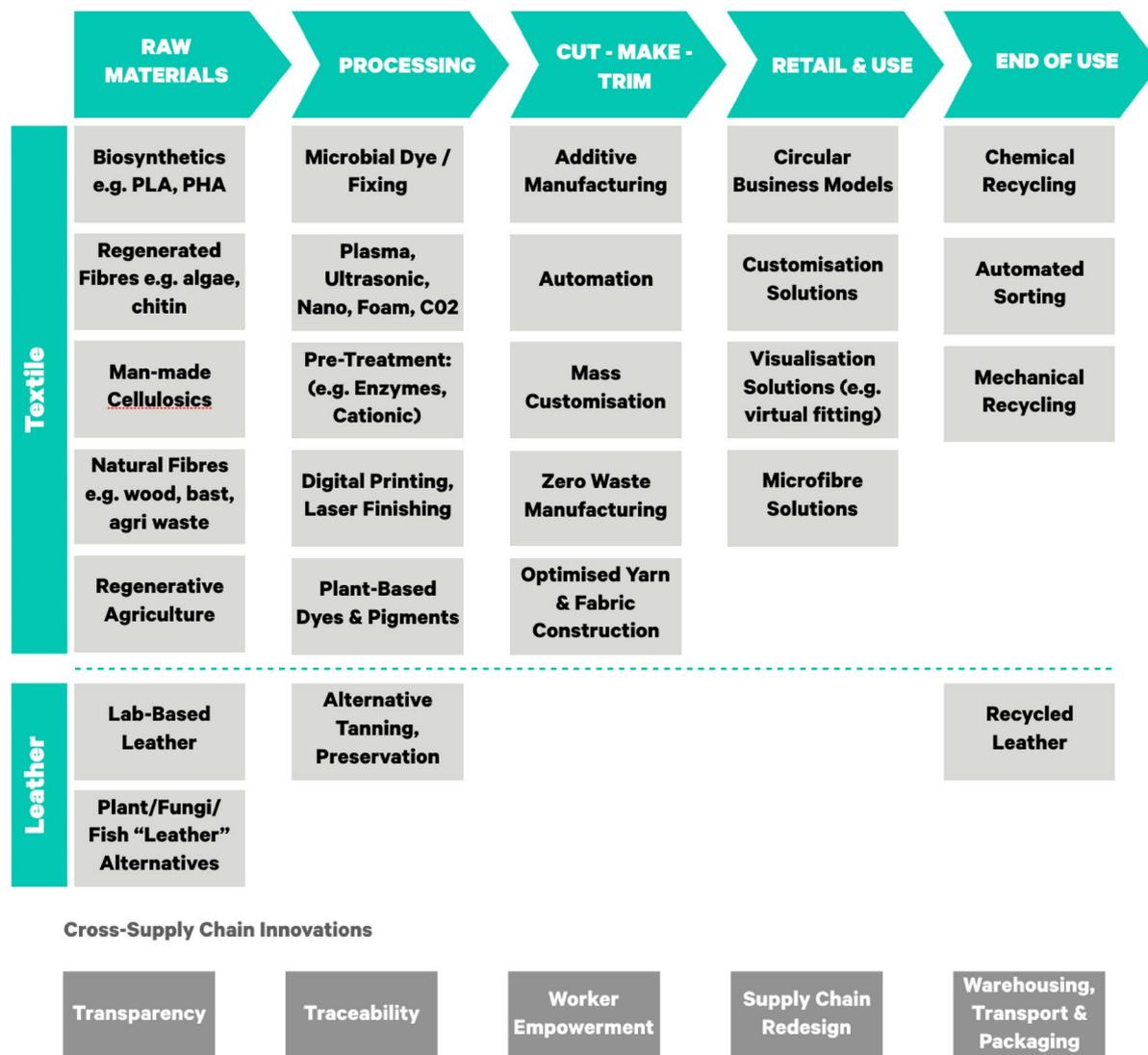
INVESTMENT OPPORTUNITIES: THE TEXTILE AND APPAREL INNOVATION LANDSCAPE

In less than a decade, myriad innovative solutions in materials and technologies across the apparel and footwear supply chains have emerged. These innovations range from improvements in resource efficiency to a radical re-thinking of production processes and business models.

Together, these innovations will not only decrease the footprint of textile production and distribution, but also change how we buy and use clothes. Fashion for Good has mapped the key technologies on the industry’s current watchlist below.

These innovation areas represent different stages of maturity and have different capital intensity, disruptiveness and return profiles.

Technologies with the Potential to Disrupt the Fashion Value Chain



Source: Fashion for Good

Note: Spinning, knitting & weaving are not listed as separate steps in the value chain. Although they are typically considered as separate steps, innovations in these areas are included in the other steps.

INNOVATION TRACK RECORD

The textile innovation space is still relatively new and therefore has a limited track record. The attractiveness of the investment proposition can however be underlined by the successes some innovators have been able to secure over the last decade. Some entrepreneurs have built up strong businesses focused on the upstream fashion supply chain, and some have successfully exited.

Three innovators, focused on finishing, additive manufacturing, and digital printing are highlighted below. These are great examples of innovations that have grown into substantial businesses with significant revenue by securing millions in investment funding.

FINISHING

Jeanologia™
The Science of Finishing

Jeanologia's laser technology is applied to c. 20% of the "jeans" manufactured around the world, allowing for an increase in productivity, reduction of water and energy consumption, while eliminating waste and harmful emissions.

1994: Company founded in Spain

2016: Minority sale to MCH Private Equity

2019: €60m investment by Carlyle (at least partly secondary)

Sources: Crunchbase; Fashion for Good Analysis

DIGITAL PRINTING



Kornit Digital develops, manufactures and markets industrial and commercial solutions for the garment, apparel and fabric industry. With its integrated pre-treatment solution and its CMYK inks, it is revolutionising the roll fabric industry by enabling printing with one ink set on all kinds of fabrics.

Sources: Crunchbase; Fashion for Good Analysis

2002: Company founded in Israel

2011: \$19m investment from Fortissimo Capital

2015: Initial Public Offering (IPO)

2019: Raises additional \$150m on Nasdaq at >\$1bn market cap

ADDITIVE MANUFACTURING

Carbon[®]

Carbon, the world's leading Digital Manufacturing Platform, is reinventing how polymer products are designed, engineered, manufactured and delivered, towards a digital and sustainable future. With its technology, manufacturers can unlock new business opportunities such as mass customisation, on-demand inventory and previously impossible product designs.

Sources: Crunchbase; Fashion for Good Analysis

2013: Company founded in California

2013: \$11m Series A led by Sequoia Capital

2015: \$180m funding round led by BMW iVentures, GE Ventures, GV / Google Ventures

2019: \$260m at >\$2bn Valuation

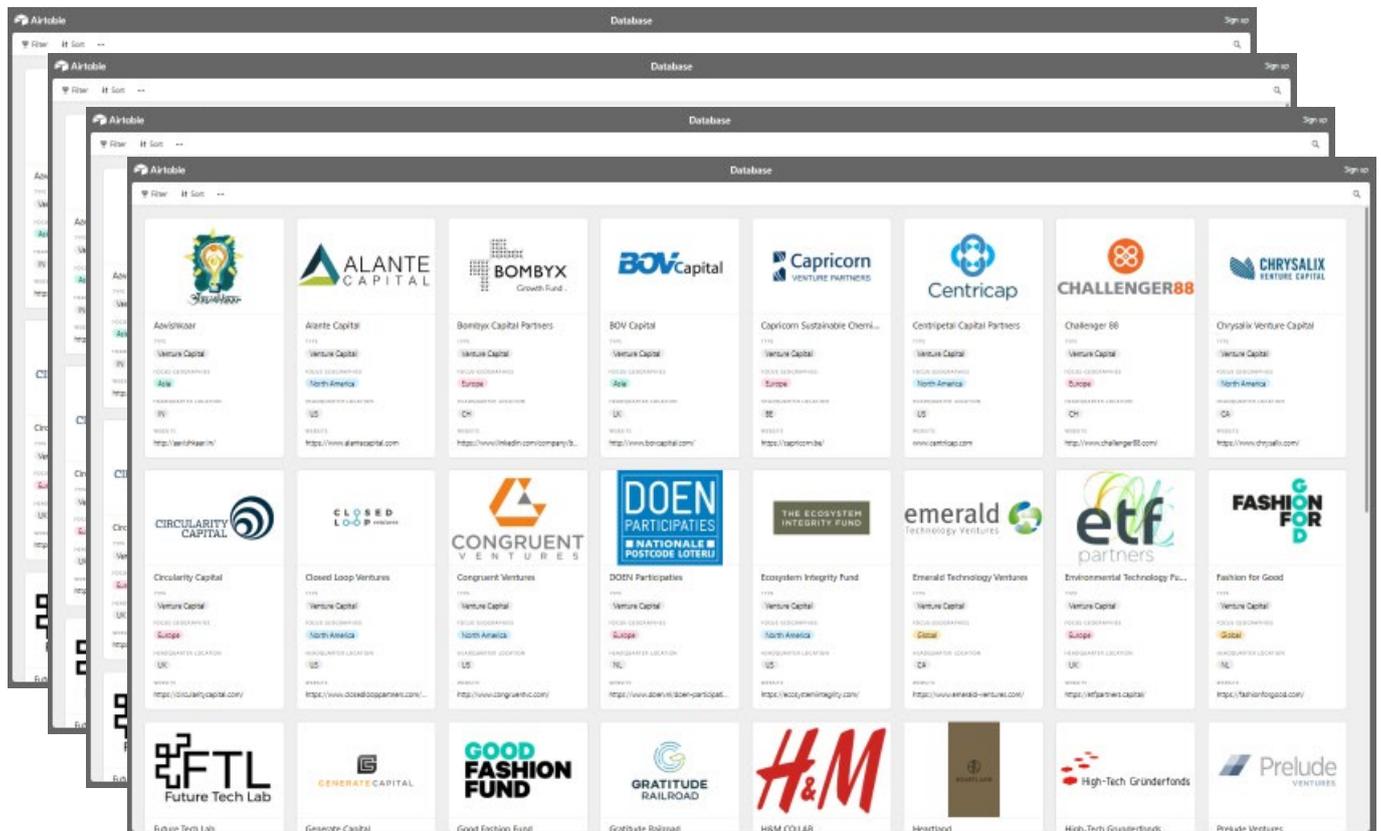
THE INVESTOR LANDSCAPE

Disruptive innovations can only grow from lab to industrial scale if brands, manufacturers, innovators and investors work together. For many of those disruptive technology ventures, high risk and high reward equity capital is required to pilot, implement and scale these solutions.

To date, the amounts of capital available in the textile innovation space is still small in comparison to the magnitude of the problem or in comparison to the aggregate financing requirement of the most promising innovators. As a result, access to early and mid-stage venture capital funding consistently crops up as the most pressing element hindering innovators from progressing.

Given the industry's readiness for innovation, the commitments of the brands and retailers, and the size of the industry, it is not surprising that a number of venture capital funds have been established with a dedicated primary or partial focus on this theme. However, the amount of capital is still relatively small, indicating investors are overlooking a promising investment theme.

An overview of those pioneering venture funds with a dedicated focus on textile innovation has been compiled by Fashion for Good. **Access it at fashionforgood.com/investor-landscape.**



Investors intimately familiar with the textile innovation investment proposition include The Mills Fabrica, Textile Innovation Fund, Closed Loop Partners, Alante Capital and Good Fashion Fund, all of which have completed one or a number of investments in the textile innovation space.

The Mills Fabrica (Hong Kong, global focus)

Fabrica invests in startups at the intersection of technology and style (techstyle) - this includes material & supply chain innovations, apparel brands & wearables merging technology with design, and new retail experiences including new business models like resale/ rental.

“Apparel is one of those traditional industries that everyone uses but has ripe opportunities for digitization and disruption. Increasing pressures to improve supply chain productivity and sustainability has led to a myriad of upstream technologies while growth of millennial consumer group with greater social/ environmental consciousness have also led to innovations in new brands and business models.

We typically look for companies with differentiated technology/ brand/ service, potential for scalability and team with compelling purpose and clear vision on the impact they want to have.

This is an exciting and growing space to be investing in which also signifies the need for investors to provide as much support as possible for portfolio companies to grow!”

- Alexander Chan, Co-Director

The Good Fashion Fund (Netherlands, Asia focus)

Good Fashion Fund focuses on systemic change in the apparel and footwear supply chain by investing in the implementation of innovative technologies in India, Bangladesh and Vietnam. The Fund addresses the lack of financing for SMEs in South-East Asia wishing to implement more sustainable solutions, thereby supporting the further adoption of sustainable technologies.

“In addition to venture capital, debt funding to manufacturers is required to support the roll-out of mature solutions. We see that local manufacturers of smaller sizes lack access to long-term financing to implement highly sustainable solutions.

Through our funding, we are demonstrating that implementing sustainable solutions is within reach of these manufacturers and that they are able to repay these long-term loans.

Although the Fund is a good first step towards closing the financing gap in these markets, the gap is much larger than the Fund’s \$60m size”

- Bob Assenberg, Fund Director

Textile Innovation Fund (Netherlands, global focus)

TIF invests risk bearing equity capital in innovative companies in the textile sector. From fiber technologies to software, recycling and e-commerce to design and wearables.

“Following the food industry becoming more and more organic and sustainable, the textile industry too is facing major changes the upcoming years.

We believe and see that these changes form an exceptional environment for innovation. We support ventures that are one step ahead than the start-up phase and have already first customer orders. We help them scale and build a professional organisation.

Our best advice for innovators? Keep it simple!”

- Frederic de Visser, Investment Manager

Closed Loop Partners (US, global focus)

Closed Loop Partners is a New York based investment firm comprised of venture capital, private equity, credit funds and an innovation center. It invests in the circular economy, a new economic model focused on a profitable and sustainable future.

The Closed Loop Venture Fund deploys seed capital into companies developing breakthrough solutions for the circular economy through leading innovations in material science, robotics, agritech, sustainable consumer products and advanced technologies.

“The global fashion industry is in an important moment of transformation, one that will leave it cleaner, more profitable and better aligned to today’s consumer value set. The driver of that change lives in the heart of exciting new innovations that merge advanced material science, deep creativity and technical expertise.

At Closed Loop Partners, we believe this is a unique moment of opportunity in change and therefore are actively investing in the technologies and companies that are transforming this important industry.”

- Caroline Brown, Managing Director

Alante Capital (US, global focus)

Alante is a venture capital fund investing in early-stage technology companies that radically improve environmental or social sustainability within the textile & apparel industry.

“Over the last two years, we have seen impressive developments in the ecosystem focused on solutions at the intersection of sustainability and profitability. Apparel production and retail are at a critical moment and are rapidly evolving. Environmental pressures, dynamics of the global economy, and changing consumer behavior are driving this evolution - and there are clear signals from brands and retailers of all sizes that, their businesses have to integrate more sustainable practices. Scalable technologies accelerate changes that mean a more efficient, less wasteful, and more profitable industry - but doing so means thinking holistically and looking for solutions across production, sales and use, and finding value from waste. .

When talking to founders, our first piece of advice is that they ensure that their innovation is truly a solution to an identified problem for apparel businesses or consumers. While it may seem straightforward, a focus on market applicability is always crucial - but particularly so in a creative, consumer-driven industry.”

- Leslie Harwell, Managing Partner

CONCLUSION

The wave of innovation in the very sizeable apparel and footwear industry presents ample opportunity for investors, and has great potential to have an immediate and lasting impact on the industry for years to come. The variety of innovation applied to the textile industry is broad and fits the focus themes of many institutional investors. If you would like to understand what opportunities exist, Fashion for Good has the knowledge and network to help you on your way.

The more than 80 innovators in Fashion for Good’s current or past programmes, represent some of the most promising early to mid-stage innovators, and have raised approximately \$75m together. Part of this funding comes from the investors listed here. However, the total capital requirement for these ventures is much higher. The opportunities for interested investors to actively participate in this space are apparent and provide a good indication of what we can expect to see more of in the near future.

If you are interested in finding out more, reach out to Fashion for Good

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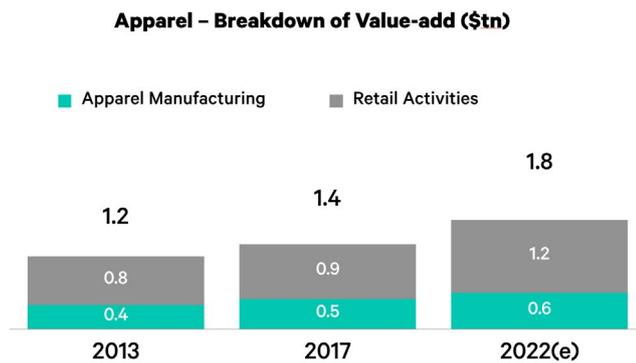
APPENDIX: FACTS & FIGURES

Apparel & Footwear retail value is \$1.7tn, growing at 5%+ value CAGR



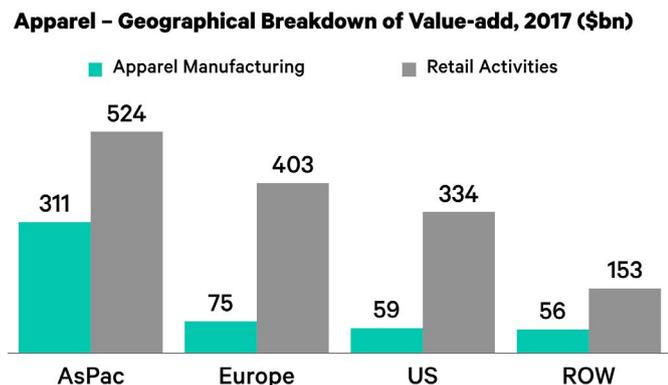
Source: Marketline data

Both Manufacturing and Retail value is growing at 5%+ value CAGR



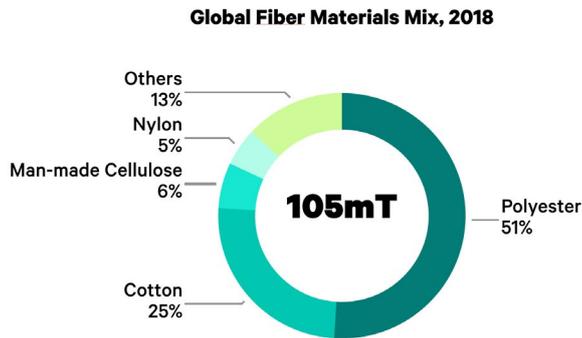
Source: Marketline data

Asia remains a large net exporter. Labour costs are still a key driver of production geographies. Large consumer markets are US, EU and China



Source: Marketline data

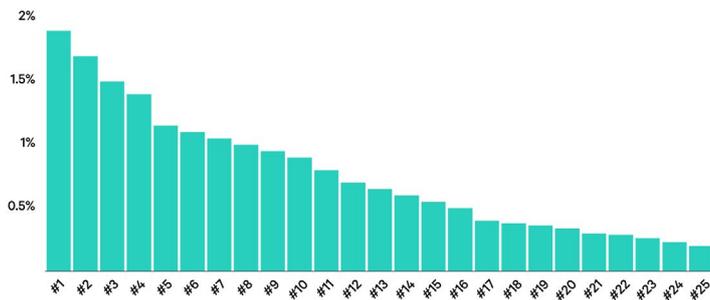
Raw material input is predominantly synthetic



Source: 2018 Preferred Fiber Materials Market Report

Both upstream and downstream markets are fragmented. No brand or retailer owning more than 2% of market value

Ranking Top 25 Apparel & Footwear Brand/Retailers Market Share



Source: Capital IQ

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