



Textile
Exchange
Conference

THE CASE *for change*

CASE STUDIES FROM
INDUSTRY *changemakers*

2024

Foreword

This compilation of case studies is designed to provide inspiration rooted in real-world experience, reinforcing the business case for urgent climate action. It brings together impactful examples from across the fashion, textile, and apparel industry and beyond, showcasing progress in some of the most complex and nuanced challenges our sector faces.

Inside, we focus on strategies essential to building a more resilient future: from expanding our impact measurement beyond emissions, to leveraging policy to advance textile-to-textile recycling technologies. We also dive into strategies for engaging employees in sustainability commitments – emphasizing the importance of embedding these values into organizational cultures. Lastly, we focus on balancing the demand-supply paradigm for more responsible materials, and look to financial models from other industries for inspiration to accelerate their adoption.

By making space for solution-oriented approaches, we aim to concretize the notion that meaningful change is both achievable and already underway. Our hope is that this compilation can drive collective advancement inspired by learned insights and tangible successes.

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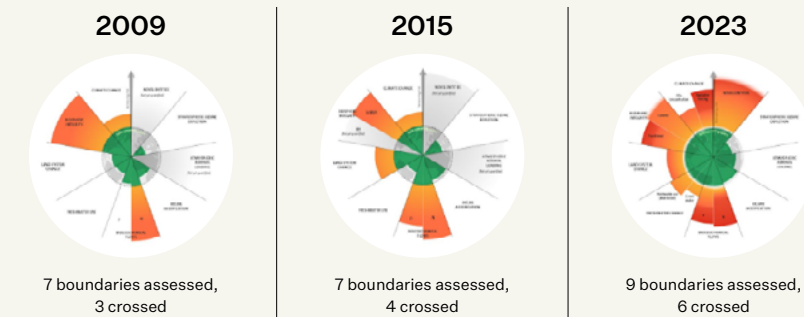
THE *nature-based solutions* SUPPORTING A *holistic* APPROACH TO IMPACT

Introduction

In recent years, the fashion industry, like many others, has focused on greenhouse gas (GHG) emissions as a primary measure of its environmental impact. While this prioritization is crucial in combating climate change, it overlooks the broader spectrum of environmental issues that intersect with emissions.

A more holistic adoption of nature-based solutions is essential to address the multifaceted nature of fashion’s environmental impact. Carbon tunnel vision has narrowed the industry’s focus to the detriment of critical issues such as water health, soil degradation, deforestation, chemical pollution, and social impacts.

The Planetary Boundaries concept, first introduced in 2009 by the Stockholm Resilience Centre at Stockholm University, is a framework that demonstrates the interconnectivity of the impacts happening to our planet. The category of novel entities is one that fashion should pay close attention to as it includes key impacts for our industry, including chemicals and chemical pollution, new materials, modified forms of life, plastic pollution, and new substances.



In 2023, updated analysis of the Planetary Boundaries concluded that six of the nine boundaries have now been transgressed. The Stockholm Resilience Centre issued a stark warning: “Crossing boundaries increases the risk of generating large-scale abrupt or irreversible environmental changes.”

This case study explores the opportunities for businesses to broaden their scope of impact by looking deep into their supply chain and working with farmers. It examines the initiatives of three pioneering businesses: the womenswear brand Eileen Fisher, NZ Merino’s ZQRX program, and Farming for the Future, an emerging research program quantifying natural capital on Australian farms.

Each is leading the way in adopting, teaching, and understanding regenerative agriculture, utilizing technology to collect data and measure progress, and implementing unique and holistic nature-based solutions on the ground. Crucially, they all have strong relationships with growers at the farm level, harnessing their expertise and empowering their adoption of regenerative agriculture.

INTERVIEWEES:

Dave Maslen,
New Zealand Merino Company

Inka Apter,
Eileen Fisher

Shona Quinn,
Eileen Fisher

Dr. Sue Ogilvy,
Farming for the Future

Working with Farmers to Collect Outcome-Based Data

With *New Zealand Merino Company*



DAVE MASLEN,
NEW ZEALAND MERINO COMPANY

In 2006, the New Zealand Merino Company noticed a growing consumer interest in more ethical food. Fashion would soon follow, they reasoned, and in 2007 the ZQ wool certification was born. Expanding on the mission to bring the highest standard wool to the global market, ZQRX launched in 2020 to explore regenerative agriculture solutions at a grassroots level. Textile Exchange speaks to *Dave Maslen*, Chief Customer Officer, about ZQRX and how it supports farmers to track and measure their impacts beyond emissions using tailored methodology frameworks.

When the New Zealand Merino Company launched ZQRX, what gap in the market was this new regenerative agriculture program addressing?

We wanted a way of capturing the things that growers do that go beyond compliance, and that is highly contextual. It really depends on who our growers are and what motivates them, but also the unique set of circumstances that they're managing, including their land, soil, livestock, capital base, knowledge, and understanding. With ZQRX, we apply highly customized outcomes-based approaches to driving change to create a powerful vehicle for impact.

By nature, regulations and standards seek to standardize and apply a one-size-fits-all set of rules that are generally practice-based. If you do these practices, you're good, and if you don't do these practices, you're bad. This rule doesn't work when we consider natural systems. If we apply the same set of measures in Central Otago, New Zealand, and in New South Wales, Australia, we're going to have significantly different outcomes.

How do you build frameworks around these intangible metrics to demonstrate the unique ways that farmers are reducing their impact on the environment?

We started looking at frameworks that use outcomes-based methodology rather than a practice-based methodology. We set expectations around the outcomes that farmers need to achieve to be part of a program and let them decide how to achieve those outcomes.

When you apply that mindset of continual improvement across a range of metrics, it doesn't take too much reading until you find regenerative agriculture. The core principles take a holistic view to farm systems and building methodologies around measuring progress over time. It also recognizes that the cadence of change will be highly dependent on a whole range of factors, both within and outside of a grower's control.

The ZQRX Regenerative Index has 15 key performance indicators across three core pillars: environment, animals, and people. We went outside the scope of traditional regenerative

“Our growers are our greatest innovators. If there is a challenge in front of them, they will respond.”

thinking and included social responsibility within that. You can't remove people from ecosystems — we're probably one of the greatest impacts on it.

Within each pillar, there are five KPIs. Once a grower is ZQ certified and they've checked all the standards boxes, we do a baseline assessment of the things that they do beyond what's required in the audit system. We apply both a qualitative and quantitative methodology to each of those KPIs to measure where they sit.

If impacts and circumstances look vastly different from farm to farm, let alone country to country, how do you create comparable metrics?

A major challenge is: how do you get a quantitative methodology for something like biodiversity? If you can find the answer, that would be fantastic. There are things we can measure that will give indicators of improvement. We work with each individual farm to identify what those indicators are going to be, helping the grower to set up a monitoring and measurement system, and then checking in to see whether or not it's changing over time. We couple that with a standard set of questions about each KPI to see how growers rate against each other.

For example, our New Zealand growers now have the ability to calculate their gross emissions per-farm and per-kilogram of wool based on their actual farm, not on industry averages. That looks at diesel burn, energy use, fertilizer use, stock numbers, and reconciliation over the year. On each of those farms, we can now also calculate how much carbon is sequestered in above-ground vegetation,

which gives us the ability to create net values of emissions.

We're looking for methods that can be applied consistently across different ecosystems, topographies, climate zones, and geographies. It's really important that a highly contextual methodology is applied. For example, if your indigenous ground cover and vegetation improves, that's a good thing for biodiversity and carbon drawdown. You may not be able to identify the rate that it's improving at, but if it's improving, that's a good thing. We're being realistic about what we can measure and have an impact on.

What impact does the growing demand for compliance with various standards have on farmers?

Our growers' values are well aligned to change, they are inquisitive and market-led. But we're constantly ratcheting up standards to try and be the best standard in the world. All that was doing was layering compliance on our growers, with no significant change to outcomes or impact.

Our auditors were frustrated that when they go to farms, it's basically a checkbox exercise. They were looking to see farmers applying certain practices and looking at key metrics, but they're quite homogenous. What they miss are the extraordinary things that growers do almost unknowingly around the edges. For example, if there's an area of wetland that they like, they build fences to keep the sheep out, or they plant it up because they like the birds. What they're doing is creating extraordinary networks of ecosystems that collectively have massive ecological and water quality benefits.

How is data collection and management technology helping to enable this process?

A boots-on-the-ground approach is really expensive, and we need to scale this to have an impact. Rather than trying to build a technology ourselves, we're partnering with technology providers who can feed into our data system to draw out the information that they need.

All of our growers are using farm management software, so they're collecting huge amounts of data around weather, soil temperatures and soil types, rainfall, stock reconciliation, and sunlight hours. If you put those things together, with some clever logarithms, ecologists, soil scientists, and the farmer, you can build useful proxies for ground cover and photosynthesis rate.

Photosynthesis rate is a great way of determining feed availability, which is a good proxy for nutritional care for livestock. We are stitching together individual pieces of technology into one place to see what it can tell us and tell the world. It's a big commitment from growers, and that's before they actually go out on the farm and start applying the principles that will drive change.

This program empowers farmers by leaning into their expertise. Why is it so important that they have a seat at the table?

Our growers are our greatest innovators. If there is a challenge ahead of them, they will respond. The ZQRX model says that we need to see improvements across multiple measures, including biodiversity, land health, soil health, ecological wellbeing, animal nutrition, and more. How this is achieved will depend upon the individual farmer and the context that they're in.

We want to provide the space for them to innovate and to measure whether or not their innovation is driving change. For most farmers, an overriding motivation is to leave the property better than they found it. They want to leave it in a position for their children to take over the reins. The big question we pose to growers is: how are you measuring that and what are your metrics? If you want to leave the place better than you found it, here is a framework that enables that.



“If you want to be a leader, don't wait for everyone to do something before you.”



Photo: Kin Chan Coedel

Building Resilient Farm-Level Sourcing Strategies

With Eileen Fisher



Eileen Fisher is an American womenswear brand that has pioneered the responsible clothing movement for 40 years. As a women-led, 40% employee-owned business that has held B-Corp status since 2015, Eileen Fisher takes a holistic approach to sustainability through its deep connection to the environment. The brand has a material-focused approach to its many sustainability initiatives, drawing on the expertise of farmers to build resilient and responsible supply chains. Textile Exchange talks to *Inka Apter*, Director of Material Sustainability & Integrity, and *Shona Quinn*, Senior Director, Social Consciousness of Eileen Fisher.



7 INKA APTER, EILEEN FISHER
 7 SHONA QUINN, EILEEN FISHER

As Eileen Fisher approaches this significant anniversary, how has the brand sustainability journey evolved over the years?

Inka Apter: Eileen Fisher is founder-led, mission- and value-driven. We're always trying to balance the financial piece with the impact piece because we feel the responsibility to our own community and to the great projects that we support with our purchases. We can't continue to do this important work without the just right amount of growth to sustain us. We have a culture of social consciousness across the company mindset. We keep space for dialog to make sure we don't have blinders on when we're looking at this work.

Shona Quinn: Climate is one key pillar. But when you think in holistic terms, you know that everything's connected and related — you're thinking in systems. We understand our connection as a community, our connection to nature, and our connection to other folks in our supply chain and their communities.

In the beginning, we were very carbon-focused, but we also always had a very holistic way of thinking about things. So while it plays a major part, we also recognize that you can't have healthy animals or plants if you don't have healthy soil.

We're delving into the idea of nature as a system and how that works for us as a strategy. We're still at the beginning of thinking about how we measure biodiversity. Is it the number of songbirds in the region or the number of insects in the soil? That's all pretty new to us.

Looking holistically at impact can be overwhelming because there can be so many issues to consider. How did Eileen Fisher narrow in on its top priorities?

IA: We are a natural fiber company, first and foremost. We're dependent on land, so we looked at how we impact the earth. When we first explored converting from conventional cotton to organic, Shona and I went on trips and heard a farmer talk about the system of living. I'll never forget that; it was like

“Where we’re going is where we’ve been as humanity. It’s about honoring indigenous and ancient practices that have been safeguarded globally for a long time.”

an epiphany. There is so much beyond just the plants grown for fiber. There's food, the intercrop, the crop rotation, and it's all part of this living system.

With our regenerative and responsible wool project, the turning point for us was this idea of regenerating depleted grasslands in Patagonia. It's about understanding how soil health impacts resilience. We hear these statistics about the world only having 60 harvest cycles left, so it just seemed impossible not to focus on the soil and the interconnectedness of the systems.

SQ: Another example is when we were getting data about linen. We were told it has a low impact and low toxicity at the farming level because linen doesn't need a high amount of pesticides or insecticides. We were questioned about why we were interested in sourcing organic linen. By supporting a farmer and purchasing their organic linen, you are supporting their whole farm — the potato crop, the tomato crop, whatever they're rotating every seven years — that allows linen to be one of the rotation crops that's supporting the system. So it isn't just about organic linen, it's about the community of that farmer.

When there's a lack of data and measurement tools, how do you measure impact?

SQ: There are systems connecting to each other, and when you take out the toxicity by supporting organic, that's supporting water quality and human well-being too. With regenerative organic or regenerative wool, we don't have all the data yet. We're assuming — in the same way that we did with organic way back when —

that this is probably healthier for the ecosystem and better for the farmers in the long term.

IA: While it is true that data collection is still limited, our regenerative wool and regenerative organic cotton projects incorporate short-term and long-term measurements. Short term monitoring is different for regenerative wool and regenerative organic cotton, but both include certain biodiversity metrics, soil stability, and related parameters. This can give an indication of the direction of change in land health, and the results are used to influence land management practices.

We started with regenerative wool earlier in the process, and we have preliminary data that proves the farms with regenerative practices show greater resilience to climate change. What we lack is long-term data such as soil carbon and water infiltration because those changes happen at a slower pace. We believe that adaptation based on short-term measurement data is leading to long-term improvements.

What is the company exploring beyond organic to a regenerative sourcing strategy?

IA: Mission-wise and values-wise, regenerative was an important priority for us. On the other hand, financially and in our supply chain, it wasn't easy to achieve. First, we want to do no harm by removing toxicity, so organic was the first priority. But then we asked ourselves: How do we go beyond that? What else do we focus on?

We were part of the organic community at fiber-level for so long, so regenerative seemed like the next logical step. It would feel like we were going

backwards if we didn't combine both the regenerative and organic practices, looking at a holistic way of approaching land-based fibers. I always say that where we're going is where we've been as humanity. It's about honoring global indigenous and ancient practices that have been safeguarded for a long time.

“I always say that where we're going is where we've been as humanity.”

Speaking of long-term impact, why are enduring commitments, both internally and with your partners, vital to the success of Eileen Fisher's mission?

IA: Our company ethos and the way we work are not best suited to one-off projects. We like to think about longer-term commitments and embedding that into the sourcing strategies. The company has to be aligned on a common mission — you can't have sourcing pulling this way and product pulling that way; we're all pulling forward together.

Not many brands have a connection to the fiber producers, and that's one step that seems daunting. There are a lot of intermediaries these days that can help brands move forward with certain projects or sourcing

strategies. We started to build specific supply chains so that we could modify or understand what's happening on the ground.

How are these strategies future-proofing Eileen Fisher for the next 40 years?

Shona Quinn: As a privately held company, we have more flexibility. We have a long-term vision; we're not as focused on short-term quarterly returns. We think about the emerging customer and what resonates for her from a product and values perspective.

There are risks we can see coming down the line around environmental issues, extraction, and climate change. We think about how we are mitigating these risks and shoring up resilience in our supply chain, thereby shoring up resilience for our business.

At Eileen Fisher, time moves a little bit slower for us. We've been doing circularity for 10 years and still feel like we're at the beginning of it. We embrace not only a sense of slow fashion, but also slow thinking. We really take our time to be thoughtful and intentional about what we're going after.



Photo: Kin Chan Coedel

Quantifying Natural Capital to Boost Farmer Profitability

With *Farming for the Future*



DR. SUE OGILVY,
FARMING FOR THE FUTURE

Farming for the Future (FFTF), the flagship program of Australia’s Macdoch Foundation, recently released one of the largest global studies on how natural resources affect the productivity, profitability, and resilience of the country’s livestock producers. Only three years old, the program is already helping to build a demonstrable business case for farmers to invest in the natural capital of their farm. Textile Exchange speaks to *Dr. Sue Ogilvy*, Programme Director at FFTF, to discuss the importance of data capture on farms and the vital role farms play in providing nature-based solutions to the climate crisis.

What is the mission and vision of Farming for the Future?

We want to help farmers understand how an investment in natural capital can make their businesses more profitable. We think that this will help to improve the health of productive landscapes, increase the carbon and biodiversity on agricultural land, and support farmer wellbeing and economic health so that they can be part of resilient rural communities.

We believe that you can’t ask farmers to improve their natural capital or environmental performance if it’s going to come at a cost to their business. We provide the ability to quantify the relationship between environmental performance and business performance so that farmers get the opportunity to improve both. This is going to unlock a rapid improvement in biodiversity and storage of carbon at scale because farmers will do it as part of their core production. Farmers manage over 50% of the landmass of Australia, and so this is a massive opportunity to harness their potential to improve

natural capital and start to solve problems around the climate.

We want to broaden the conversation from one that focuses only on carbon to one that considers all of the holistic elements that are really important to planetary and economic sustainability. Wool, for example, is experiencing an existential threat because of the view that it’s relatively environmentally unfriendly compared to polyester. That’s because the measure — carbon tunnel vision — says that wool is bad compared to plastic. In our view, that’s not scientifically defensible because carbon is just one piece of the puzzle.

FFTF’s first impact report came out in May 2024. When you started the research and engagement process, what response did you receive from the farming community?

We recruited 130 farmers to give us very detailed financial and production information. We asked them to contribute considerable time putting that together and hosting ecologists on their farms. It was complex, but because the

“We want to broaden the conversation from one that focuses only on carbon to one that considers all of the holistic elements that are really important to planetary and economic sustainability.”

farmers could see the potential benefit for them and society, the program was oversubscribed very quickly. Our research needs to be actionable. After seeing the findings, we want farmers to be able to say: “We were planning to plant trees, and now we know where to plant them.”

We’ve landed the message that we need to understand how natural capital supports production. Now we have an opportunity to capture that interest and help people become ecologically literate. The people around farmers — their accountants, consultants, advisors, and local landcare groups — know that natural capital is going to be very important to farm management and reporting, and they know they need to learn about it, so we’re trying to keep up with the demand for education.

Can you explain natural capital? How do you measure, compare, and assign value to it?

Natural capital includes all of the different ecosystem types you’d expect to see on a farm, everything from the grassy woodland or forest where cattle graze to shelterbelts, orchards, vineyards, and pastures.

The farms that we recruited have very diverse levels of natural capital. Some have retained a lot of the original ecosystem, but we also work with farms that have been cleared and fertilized, eliminating the natural ecosystem. That allowed us to compare business performance across farms and understand how much natural capital was affecting performance.

On farms with high natural capital, the farmer believes that nature is providing important services

to production. Many of those farmers had no scientific evidence to believe that it would positively affect their farm business, except their own observations, anecdotes, and small case studies, but this was enough for those visionaries to get started.

A lot of farmers have told us that by becoming regenerative or investing in their natural capital, their financial and environmental performance started to improve. But they don’t know how they compare to other farms. Soon, the farms that participated in our study will know how they compare, so they will be able to say with confidence: This is what natural capital is doing for me.

What role does data collection and analysis play in measuring impact on farms?

We recruited farms for the study on the basis that they had five years worth of good quality financial and production data, and we performed high-fidelity, fine-scale measures of the farm’s natural capital. Of the 130 farms that participated in the research, only 113 of them had good enough financial and production data to include in the data set. Despite this, as far as we know, it’s still the largest study of its kind ever done.

The difficulty that farmers had in compiling the detailed data needed for this study suggests that farmers are not well served by the management tools that capture and organize data. That is a crying shame because we all know you can’t manage what you can’t measure. Now we can give them the ability to compare and to say, “The farmer over here is doing better or worse than me, so maybe we could help each other.” In this competitive industry, the program has shown

“Banks know that there’s natural capital- related lending risk, and our program allows them to quantify that.”



us that it can bring farmers together to solve this problem.

But our work is not yet done. Agriculture is very complex, and so we need a much larger data set that has a broader geographic coverage to give farmers statistical confidence in the findings. It’s not right to ask farmers to make important decisions based on evidence that might not reflect their local conditions — it has got to be solid.

What have been some of the tangible impacts of the report, now that specific farms are able to demonstrate links between their natural capital and business performance?

We’ve already had farmers take their natural capital report to their banks and get discounts on their finance, which is really meaningful. Other farmers have been able to use the insights to identify simple changes to

their management practices. Our research suggests this will help them to improve their productivity and increase the natural capital and biodiversity in their productive landscapes.

We recently spoke with a bank that has read the report and had a couple of “Aha!” moments about how they can use the information to build their green finance programs. Banks are now starting to see how they can play a positive and constructive role in actively supporting farmers to make these changes. Banks know that there’s natural capital-related lending risk, and our program allows them to quantify that. That is really rewarding.

Conclusion

One of the biggest challenges facing sustainability professionals today is how to prioritize the ever growing to-do list, and its diversity of topics. Despite the temptation to narrow in, it is critical to keep this lens wide. We know that the climate crisis couldn’t be more important to our collective future, but climate can’t be considered on its own. As the Planetary Boundaries concept shows us, climate has never been the worst offender in the transgression of the boundaries. But what this likely tells us is that as the climate worsens, it will likely dramatically worsen the impacts of the other areas.

The companies in this case study demonstrate tangible pathways to mitigating a wide scope of impacts. Eileen Fisher has a deliberate strategy to take a holistic approach and has structured the company to allow for this way of working. NZ Merino has evolved and broadened its strategy to include more impacts over time while also supporting and rewarding their farmers. Farming for the Future has developed a scalable and data-driven approach to quantifying nature-based solutions.

These are all examples of how the industry can look beyond carbon and take responsibility for the other areas it has influence over. This will not only help the industry reach its environmental ambitions but will have a direct positive impact on biodiversity, agricultural resilience, and the communities that fashion touches. It’s clear that having a broad foundation across environmental issues will make fashion’s future more stable.

TEXTILE EXCHANGE RECOMMENDS:

- 1 Adopt a sustainability framework that mirrors your company’s existing business values and priorities, allowing for multiple and simultaneous workflows. If the alignment is clear, it will be easier for colleagues to see the connections and feel energized to work towards a holistic approach.
- 2 Look to other parts of the industry or other industries for inspiration if you can’t find the solution to a sustainability issue you are facing. There are so many similarities in sustainability initiatives in different parts of the business world, many learnings can come from outside fashion, textiles, and apparel.
- 3 Understand the risks associated with your materials and sourcing regions using the Textile Exchange Materials Impact Explorer. Nature-based solutions will be implemented deep in your supply chains, requiring a significant investment in traceability and relationship with Tier 4 partners.

THE *policy*
AND *regulations*
ADVANCING
textile-to-textile
RECYCLING



Introduction

The relationship between legislation and industry is often seen as one of tension, with the rising tide of rules and regulations perceived as a burden rather than a catalyst for growth. But what if legislation could drive innovation rather than hinder it? In the fast-evolving world of textile-to-textile (T2T) recycling, new laws are emerging that could be game-changers for unlocking the circular economy.

Governments worldwide are beginning to recognize the importance of creating frameworks to support sustainability, but the question remains: Can these regulations foster innovation and scalability within the industry?

With fashion's textile waste crisis growing and the reliance on plastic bottles as recycled polyester feedstock quickly becoming insufficient, there is a growing sense of urgency to explore alternative materials and recycling methods. However, as the industry adapts to these regulations, unintended consequences and unknown impacts are also surfacing, adding layers of complexity for businesses navigating different laws around the world. How can the industry mitigate these risks and leverage legislation as a tool for progress?

Some experts believe that a global, unified approach to regulation could provide consistency and momentum, however as you'll discover in this case study, legislators are more likely to be informed by existing laws in other local industries. Ensuring that all stakeholders — from recyclers to brands of all sizes — have a seat at the table is crucial in developing realistic, effective legislation that meets the needs of both the environment and the industry.

This case study explores the delicate balance between innovation and regulation by examining two significant pieces of legislation from both sides of the Atlantic: the European Union's Ecodesign for Sustainable Products Regulation (ESPR), which came into effect in July 2024, and California's Responsible Textile Recovery Act (SB707), which passed in August 2024.

Through insights from policy experts and T2T recyclers in Europe and the U.S., we will explore how these laws are shaping businesses and the broader sector, and what lessons can be learned for the future of textile recycling.

INTERVIEWEES:

Andreas Dörner,
RE&UP

Baptiste Carriere-Pradal,
2B Policy

Joanne Brasch,
CPSC

Luke Henning,
CIRC

The Policy and Regulations Advancing Textile-to-Textile Recycling

With *RE&UP*



ANDREAS DORNER,
RE&UP

A newcomer to the T-2-T recycling sector, RE&UP launched in late 2023 with the ambition to produce one million tons of recycled cotton and polyester per year by 2030. Using mechanical and thermomechanical technology, RE&UP recycles cotton, polycotton and polyester into like-new fibers. Textile Exchange speaks to *Andreas Dorner*, General Manager of RE&UP, who explains how the company is being shaped by global legislation on T2T recycling.

Tell us about RE&UP. When did the company launch and what progress have you made already?

While the company's research and development started more than a decade ago, RE&UP officially launched in December 2023. We were looking at all the commitments and Extended Producer Responsibility (EPR) legislation coming up and realizing that there's going to be a huge demand for recycled material from brands and retailers. However, by 2030, it's expected that demand will exceed supply by 133 million tons. That's when we understood that this opportunity is much bigger than we first thought, so we decided to build a fiber company.

We focus on mechanical and thermomechanical recycling of cotton, polycotton and polyester. To create our next-gen cotton, we remove the color and other inputs like polyester and elastane, then sell a white, virgin-like cotton fiber. Importantly, it's equal to cotton in price — there is no green premium. For our next-gen polyester, we have a separate process to recycle pre- and post-consumer polyester into chips.

At the moment we are working at capacity, producing 80 kilotons per year. Of that, 70% is cotton, 30% polyester. With the increasing of our production capabilities and expansion of our facilities, we will be at 200 kilotons/year by 2025. Our ambition is to produce one million tons/year by 2030, if not before.

What impact is legislation having on the T-2-T recycling sector and fashion industry?

I think the next four years will be the most exciting time in textiles, which is a very old industry that has traditionally been very narrow-minded. Legislation is key if we're going to go from linear to circular; it is the accelerator that helps us to think bigger. With legislation, there is a framework to work within. It's no longer up to the goodwill of brands, retailers or manufacturers.

The European Union has set such huge targets so everyone knows the shift will happen sooner or later. The better you understand legislation, the better you are prepared, the better you can react. Is the solution perfect? No. But it's better you do something rather than wait. Now

“Legislation is key if we're going to go from linear to circular; it is the accelerator that helps us to think bigger.”

is the time to support all kinds of ideas to bring solutions together and make the shift happen.

How has legislation like the ESPR accelerated RE&UP's production plans?

The evolving legislation around textile waste and recycling has certainly influenced our growth strategy. While the regulatory landscape has been on our radar for some time, it has accelerated the shift toward more circular production models. Brands are increasingly looking to incorporate sustainable materials into their products to stay compliant with these regulations, which has led to a rising demand for circular solutions like those we offer at RE&UP.

We are scaling up our production capacity to meet this growing need. By investing in more advanced recycling technologies and increasing output, we're not only supporting brands in their efforts to adhere to new regulations but also driving the broader adoption of circular materials in the fashion industry.

In addition to optimizing our existing operations, we have plans to open a new facility in Spain, which will allow us to significantly increase capacity. Looking ahead, we also have future plans to establish a facility in Asia, further positioning RE&UP to meet the needs of brands worldwide and support the industry's shift toward a more circular economy.

What support does the T-2-T recycling sector need to achieve its commitments?

One of the key forms of support we need is from policymakers. It's crucial that they not only stick to the established regulatory frameworks, but also move quickly toward execution. While the ambitions around EPR and circular economy initiatives are high, we're at a point where we need action rather than further discussion.

Consistency across the EU is also essential. If each country implements EPR laws differently, it could create confusion and inefficiencies across the industry. A harmonized, EU-wide standard would make it easier for companies like us to scale up operations, innovate, and meet the rising demand for circular materials.

Similarly, if a brand has to do different EPR compliance internationally, I think it might kill some businesses. Now, we're seeing new U.S., Chinese and Indian legislation coming up too. We should find alignment so that compliance isn't too complicated. What is the minimum viable product? We all want to have more recycled content and we want to reduce waste, so let's find a global standard. This would allow us to focus on delivering the circular solutions the industry is increasingly seeking, rather than navigating fragmented regulations.

UNDERSTANDING THE *latest* IN legislation

The Ecodesign for Sustainable Products Regulation

With 2B Policy



BAPTISTE CARRIERE-PRADAL,
2B POLICY

In July 2024, the Ecodesign for Sustainable Products Regulation (ESPR) came into force, establishing a framework by which the European Commission will create industry-specific laws for sustainable and circular consumer products. Fashion and textiles have been identified as a priority for the ESPR rollout, and will be the first to receive ecodesign requirements in 2026.

While the details are still to be determined over the next two years, the ESPR will demand (among other requirements):

- A ban on the destruction of unsold textiles and footwear
- Product information requirements such as a Digital Product Passport
- The establishment of a recycled content mandate
- Ease of recycling and the avoidance of substances that hinder circularity

These requirements will mean the fashion industry must begin its transition from a take-make-waste system to a circular economy, enabling it to meet impact reduction targets while also mitigating the dire environmental consequences of the linear model.

While the ESPR is set to fundamentally reconfigure the fashion industry, brands should not rush into implementing solutions too quickly. “There is time to prepare, but not time to lose.” explains *Baptiste Carriere-Pradal*, co-founder and director of 2B Policy. “Some brands are racing to prepare, but because they don’t understand what the requirements are yet, they might get their priorities wrong.”

Given the ESPR is not the only major law facing the fashion industry, it’s important to take a holistic approach to compliance solutions. “There is a lot of focus on the ESPR, but there are other big pieces of legislation already coming down the line. The



“There is time to prepare, but not time to lose.”

Corporate Sustainability Reporting Directive (CSRD) has now been deployed and The Corporate Sustainability Due Diligence Directive (CSDDD) will also be very significant for the fashion industry.”

Therefore, companies should look for solutions that enable compliance for more than one regulation. “It’s very important to have this complete overview of the different laws, so you can make a smart investment into the solution that will have the biggest return of investment,” says Carriere-Pradal. “If you’re preparing for the ESPR, how will that support your reporting for CSDDD, or the CSRD?”

There are overlapping requirements across regulations that could ease this process for brands. “The CSRD requires carbon accounting and the disclosure of scope one, two, and three emissions. The CSDDD requires an action plan to reduce your carbon emissions, which implies that you already know your emissions. Then, one of the options of the ESPR is the disclosure of the carbon footprint of a product,” he says. “So understanding carbon footprinting can serve the CSRD, CSDDD, and potentially the ESPR.”

As for whether fashion should align on common measurement methodologies, or establish this through global legislation, Carriere-Pradal remains pragmatic. “If, at an industry level, the private sector isn’t able to have an aligned voice and perspective, we cannot expect the government to do what we cannot do ourselves,” he says. “At some point in time, we will need to have a common definition of how we measure carbon, water and other impacts. If the financial sector succeeded in creating commonalities to ensure that a financial report can be understood in Hong Kong, London, Paris, and New York, it should be possible in the environmental accounting sector, but we are decades away from that.”

If ever there was a business case for investing in sustainability, the rising tide of laws approaching the fashion sector should put this on top of priority stack. “It is not simple, and it will only get more complex. Implementing regulations will force many organizations to reach another level of sophistication in terms of the sustainability practices,” says Carriere-Pradal. “Therefore, you need a proper plan. Lay out a map of what regulations are in front of you and develop a strategy for each of them. Take a step back, make sure that you have full visibility on the different legislations coming up, and start from there.”

LEARN MORE:

[The Ecodesign for Sustainable Products Regulation](#)



California’s Responsible Textiles Recovery Act

With CPSC



JOANNE BRASCH, CPSC

Having passed through the California Senate in August 2024, the Responsible Textiles Recovery Act (SB707) by Senator Josh Newman is the latest in a host of regulations set to establish Extended Producer Responsibility (EPR) programs around the world. As the world’s fifth-largest economy and with almost 40 million residents, California’s laws have a ripple effect on the rest of the country, and the world.

SB707 will apply to apparel brands with over \$1 million in annual global turnover, who will be required to form or join a Producer Responsibility Organization (PRO) and submit a plan for the collection, transportation, repair, sorting, and recycling of products from July 1, 2028. From July 1, 2030, brands found non-compliant with this plan could face penalties of up to \$50,000 per day. Currently, there is no PRO selected, but applications to be the PRO are due to CalRecycle by January 1, 2026 and will be chosen by March 2026.

It’s a significant step to solving an ongoing textile waste problem in California, which landfilled 1.2 million tons of textiles in 2021. In the City of Los Angeles alone, over 70,000 tons of commercial textile waste is landfilled each year. Localized textile recycling programs in cities like San Francisco and San Jose have attempted commingled textile collection with recyclables to no success, so have shifted to appointment-based pick up of waste textiles. These initiatives have failed to recover materials in a cost-effective, scalable or efficient manner.

SB707 puts the onus on brands to pay a fee for products entering the market, which in turn will fund recycling infrastructure in line with the waste hierarchy. “Even though covered producers will be paying it on behalf of consumers, they’re really pre-paying for their own recycled feedstock,” explains *Joanne Brasch*, Director of Advocacy and Outreach at the California Product Stewardship Council (CPSC), an NGO specializing in EPR programs and the sponsor of SB707. “By paying that fee, a brand’s garments are guaranteed access to this service. If it accomplishes nothing else, for the first time in history, we’re going to know where these materials go.”

The question remains: Can the U.S. meet the infrastructure needed to implement SB707? “A lot of recycling facilities that are under construction now will be operational when the program starts in 2028 - 2029,” says Brasch. “But even if every plant that’s under construction globally is operational, it still won’t be enough, because there are many types of textiles and few that can go into specific recycling processes. EPR programs are dynamic because they have to meet performance requirements with flexibility on how to achieve them. If there’s not enough recyclers, the PRO must invest in more plants and end-markets.”

Despite experts’ calls for global alignment on EPR regulation, particularly between the U.S. and Europe, the reality for legislators is complex. Their priority is to align with similar state or federal policies, like existing EPRs for batteries or packaging. “Our Constitution, enforcement protocols, and court systems are completely different from Europe,” says Brasch. “So we look to California’s programs, stick with the precedents and definitions set in-state, and work closely with CalRecycle, the government agency that is going to enforce SB707.”

Despite this, the CPSC recognizes the inherently global nature of the fashion and textiles industry, and has held stakeholder meetings since 2020 to ensure SB707 is achievable and understandable to all. Brasch believes that brands and those with vested interests in the outcome of EPR programs should help to shape it. “We work with who shows up. Anyone can join our advisory committee, and now that the bill has passed, we’re going to make it bigger and create subcommittees,” says Brasch of the CPSC’s collaborative approach to engaging in the regulation. “I encourage brands to speak up. There are multiple avenues for people to participate, like joining listservs, advocacy groups, and coalitions. CalRecycle also has a standing monthly meeting with a public comment period where you can say anything you want.”

Introducing any piece of legislation is a long-term process, so there is a fairly long runway for brands to prepare for SB707. 2032 is the first year that CalRecycle will enforce the law. “The finish line for the legislative process is the starting line for the regulatory process,” says Brasch. “We’ve worked on this for several years so that CalRecycle can now have the authority to start the next two-year-long phase.” In the coming year, CalRecycle will host quarterly workshops with the industry to develop SB707, then in the following year, it will write the regulations which will allow enforcement to begin.

“We work with who shows up. Anyone can join our advisory committee, and now that the bill has passed, we’re going to make it bigger and create subcommittees.”

LEARN MORE:

[The Textile Recovery Act of 2024 \(SB707\)](#)

Leveraging Legislation to Advance Textile-to-Textile Recycling

With *CIRC*



LUKE HENNING,
CIRC

Since transitioning to textile recycling in 2017, the team behind Circ have been developing hydrothermal recycling technology to separate cotton from polyester and recover both the cellulose from the cotton and the monomers from the polyester. Through its collaborations and agreements with leading global brands, Circ is quickly becoming one-to-watch in the recycled materials space. Textile Exchange speaks to *Luke Henning*, Chief Business Officer of Circ, about the T2T recycler’s evolution, the company’s involvement in shaping the Responsible Textile Recovery Act (SB707), and the importance of a global perspective on regulation.

Tell us about Circ’s founding ambition.

The idea from the very beginning was that there are big environmental challenges that need to be solved. If you’re going to put time, energy and effort into solving a challenge, it should be a big one. In textiles, we saw that the market was leading the demand for circular fibers, but we also saw the regulatory alignment coming as well. This is critical for any developing industry when you’re trying to transform very large, entrenched industrial players.

Our technology recycles polycotton, cotton and polyester through a hydrothermal process. It separates cellulosic fibers from synthetic fibers, creating like-new regenerated lyocell and polyester. In 2017, we started by recycling a t-shirt per day, and now we’ve been running our pilot facility for more than three years. We brought on a series of investors, which allowed us to transition from being a technology company to a product company and start releasing

collections. We’re proving that there is a company out there that can recycle polyester and cotton, recovering both fibers.

What pieces of legislation have you followed as Circ has grown?

We’ve mostly been watching European regulation because we saw that it was leading, and the rest of the world would start to follow. Obviously, a lot of this regulation concerns what products need to look like to come into Europe, but that drives a shift in other parts of the world. This legislation is creating a compliance burden, but also opportunities.

For the longest time, we weren’t looking to build our first facility in the U.S. because of timing, we didn’t think the regulatory environment was supportive enough yet, and there were enough incentives in place to build it here. Now, we’re starting to see green shoots coming up in the U.S..

We are keeping a keen eye on how the regulation is going to

“We need to remember that what you do in the U.S. has ripple effects. The decisions of policymakers here affect the lives of people on the other side of the world.”



deal with textile waste itself. Currently, the collection and sorting for post consumer waste is not at a sufficient level, of high enough quality, or at the right price point for it to make sense for a recycler. So we’re watching waste regulations and making sure that they will allow for post-industrial waste to become a valuable feedstock and enable the first facilities to be built. That will drive demand for post-consumer textile waste.

How has Circ been involved in the development of legislation, including SB707?

We’ve worked with various groups around the world to have a voice. Through working with American Circular Textiles, we were able to comment on SB707 and be involved in a lot of those discussions. That was critical because there were things in the original draft of SB707 that would have been extremely challenging for us.

This shows us how important it is to ensure that there is a wide representation of voices at the table when it comes to regulations, because otherwise it gets designed without thinking about all the use cases. People often don’t understand the peculiarities of these use cases, so having your voice heard as an innovator is necessary.

Would alignment between global legislation be helpful for innovators like Circ?

What California is doing [with SB707 and other regulations] is great, and it has the power to force a lot of change. But what happens now when other large states like Texas or Florida legislate something different? There will need to

be some trade standardization so materials can flow.

In an ideal world, the regulation would have some global standardization, but I don’t see it happening in a reasonable timeline. I don’t even see that happening within the U.S. It would be ideal if this were done with unified federal standards and federal support because that’s how to create a circular economy.

What knock-on effect do you think that SB707 could have in other U.S. states or even abroad?

I think it’s likely that we will see companies transforming because they don’t want to be locked out of the Californian market. We’re seeing this with European regulation and its impact on Asian supply chains where parties are looking at what they need to do to comply because they don’t want to be locked out of Europe. In terms of the pipeline of legislation, I think we will see more responsible design, recycled content mandates, EPR, as well as traceability and transparency requirements.

We need to remember that what happens in the U.S. has ripple effects. The decisions of policymakers here affect the lives of people on the other side of the world, people making the vast majority of the stuff that flows into the U.S. We have to think about how regulation impacts people. I wonder how much representation there is from other countries and the major supply chain partners in those countries who have to meet these regulations.

Conclusion

Legislation can enable innovation when it is a result of collaboration and the shared ambition to establish frameworks that the industry can work within. We have seen how the legislations that will drive the T2T recycling sector and the broader circular economy have been formed from diverse stakeholders from industry, government and non-governmental organizations through discussion, consultation and debate. This is critical to ensure that robust legislation can be implemented and scaled to meet increasing demand.

Currently, industry professionals are feeling overwhelmed by the seemingly sudden rise of legislative requirements on the horizon. It's important to step back and recognise that in industries like construction and shipping, legislation has created tangible positive shifts. The industry needs the carrot-and-stick incentives and penalties to drive the changes necessary for the industry.

Regulations are dynamic, updating and evolving based on new learnings in order to continually improve systems. Industry professionals have accepted compliance is now a significant part of their jobs, and the wider apparel industry will soon adapt to these new ways of working.

It is therefore important to stay abreast of the evolving legislation in the markets affecting your company in order to, at the minimum, stay compliant. Ideally, brands should lean in and engage in the process — even having a say in how these laws are built — to ensure your company is preparing and looking to the future.

Legislation is often considered a burden, but at the core it starts with a problem that needs to be solved. So most importantly, take a look at why a certain piece of legislation was created and think about what you can change in your business to not only become compliant, but how you might innovate to stay ahead of the new legislative wave.

TEXTILE EXCHANGE RECOMMENDS:

- 1 Engage with industry groups, such as the ones highlighted in this case study, to be and stay informed and educated about current and upcoming legislation. Legislation is always evolving and some that might occur in one geographic location might impact another geographic location.
- 2 Engage with external or internal legal counsel, who should also become aware of the sustainability legislation that may affect your company. By sharing the responsibility with the sustainability and legal department, you can ensure a more thorough comprehension of regulations and a future-proof strategy for compliance.
- 3 Don't be afraid to offer feedback, input, and suggestions as new legislation is developed. Nobody has all the perspectives needed to create good legislation and all voices should be at the table. This will help to create more balanced, applicable legislation that will have a positive impact on the industry into the future.

THE *successful* EMPLOYEE ENGAGEMENT MODELS *driving* SUSTAINABILITY COMMITMENTS

Introduction

Retro-fitting sustainability into any organization is a complex and often fragmented process. Unlike traditional business functions, it requires a holistic and comprehensive approach that many fashion businesses are hesitant to invest in or don't know where to start.

Sustainability is often considered a short-term priority rather than a fundamental facet of a business's mission. Despite the incoming wave of legislation, the growing threat of the climate crisis, and impending 2025 and 2030 ESG commitments, fashion's sustainability teams remain underfunded and unsupported, disconnected from other departments, and susceptible to financial turbulence. This precarity undermines their ability to drive meaningful change.

For businesses to meet their sustainability goals and retain talent that aligns with their mission, a workforce — from juniors to the C-suite — needs to be empowered and educated. The next generation of employees is increasingly drawn to companies that resonate with their personal values, making sustainability a key factor in both recruitment and retention.

In this case study, we examine three companies throughout fashion's value chain to highlight the power of employee engagement from the perspectives of a brand, an NGO, and a manufacturer. All three have successfully embedded sustainability into their company culture by enabling and encouraging their workforce to champion it, regardless of their role. These organizations demonstrate the tangible benefits of aligning business goals with a commitment to people and the planet.

INTERVIEWEES:

Nicole Rycroft,
Canopy

Delman Lee,
TAL Apparel

Kimberely Smith,
Everlane

Katina Boutis,
Everlane

Creating a Company Culture of Risk-Taking and Innovation

With *Canopy*



NICOLE RYCROFT,
CANOPY

For 25 years, Canopy has had an ambitious mission: to safeguard the world’s forests, climate, and biodiversity by transforming supply chains that drive deforestation and forest degradation. Textile Exchange meets *Nicole Rycroft*, Founder and Executive Director of Canopy, to learn about the NGOs organizational culture. She explains why staff are encouraged to take risks, be innovative, and immerse themselves in nature as a balm to the challenging mental health consequences of confronting the climate crisis on a daily basis.

What does employee engagement look like from the perspective of a nonprofit that is tackling difficult environmental issues day to day?

As a mission driven NGO, walking the talk is important for us. We make sure the way that we run our day-to-day is consistent with the external change that we’re striving to create in the world. There’s a sense of shared ownership of our internal practices. Many of our organizational policies have been developed not by senior leadership, but by people within the organization who believed we could be doing better.

We’re always looking at best practices within our company and other NGOs. Initiatives that have been generated by the team include clothing swaps; all our events are all vegan or vegetarian. We also do secondments with other organizations.

How are you maintaining and evolving Canopy’s company culture as you scale?

We have grown significantly over the last couple of years. Pre-pandemic, we were a team

of 15, and now we’re a team of close to 70. I feel, as do other senior members of the team and a lot of people throughout the organization, that culture is part of Canopy’s secret sauce. It is important that as we grow, we prioritize it. In the last year alone, we have doubled in size. With that growth and restructure, we are ensuring that we’ve got the right systems in place, like a Culture and Engagement team specifically to help evolve and deepen our culture.

We also think that our extended family, our external partners, should feel the love of our culture. Our Culture and Engagement team is the steward of both our internal culture and helps to ensure we’re bringing that culture with how we engage our partners in the outside world.

As a team, how do you manage and protect your mental wellbeing?

Our work is all geared towards solutions, but the context of the work that we do is tough. We have a lot of conversations about that within Canopy. It’s not hidden away, it’s front and center, and we hold that together.

“We spend so much time in the context of what’s being lost that we make sure that our team is encouraged to spend time immersed in nature.”

We set our organizational targets based on what’s ecologically needed rather than what seems immediately viable from the industrial system’s readiness today. We have a vision and are working towards facilitating the transition on timelines that are ecologically meaningful. That in itself can create stress, because the timelines that we are working on are short and the scale of change that we’re striving towards is ambitious.

We have structured the organization to support our people. When we get together as a full team, part of our agenda is always dedicated to resilience, looking at our individual coping strategies, how we manage this as a team, and how we as an organization can be supporting the team.

We spend so much time in the context of what’s being lost that we make sure that our team is enabled and encouraged to spend time immersed in nature. We have quite a generous holiday package. We start with four weeks, plus we close the office for two weeks at the end of the year, and sometimes we add on an extra week. After a certain number of years, there’s an additional week to take an inspiration-based holiday.

Through your work with hundreds of businesses, Canopy has a unique insight into how others are engaging employees on sustainability. What other strategies do you see in the industry, and how has that evolved over your career?

When I first started this work, there were a lot of people who were individual champions and felt passionate about it, but the structure, the machinery, and the orientation of the business did

not allow for a lot of leadership. Historically, sustainability has not been one of the priority business goals, and therefore it has not been prioritized internally. Over the years, I’ve observed a sense of ‘there’s only so far I can run’. A production manager who was motivated might be able to sneak it through as a passion project, but if they were running up against budgets, they would hit a brick wall eventually.

I think that’s shifting. It has moved on from people feeling as though they had to check their values at the door when they come into work. Now, there’s a sense that people can bring their full selves to their workplace much more within the business community. For people who are concerned about the climate crisis or the biodiversity crisis, there are now more avenues both within their formal job description as well as within the corporate culture.

What do you think are driving factors influencing businesses to build and invest in capable and resilient sustainability teams?

I’ve observed three major drivers. Firstly, I think there’s a generational change happening within senior leadership, especially within some of the companies that are family owned and run. The next generation is assuming the mantle, and there seems to be a different sensibility around the importance of sustainability.

Secondly, legislation is definitely shifting the playing field. It has moved sustainability up the priority stack, off the nice-to-have stack onto the legal-risk stack. Therefore, it needs to be a business imperative.



“Remember that good ideas come from everywhere within an organization.”

Thirdly, sustainability was seen for many years as the right thing to do, but not core to business success. The pandemic and the biodiversity and climate crises disrupt supply chains and that has penetrated through corporate leadership mindsets. The pandemic was also such a significant disruptor that business leaders now recognize there are only so many market disruptions at that scale that can be weathered.

The industry is improving, but what are some mistakes you still see businesses make when they retrofit sustainability into the corporate structure?

When sustainability is siloed and hasn't been clearly articulated as a business priority with targets attached to it, internal teams find it challenging to step up and drive the scale of change that they would like to be able to.

You can have spectacular sustainability people, but if they're not given the ability to mobilize green budgets that can accommodate the premiums associated with many early-to-market products as we make these transitions, that can stymie forward momentum and concrete gains.

What is your advice for leadership teams keen to embed sustainability into their company's culture?

Remember that good ideas come from everywhere within an organization. It is valuable to put systems in place, whether you're an NGO or a business, so that those ideas can be crowdsourced rather than sitting strictly within the purview of a particular job description or department. Then make sure that there are internal systems to recognize and celebrate thought-leadership and risk-taking.

The most forward-leading partners that we've had all have one thing in common: they have a company culture where employees can take a risk and can stray outside of their lane to advance an idea. There should be an appetite for innovation, no matter where they are in the business hierarchy.



Photo: Henri Koskinen

Getting Buy-In on Sustainability, from Board to Employee Level

With *TAL Apparel*



DELMAN LEE,
TAL APPAREL

Since it was founded in 1947, Hong Kong-based TAL Apparel has been a leader in the global garment trade. In the early 2000s, *Delman Lee* joined the family business, spearheading the acceleration of sustainability within TAL. Textile Exchange speaks to Lee, now company vice chair, about the TAL's evolution from tracking its greenhouse gas emissions in 2009 to embedding sustainability as a core value in 2019. Engaging, educating, and inspiring everyone from its 20,000 employees to its C-Suite and board members has been critical to TAL's sustainability success.

When you joined TAL in 2000, what did sustainability look like in the company? What did you introduce in those early years, and how did you bring your workforce along for the journey?

I'm an engineer, so I like black and white, but sustainability has a lot of gray areas. Soon after I joined, I realized that the 11 factories we had at the time did not have their own codes of conduct. They all operated according to the brands that were in the factory. I thought: How do we manage this if every factory has a slightly different code depending on the customer they're working with? We were proud of what we did and we wanted to show people, so that's when we started our own code of conduct. In doing so, we made sure we met or exceeded the customer's requirements.

Our Code of Conduct introduced corrective actions to fix issues, but prior to this, there was a strong policing mindset in our facilities. We had to explain to the factories that this new process was not about us policing them. Very early on, we told them:

as long as we can be proud of what we do, we are here to help you. So we had to change that mindset of policing, either by the customer or policing by corporate headquarters. We wanted our factories to know that we are partners in this. We're helping you to set things up, but you should own it.

What does being in a values-driven company mean to your employees?

We did an employee engagement survey a few years ago to see where the employees were engaged. Amongst the top issues were compensation, career development, and the work that we did in sustainability.

We have continuous improvement and innovation programs going around the whole group on efficiency, people engagement, and health & safety. Every year, we have awards at our annual dinner, where we celebrate the successes. In the past, it was usually production innovations, equipment, and new ways of working, and now sustainability is one of the

“If you want to be a leader, don't wait for everyone to do something before you.”

permanent categories. It could be celebrating an individual innovation, but it also identifies the most sustainable factory.

C-suite and board-level support is essential to getting any sustainability initiative off the ground. Given TAL's ESG initiatives started a few years before it was a priority for other manufacturers, did you face any barriers when introducing these new ideas?

A few years ago, we were doing a strategy review of the whole TAL group. In one meeting, a strategist said, “Every time I come into this discussion, sustainability always pops up. Is this more than a business strategy? Do you want to revisit the purpose of the company?”

By 2019, we changed the purpose of TAL Apparel to ‘Leading change in how the world sustainably clothes itself’. To get to that statement, there was a lot of debate: Is it a business strategy, which may only last for 5 to 10 years, or is it our purpose?

The board believed that not all of our customers would buy into this purpose. The detractors were concerned that we couldn't achieve this ambition because in the back of their minds there was a cost issue. But you don't need to achieve the purpose overnight; it's a north star. Once it has become your purpose, a lot of things drive through it.

We do still have the usual return on investment considerations to make. For example, only this year have we installed solar panels. If we were going all-in on projects that are good for the planet and didn't look at our business returns, we would have had solar panels five years ago.

Do you have any advice for someone trying to win over stakeholders for a sustainability initiative?

Just treat it like a standard business issue. Look ahead at the risks and opportunities. Regulations are coming, so if you have a business that is not sustainable, you will get filtered out eventually. If you want to be a leader, don't wait for everyone to do something before you.

Inspire your leaders to figure out the challenges of how to be a leader in sustainability, but without going crazy and upsetting your costs and your customers. The people below senior management are motivated to work on these topics, and it also helps you to attract talent. They should be excited with this opportunity, not just as a business strategy but as a way to bring new talents into your company. You don't have to go full-blown, but you have to find a way for it to work for your company. Use that to inspire your whole organization, including senior management.

Embedding Radical Transparency Across Organizational Activities

With *Everlane*



Everlane launched in 2011, disrupting the fashion industry by breaking down the costs of producing its wardrobe staples. That spirit of transparency soon expanded to its supply chain, largely driven by the brand’s founder, Michael Preyman. Textile Exchange talks to *Kimberley Smith*, Chief Supply Chain and Sustainability Officer, and *Katina Boutis*, Director of Sustainability at Everlane, about the company’s culture of radical transparency, the pay-offs for investing in its sustainability team, and achieving profitability alongside ESG impacts.



7 KIMBERLEY SMITH, EVERLANE
 7 KATINA BOUTIS, EVERLANE

Can you tell us about the foundations of Everlane’s company culture? Why has transparency always been so important?

Kimberley Smith: We started with transparency on how much things cost to make, margins, and how the industry works. Then we took it to the next level, starting with the supply chain and our suppliers. The catalyst was the Rana Plaza collapse — we saw how important it was to know where your products were being made.

We didn’t have a sustainability team at the beginning. Everyone was involved, and everyone was the CEO of sustainability. It factored into the people we hired and all the decisions we made. We had a few critical people driving the process, and eventually, as we started to explore carbon accounting, we needed to build out a robust roadmap that would be backed by science. This meant we needed a dedicated team with background, experience, and education in sustainability.

I will definitely give kudos to Michael, because he was a big force at the beginning. It was

huge for the CEO and founder to believe that sustainability was so important. There is no way we would have been able to do it without his passion, keeping us on track and challenging us to go further.

How does sustainability shape the team mindset at Everlane?

KS: People come to Everlane because of our mission — they want to be a part of something like this. We are scrappy. We don’t have a lot of resources, and you have to wear a lot of different hats. So your employees need to have a strong mission focus that they’re engaged in.

Katina Boutis: Progress is a process, and we are constantly reminding our teams that we don’t have to be perfect at this work. We can’t let perfection get in the way of taking steps, whether they’re big or small. The most important part of our job is empowering our cross-functional teams and giving them the resources that they need to accomplish these goals. Even though we’re setting the strategy and helping them connect to why we’re doing this work, they’re the decision-

“By investing in our team, we have accomplished incredible environmental and social programs across our supply chain while achieving our profitability goals.”

makers at the end of the day. We consider them an extension of the sustainability team.

Are there any challenges to being transparent both internally and externally?

KS: The downside is that you have to stick to your goals! No changing, no backtracking. It is hard, but honestly, you don’t want to backtrack, because then you feel like you’re greenwashing. We have always put hard deadlines on goals, and that can be very difficult.

In the early years, Michael and I would talk about what we would do if we only hit 90% of our targets. We decided that we’d always explain what happened, and that would show the industry that 90% is still serious progress. Our biggest goal has always been to show the industry that it is possible to move the needle.

KB: Our culture is our biggest critic. We are constantly being asked, “Why aren’t we doing more?” Our team members want us to live up to our mission. Our teammates from all levels within the company, across all teams, are so invested in the work that we do, and they keep us driving forward. I think that was part of Michael’s strategy, to be honest and say, “We’re going to share this out to the world first, before we’ve actually done a lot of the work, and that’s going to hold us accountable.”

How do you motivate and maintain the drive for your mission when, as a public-facing company, you go through challenging times?

KS: As leaders, we’re taught to have answers all the time. You want to instill comfort and transparency, but sometimes that means being okay with saying “I don’t know.” I think a lot of people are uncomfortable

with that because they want to inspire confidence. There are so many unknowns that are out of our control, but what I do know is that we can get through anything as a team. My goal as a leader is to challenge us to work together, not veer off into silos or protecting egos. If we tackle challenges as a team, we can do anything.

KB: I think governance is closely tied to the transparency work we do at Everlane. The progress that we have been able to make in the past couple of years is because we’ve formalized a strategy and roadmap as well as formalizing our mission and values. The mission of our company is to empower people to live their best lives with the least impact on the planet. Tying these elements closely, from a business perspective and a sustainability perspective, makes them synonymous with one another.

How has investing in your sustainability team paid off for Everlane?

KB: By investing in our team, we have been able to accomplish incredible environmental and social programs across our supply chain while achieving our profitability goals, which is an important function of having a healthy business. As we have done this profitability work, we also reduced our emissions by 38% since 2019, when we first measured our carbon footprint.

KS: Alongside this, Katina and the sustainability team have been amazing at getting us ahead of all the legislation that’s coming. It has meant we can be strategic with the decisions we make. Otherwise, there’s no way we’d still be here today. A lot of companies are scrambling to change and evolve, and so this is where the value of the sustainability team has been so evident.

Conclusion

Canopy, TAL Apparel, and Everlane show us that embedding sustainability responsibilities throughout an organization can enable companies to meet their business ambitions. In recent years, we've seen a significant uptick of sustainability jobs and professionals, while in contrast, we have also seen how challenging financial conditions can disproportionately impact sustainability teams. This shows us there is still work to be done before sustainability is truly valued within global businesses.

This case study demonstrates that when sustainability efforts and departments are treated like other critical business components like finance or sales, it has much greater effectiveness and staying power. Employees are empowered to bring their ideas forward from diverse perspectives, which is one of the most powerful things a business can hope for from their colleagues. As our experts explained, great ideas can and should come from anywhere in the business.

By following this decentralized structure, these three companies are well positioned to weather the many storms that impact sustainability work and will be ready to tackle new challenges that this global, dynamic sector will inevitably face. The business case for embedding sustainability across functions has never been stronger. Sustainability teams can support businesses to meet not only their ESG commitments but also profitability goals and long-term prosperity.

TEXTILE EXCHANGE RECOMMENDS:

- 1 Develop a culture of education. When people understand the sustainability issues facing the company, and the world, more deeply, they become invested to help bring forward solutions. Enable opportunities for employees to upskill and learn with the support of internal and external subject matter experts.
- 2 Create regular opportunities such as meetings, open forums or surveys in which employees are able to freely and easily give their input. It is important that the frequency is understood so that employees know there will be regular times that they can give input and not always have to go through their direct manager.
- 3 Empower employees at all levels of the organization to ensure the best ideas are being heard, no matter where they come from. Create platforms that enable employees to share their ideas and collaborate with each other to advance solutions, and make room for failure. If employees are nervous of getting things wrong, they may not feel they can take the risk with their ideas. Not all ideas will go the distance, but creating a culture that encourages experimentation will drive innovation. Celebrate successes, small and big.



Photo: Madeleine Brunmeier / Coleo

THE PARTNERSHIPS *balancing* THE DEMAND-SUPPLY PARADIGM FOR *responsible materials*

Introduction

In the constantly evolving landscape of sustainability, fashion businesses along the supply chain face the universal challenge of balancing ambitious goals with realistic expectations.

The industry is in a state of flux, conscious that business-as-usual can't continue, but unsure how to navigate the sustainability minefield ahead. Many companies are understandably hesitant to disrupt established business models without guaranteed proof that novel solutions will be successful. This is evident through the struggle to scale alternative new materials, while nascent technology to enable circularity requires more financial investment than the industry seems ready to give.

As brands attempt to navigate these complexities, they often encounter negative attention on their shortcomings, creating a perception of failure that downplays the small steps that lead to long-term, meaningful progress.

This has been further compounded by the backlash against public goals, where aspirational targets and initiatives set by the industry are criticized, leading to a reluctance among brands to communicate their commitments. While accountability is undoubtedly vital, heavy-handed critique may actually slow progress and reduce transparency.

This case study reframes the sustainability narrative away from challenges and failures to solutions and progress. By shifting the discourse in a positive way, emphasizing what has been achieved, and recognizing the value of cumulative actions, the ambition is to empower a great sense of risk-taking, experimentation and investment.

This fresh perspective encourages incremental improvements and acknowledges that meaningful change is often the result of collective efforts rather than isolated, large-scale initiatives. Below, you'll learn about three companies along fashion's value chain: a brand, a material manufacturer, and a textile recycler. Together, they demonstrate perseverance and long-term commitment to solving fashion's biggest challenges, from divesting in fossil fuels to giving new life to textile waste.

INTERVIEWEES:

Jason Berns,
Ralph Lauren

Christine Goulay,
*Sustainabelle
Advisory Services*

Shay Sethi,
Ambercycle

Creating Performance Materials From Recycled Cotton

With *Ralph Lauren*



JASON BERNS,
RALPH LAUREN

When Ralph Lauren and NFW launched the world's first high-performance cotton polo shirt made with CLARUS® in 2022, it was the culmination of several years of development, investment, and collaboration between the two companies. CLARUS® technology creates performance materials from recycled natural fibers, infusing them with characteristics that are typical of synthetics. Textile Exchange speaks to *Jason Berns*, Head of Sustainability and Product Innovation at Ralph Lauren (who also sits on the board of NFW), about the partnership, the evolution of CLARUS®, and the role a brand can play in not only investing in, but driving industry-wide adoption of innovative materials.

Tell us about the origins of this partnership between Ralph Lauren and NFW. How did it come about?

In 2017, we first spoke to the founder and CEO of NFW, Luke Haverhals. We're always interested to learn about new technologies, especially those related to cotton, which is such an important fiber for Ralph Lauren. We trooped out to Illinois to see this machinery that was in a garage — true startup style. At the time, NFW had taken scrap denim and used their fiber welding technology to make tabletops.

We were blown away by it because they were running yarn through a linear process. We could immediately envision how that could fit into a spinning mill for cotton. That was really important to us, because when we're looking for recycling technologies, we're looking for solutions that fit relatively easily into existing infrastructure. If you have to start over completely, it's going to make any adoption

slower, and we don't want that.

We started working with NFW fairly quickly after that initial meeting. We did a statement of work to do some early development and that was a slow-burn, because they weren't really ready yet. When NFW raised its Series A funding, we looked at the whole technology portfolio and said: We think this company is going to succeed. So we invested and we've been deeply involved with NFW ever since.

Could you tell us about the research and development process for the RLX CLARUS® polo shirt?

For us, the timeframe was six or seven years from the beginning of our conversations with NFW. There have been several variations of equipment and processes that have increased in efficiency and speed every year. CLARUS® is a unique technology. The mechanicals are really good, it doesn't shrink, and the abrasions are excellent. The hand-feel is a bit different from

“If you have that support and alignment, you will find the right partners, you will solve the issues and you will be able to eventually scale.”

cotton, but as NFW continues to fine tune the technology, they'll be able to work out all of these differences. The important thing is, with these technologies, you're never done. NFW's ability to change the haptics and performance characteristics will continue to evolve.

One of the special things about CLARUS® is the fundamental technology that changes the surface structure. Because this technology is creating a molecular change on the surface of the fiber itself, you can envision doing a lot of other things from a textural perspective, hand feel, embedding things — there are a lot of interesting things you can imagine doing over time.

What challenges did you have to overcome to develop this material with the existing infrastructure in the supply chain?

There are fundamental differences between CLARUS® and a standard twisted yarn. This requires some fairly large adjustments to the process. There are many considerations; machine speed, tensions and other small elements that are taken for granted when using cotton, polyester, or a nylon spun filament. There is a level of comfort in working with these traditional yarns — everyone knows how to process them — they have been doing it their entire lives. When you make a material change to these yarns and fibers, you are going to have different results.

Because of this, we had to spend a significant amount of time on development, working through all the differences with true R&D that is not the norm in the industry. As a product and materials guy, it is super exciting,

but this type of innovation can also be challenging. For brands and suppliers alike, it can disrupt the normal ways of working, impacting calendars and other established processes that can cause a fair amount of uneasiness.

What's next for the CLARUS® project?

We would like to see CLARUS® scale, which in turn will allow for the price to reduce. Scale will also allow us to expand CLARUS® into more product categories. There has been a lot of progress, but it is still a complicated process to find a mill partner that will commit to the investment in machinery needed to scale. That investment requires confidence that there will be enough demand.

How is this partnership driving wider industry collaboration between brands and new material innovators?

We had the exclusive right to launch CLARUS®, because we had committed early, but we've always wanted other brands to be involved. We understand that to get these solutions to scale, we have to be collaborative, not secretive. A fiber technology isn't necessarily going to be a competitive advantage for us if it costs a lot because we're the only company using it. Being collaborative is part of how we drive scale for these solutions.

We are motivated to partner with innovative companies as a customer. We are looking to increase the use of short-staple cotton and recycled cotton in more of our products, however the technology and scale doesn't exist yet. In order for that scale to happen and that technology to exist, we know that we need to partner with start-ups, commit to

“Try things, experiment, have patience, and stick with these solution providers as they evolve.”

trials and purchase materials, do statements of work, collaborate and encourage. All of these conversations and pilots will help move the industry forward.

When we think about this ecosystem, there needs to be a lot of players for it to have an impact. It won't happen overnight; it's going to be a slow rise. A cotton technology like CLARUS® is one piece of the puzzle. NFW doesn't take used garments and turn them into fiber or decolorize fibers, so scaling the whole post-consumer textile recycling sector is important to the success of CLARUS®. We are seeing investments around the world and as that network builds, we are confident that the total value proposition will rise over time.

How should brands approach these collaborations in terms of internal readiness and setting expectations?

I think it's about positivity, courage, and an upfront alignment of the company's commitment to the outcome. The reality is that when we're driving change and innovating, not everything is going to work. There is a reality of trial and error that is important for teams to understand.

We work closely with our partners to support them. You need to have experts on the team who go to the factories and work with partners to evolve the process and the final product. You also need to be able to act as a counselor and a cheerleader for the teams, guiding them through the process when challenges arise, or roadblocks present themselves.

Critical to success and progress is top-to-bottom faith in this work. If you have support and alignment,

you will find the right partners, you will solve the issues and you will be able to eventually scale.

Do brands have to fundamentally rethink their role in their supply chains when approaching the new material space?

Fashion brands are used to being heavily serviced by their partners in the supply chain. The salesperson rolls in with the catalogs of fabrics that they've made and everybody picks what they want. But material startups don't work like that. Sometimes, there's a mismatch of expectations that can be a very big challenge.

Another thing that I see a lot is: I didn't like this material when I saw it a year ago, so I'll never look at it again. If you looked at where NFW was six years ago, it was a completely different product. NFW now has around 5,000 companies in its pipeline. The reality is that brands are out there and there is a desire to move this space forward. I think that that's very encouraging. It's so important to be willing and able to revisit the solution as the technologies improve and scale.

What's your advice to brands unsure of how to approach collaborations like the partnership between NFW and Ralph Lauren?

Try things, experiment, have patience, and stick with these solution providers as they evolve. I always encourage people in the sustainable materials space to think about a material portfolio that is part of an ecosystem. You don't have just one tool in the toolbox, it's got to be a toolbox of solutions.



Photo: NFW

Enabling Effective Progress in Material Innovation

With *Christine Goulay*



CHRISTINE GOULAY,
SUSTAINABELLE ADVISORY SERVICES

The turbulence facing fashion has made business challenging for all companies in recent years, not least for next-gen material innovators. Despite challenges, a burgeoning sector of renewable material and processing companies have ambitions to reduce fashion's dependence on finite resources; minimize human, animal, and environmental impacts; and enable the rise of the circular economy. With a number of game-changing investments and high-profile bankruptcies, the sector's fluctuations are often dictated by brand partnerships or lack thereof. Textile Exchange speaks to *Christine Goulay*, founder of Sustainabelle Advisory Services and author of the 2024 report, *Next-Gen to This Gen: Scaling Material Innovations in the Fashion Sector*, about the important role that brands play in driving the success of innovators, plus the challenges and opportunities facing the next-gen material sector in 2025 and beyond.

How far has the next-gen material market come in recent years, and what have been the key issues influencing the sector in 2024?

There's been a huge increase in the number of startups doing material innovations. The market has grown from 130 innovators in 2017 to 650 in 2024 — a 400% increase. In the beginning, innovators were often academics with an idea, but now, we see more well-rounded teams. There has also been a maturation in terms of relationships among innovators, brands, and suppliers. In the past, we mostly saw brands and innovators partnering and trying to push things upstream. Involving suppliers is really critical because innovators need the right expertise in order to scale their technologies.

2024 has been quite turbulent. We have seen some great progress: Infinited Fiber Company closed its finance development

round with more than €40 million from Inditex Group, H&M and TTY Management, and we also saw a \$600 million offtake agreement in Syre, led by H&M and Vargas Group. There have been some exciting product launches: NFW launched a new tote bag with PANGAIA, and there was a second collection from Circ and Inditex. This shows that we are moving beyond one-off product launches, which is exciting. However, we can't forget the Renewcell bankruptcy or that Bolt Threads paused its Mylo production. There are many challenges, which is to be expected in a maturing market, but I have little doubt that a significant shift towards next-gen materials is happening, because there's a perfect storm of drivers in place.

The lifecycle of materials in this burgeoning ecosystem is still immature. Materials usually take 30 to 40 years from lab to commercialization and we're

“For a creative industry, fashion is incredibly uncreative about the business model, and price is really a big issue.”

only 10 years into the next-gen material boom. Looking at the startup landscape today, it's normal that some are going to fail. There will be bankruptcies, we're going to experience attrition, and we're seeing that across the board in all sectors. Overall, I'm very optimistic. Pandora's Box is open, and there's no way we're turning back.

What are the key driving forces for the next-gen materials market at the moment?

The first key driver is incoming regulations, which fashion has never faced to such an extent before. Regulation will create more clarity and fundamentally change company practices. For example, non compliance with Extended Producer Responsibility laws will lead to penalties, but if you're doing things right, then it will also lead to tangible benefits for companies. The companies that are using more sustainable or next-gen materials are going to be better placed.

The second driver is the ambitious sustainability targets that the industry has set. There's no way brands can achieve net zero targets without incorporating innovation, especially when you see where the impacts lie in the value chain. We need to use these materials in order to get close to meeting these targets.

The third driver is the risk to traditional supply chains. According to McKinsey and the Business of Fashion, 67% of cotton exports are at risk due to climate change. Traditional sourcing is not necessarily going to exist unless we're taking adaptive measures, and looking at complements to our traditional sourcing through next-gen materials.

Many material innovators are struggling to scale production to meet industry demand. What's the barrier here and how can it be overcome?

The challenges that come up over and over are usually price, performance and implementation. When I ask innovators and suppliers what their biggest hurdles are, everybody says price, but brands say performance. If you don't show performance, the conversation with a brand doesn't even start. For a creative industry, fashion is incredibly uncreative about the business model, and price is really a big issue. That's not helping with the supply and demand mismatch, because we just keep slapping the premium onto the price of the materials.

We need to decouple the price from the procurement cost of the materials. There needs to be greater incentive alignment. Buyers and merchandisers are completely disincentivized from buying something more expensive because their annual review is based on the lowest-cost materials that they're able to get and the biggest margin that they're able to achieve.

What role do suppliers play in enabling next-gen material scaling?

Brands and innovators can work with suppliers to better incentivize them, helping to reduce risk and align incentives to avoid ballooning costs in the supply chain. This often happens so that suppliers can cover their investment costs. Right now, suppliers have to take on a lot of the burden to invest in the R&D processes without the purchasing commitment assurance from brands. If we structure relationships to incentivize

suppliers on the sellthrough of the materials, providing a link between the success of the material and the success of the supplier, this could help smooth out some friction points and improve market dynamics.

Investment comes in many forms. What are the most effective ways that brands can support new material innovators to help them hit critical mass?

First, people working at brands can help by being a champion to the innovator, helping them navigate the organization by making introductions and helping them prepare for meetings. Sometimes it takes innovators years just to understand where and how they're going to get buy-in inside bigger brands. Whether you are junior or senior, a warm introduction can be invaluable.

Secondly, expertise and knowledge sharing is vital. Brands need to explore where they can be more cooperative and transparent. For example, sharing fiber specifications can help startups to understand the targets they should be shooting for with their R&D and Minimum Viable Products. The more brands can share, the better for everyone to create more clarity on the goal posts for the industry.

Thirdly, there's the financial commitment. We're seeing more investments from brands to help the long-term growth of startups. When a brand is an active strategic partner to an innovator, it helps build investor confidence. Investors like to see

offtake agreements with firm purchase commitments to help de-risk investment opportunities, but it's still uncommon for a fashion brand to put a long-term purchasing commitment on a material. The best thing a brand can do is to make a purchase commitment. Even signing a Letter of Intent (LOI), which is a non-binding document signaling interest in a material at a certain price and volume, has an impact. LOIs de-risk innovations for investors who want to see demand signals for the solution.

What do you think could help unlock some of the challenges facing next-gen innovators?

We need more open source information and more transparency. That will make everybody feel more comfortable, because when there's no clarity, people get nervous. An open source specifications or life cycle assessment library that everyone could access would be incredibly useful. LCA's for next-gen materials could have a universal agreement around system boundaries and scope so that they can compare one to another. These things are coming, but the more we can accelerate standardization, the faster we will move.

This is an exciting time for next-gen innovators in fashion. We are stepping into a new phase, with the continued maturation of the sector and more success stories at scale. There are growing pains, but it will help the sector be more rigorous, focused, and targeted as it comes of age.



Photo: cycora® regenerated material by Ambercycle, Inc.

Taking Textile-to-Textile Recycled Polyester to Commercial Scale

With *Ambercycle*



SHAY SETHI,
AMBERCYCLE

When Shay Sethi and Moby Ahmed first started exploring textile-to-textile recycling in 2015, they thought the challenge would take them two years to crack. After five years of R&D in molecular regeneration, they developed a new fiber indistinguishable from virgin polyester, and have since scaled rapidly to meet industry demand. Textile Exchange speaks to *Shay Sethi*, chief executive and co-founder of Ambercycle, about the company's almost 10-year journey to create its *cycora*® fiber, which started in an LA laboratory and has led to multi-million-dollar offtake agreements with brands like Inditex.

How did Ambercycle come about? What was the original ambition?

Ambercycle was just a simple idea that unexpectedly turned into a company over a 10-year period. In 2015, I graduated with my roommate (and co-founder), Moby. We had plastic bags of clothing in our closets that we were ready to donate, but what really happened to this material was a big question.

After trying to understand why we couldn't recycle our old stuff, we realized that our t-shirts were usually a blend of cotton, polyester and other fibers for functionality. This makes it very difficult to recycle with conventional technologies. We knew that in mining and refining, you can use technology to develop pure outputs, so why couldn't we do the same thing with clothing?

Our idea was to take a t-shirt and separate out the different fibers at the molecular level, then reconstitute the output materials to make new garments. We developed chemistry to separate the different fibers out and essentially turn an old t-shirt into a new t-shirt.

Can you explain how Ambercycle's molecular regeneration technology works?

Our technology separates different fibers from each other. We take a textile, put it into a set of stainless steel tanks, and under different operating conditions, different components turn into a liquid. From there, we separate the liquid from the remaining solid fibers. If we put a polyester and spandex t-shirt into a reactor, the polyester turns into a liquid and will be separated and purified from the other fibers and dyes. The result is a brand new resin or chip that can go back into the same supply chain to make new polyester yarns.

Tell us about the R&D process for Ambercycle's post-consumer waste polyester, *cycora*®.

Between 2015 and 2020, it was basically Moby and me, plus a couple of folks with technical backgrounds, in a laboratory. We were trying to develop a new fiber that would be indistinguishable from a virgin source, starting with polyester, because it's the most-used material in fashion.

“The Ambercycle philosophy has always been that if we see a problem, we'll figure out how to solve it, instead of saying it's the brand or the supply chain's responsibility.”

Over that five-year period, we did a lot of lab trials to get to a yarn output that we could show different apparel brands, who realized it was interesting and wanted to get their hands on it. That's when we knew that this wasn't just a project we were doing in our basement, it had to be a company.

Our first order came from H&M for 634 pounds of fiber in 2019. To make the fiber, we built a pilot plant in Los Angeles, where we're based, and sent it to one of their mills. After we made that initial amount, we were asked for 3,000 tons of material. The challenge was: how were we going to make that?

What roadblocks did you encounter when scaling to meet that production target?

From a technology point of view, there's a lot of engineering that has to be considered. For example, no one has put textiles in a giant reactor before, so we had to work out how to do that.

Next, how do you source these materials? Initially, we were going to launderers collecting items like used In-N-Out aprons. But you can't do that if you need 250,000 aprons a day.

To solve this, we began working with third parties to collect both post-consumer and post-industrial waste. Post-consumer textiles are sourced from second-hand clothing stores as well as our brand partners. Our post-industrial clothing is sourced directly from manufacturers, typically in the form of scraps that are left on factory floors. As we continue to scale our operations, we're building collaborative supply chain partnerships and introducing more sophisticated sorting techniques to bring

efficiency and simplicity to collecting end-of-life textiles.

Was there a moment when you finally felt ready to launch *cycora*® into the market?

It was never one clear moment, but a series of small steps. We always had confidence in the capability of the Ambercycle team, which is energized to work hard and overcome technical hurdles to get commercial solutions implemented.

The Ambercycle philosophy has always been that if we see a problem, we'll figure out how to solve it, instead of saying it's the brand or the supply chain's responsibility. We believe that everyone wants to move to a circular supply chain, but currently there's so much friction in implementing it. We want to make the integration easier and friction lower, because that will empower people to make the right purchasing decisions.

What have been the pivotal partnerships that have advanced Ambercycle's mission?

In 2019, we did a collaboration with the City of Rotterdam. They sent us old Rotterdam Marathon jerseys and we used them as feedstock for a bike jersey. That was the first garment that we ever made, and we were ecstatic. It wasn't perfect or super comfortable yet, but the fibers were materially the same. That was the first pivotal moment when we knew that this could actually work.

Last October, we signed a binding commitment with Inditex to purchase \$75 million worth of output chips over the next three years. This is not just in a capsule collection or a pilot program,

“We’re at a critical point now where we’ve proven what we’re doing is useful.”

but across major product lines, in meaningful volumes. We had been doing capsule launches and pilot programs, but this will help create a real impact on decarbonization. It proves that this is not just a trend. This is something that can really lead into industry transformation.

What’s next for Ambercycle?

We’re at a critical point now where we’ve proven what we’re doing is useful. We have commitments

from major brands to purchase the materials. We now need to make this material available in larger quantities to allow for the pricing to be amenable with the existing supply chain. The number one goal is increasing production capacity. We are currently sold out in our demo stage — we don’t have any excess available inventory right now — so we desperately need to scale up production. We’re working very hard on that.

Conclusion

There are no quick wins in innovation. It is a journey that requires time, patience, and an open-minded, explorative approach. For all involved, this process necessitates open dialogue and a commitment to embrace inevitable hurdles head-on.

As Ralph Lauren, Ambercycle, and The LYCRA Company have demonstrated, this is particularly true of the next-generation technologies behind CLARUS®, Cycora®, and Qira®. Their journey from extensive R&D, proof of concepts and testing through to commercially available products shows us that innovation is never finished, it continuously evolves and improves.

For startups in this space, partnerships can take many forms, not just financial investment. They also benefit significantly from collaborators that share support and guidance. By working with these innovators, visionary brands can help demonstrate market demand, which can be just as impactful as direct financial backing. Businesses should view this as an opportunity and invitation to find collaborators, share knowledge and resources, and be part of the solution.

TEXTILE EXCHANGE RECOMMENDS:

- 1 A collective approach will always make more of an impact compared to a single company driving the innovation alone. Reach out to interesting brands and innovators to see how you can be part of their journey, or discuss how you can support innovative new materials or technologies by offering to be a partner to test the materials. Make stronger commitments to your supply chain partners directly to assist in scaling.
- 2 Initiatives succeed when long-term commitments and relationships between innovators, brands and suppliers are in place. To ensure your project will have long-term impacts, consider all aspects of the business when finding partners, understanding sourcing, buying and merchandising, design, and other important perspectives to ensure alignment and buy-in across the board.
- 3 Educating team members is critical, so develop cross-company collaboration to ensure that perfection is not a roadblock to progress. Innovation is a journey, so create a strategic roadmap to deliver a clear vision and return on investment once you understand where the journey is taking you.

THE CROSS-INDUSTRY *inspiration models* FOR FINANCING THE TRANSITION TO *sustainable materials*

Introduction

The fashion and textiles industries are increasingly coming under global scrutiny for their environmental impact — and for good reason. The fashion industry is estimated to be responsible for somewhere between 2% and 8% of global carbon emissions, and produces over 92 million tonnes of waste each year and consumes 79 trillion liters of water, according to a 2020 study published in Nature Reviews Earth & Environment. Those are just the tip of the rapidly melting iceberg, with fashion's other alarming impacts spanning biodiversity, microplastics, workers' rights, soil health, and more.

These problems don't just pose reputational risk to companies that get tangled up in the mess. They threaten the very supply chains that fashion and textile brands rely on for their existence. Push any link in the supply chain too hard — whether that's the garment-making workforce, soil fertility, water availability, or the climate of the planet on which we are growing the cotton and raising sheep — and it's liable to break.

And yet that is increasingly what the industry seems to be doing. According to a 2024 report from McKinsey, about two-thirds of brands are behind on their own decarbonization schedules, and 40 percent have actually increased their emissions since making sustainability commitments. All that is taking place against a backdrop of Bangladeshi cotton crops being destroyed by flooding and heatwaves turning denim factories into deadly heat traps; just a few pieces of the mounting evidence that climate breakdown is a threat to the industry not just in the future, but today.

If doing right by the planet and the people was the easiest option, everyone would have done it years ago — and yet that's not what happens, because transitioning factories from coal power to solar or wind power, restoring biodiversity-rich wetlands on farms, and cutting out waste requires not just considerable will, but considerable martialing of time and resources.

The Apparel Impact Institute and Fashion for Good have estimated that it would take a trillion dollars to decarbonize the entire industry. Carbon — here used as a shorthand for fashion's climate impact — is not the only environmental factor worth mitigating, as outlined above, but it serves as a powerful stand-in when trying to get a sense of the scale of the problem and the investment needed to fix it.

So where will all that capital come from? As with anything involving a global system, there's no easy or straightforward answer. But some solutions start to emerge when we begin to imagine tackling the low-hanging fruit first: investments that actually prove good for business.

INTERVIEWEES:

Henry Tallott,
New Zealand Merino

Dale Wright,
RMIT University

Amanda D. Smith,
Project Drawdown

In the long run, anything that undermines the stability of Earth's climate is a bad business strategy. As activists are fond of saying, there's no clothing on a dead planet. But even in a slightly more near-term view, there are good business reasons to begin transitioning to a more sustainable way of operating.

In the following report, we'll look at three case studies — one pulled from the textile supply chain, one pulled from food systems, and one from building decarbonization — to try and glean lessons on how to make sustainability transitions that are good for the planet and while keeping profitability in mind.



Photo: Shelby Murphy Figueroa

Learning from NEW ZEALAND WOOL

How Forward Contracting Helped Drive Sustainability in New Zealand’s Wool Market

With *New Zealand Merino*



HENRY TALLOTT,
NEW ZEALAND MERINO

How do you make a fiber more sustainable? One simple answer arises from New Zealand: pay growers enough — and pay them in a reliable, predictable way — so that they can afford to make sustainability investments on their land.

Like most fibers, New Zealand merino wool used to be sold at auction at the end of the growing season, which meant that the price of the wool fluctuated based on global market prices, the quality of wool that year, and other variables. But in 1997, a group of growers, organized under the banner of New Zealand Merino, got together and decided to try something different: selling their wool via forward contracts.

These contracts allow merino growers to enter into agreements with buyers that set fixed prices for the sale of the merino wool in advance. This arrangement means that, based on the way the global price of wool is trending, some years, wool growers might get a slightly better deal, and others, the buyers might get a slightly better deal — but the overall effect is to flatten out price volatility for both parties. The result is a greater ability for both growers and buyers to plan ahead and budget accordingly.

For growers, that translates into a greater ability to invest in sustainability efforts. “If you ask these farmers what they really want, it’s just to leave their property in better condition than when they started,” says *Henry Tallott*, general manager of integrity systems at New Zealand Merino. That might look like planting out unproductive areas of the farm, investing in climate resilience projects, working to restore wetland areas, or experimenting with regenerative practices like minimizing tillage, implementing rotational grazing, and reducing fertilizer use.

“They can do all of that — make those investments — when they have the security of a forward contract,” Tallott says. “Whereas if they don’t, they need to keep cash in the bank to get them through the rough years.”

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Buyers benefit from both price stabilization of a fiber they rely on, as well as getting to tell a marketable sustainability story about the farmers they’re investing in.

Because sustainability practices on farmland are context-dependent, these kinds of arrangements have the greatest ecological impact when the people working closest with the land have some agency and decision-making power, says Tallott. “Who is the best entity to decide how to spend a sustainability dollar? Is it a Swiss corporation? Or will it be the farmer themselves?” His answer is firmly the latter.

Though the transition to forward contracting in New Zealand merino was initiated by growers, the reduction of price volatility and the guarantee of supply and quality has seemed like a good deal to buyers, too: Allbirds, Loro Piana, Stella McCartney, and Fjallraven are just a few of the nearly 80 brands that have signed on. Outdoor gear brand Icebreaker believes in the model so much that in 2017, it signed on for a 10-year deal worth \$100 million.

As far as Tallott can tell, it’s been a win-win for both brands and growers — as well as the animals, land and communities the fiber comes from.

Learning from COFFEE

What's Worked — and What Hasn't — in the Coffee Supply Chain

With RMIT University



DALE WRIGHT,
RMIT UNIVERSITY

Widespread concerns about the environmental impact of industrialized food supply chains began to grow in the US in the mid 2000s, at a time when the fashion and textiles sustainability conversation was more nascent and often sidelined. It can therefore be instructive for the fashion industry to note what sustainability efforts have and haven't worked in food supply chains, which have had longer to test their sustainability strategies.

One useful place to start is with coffee, which has been the focus of many social and environmental improvement efforts in recent decades. In a 2024 literature review published in the journal *Ambio*, **Dale Wright** of RMIT University and his colleagues set out to discover what sustainability initiatives in the coffee supply chain have actually worked.

One of their findings was that certifications, which are often initiated by brands or corporate partners, can be helpful in achieving sustainability objectives, at least at the beginning of a sector or commodity's sustainability journey — with a few major caveats.

First, the most effective initiatives are designed with producer input, not designed elsewhere and then foisted on farmers. That's crucial, Wright said, to getting grower buy-in. Not doing so, he said, is like "if somebody wanted to go on an exercise program and they weren't motivated themselves, but someone else was trying to drive them," he said. "That's not going to work."

Second, the best programs Wright studied offered ongoing support and resources to farmers trying to implement change. Wright described an interview with a farmer who had an auditor come to critique their farm, and then didn't hear from their organization again for five years. A more effective approach, Wright noted, would be having extension officers who can offer ongoing technical support to farmers, as well as gathering their feedback about challenges that can then inform future tweaks to the certifications in question.

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How to best finance these efforts is an ongoing line of inquiry in the coffee sector. While certification efforts are often spearheaded by brands, which may even provide some initial funding to help farmers get onboard, growers are often left with the ongoing costs associated with maintaining certification, which can be prohibitive. And while advocates of certification often point to them as a way to command a higher premium for growers, one of Wright's case studies in Peru found that 40% of participant farmers were not receiving any financial benefits from participating in certification schemes, a problem that needs to be corrected if certification schemes are to have wide-reaching impacts.

While the research did not yield conclusive evidence about whether positive incentives or regulations with negative consequences for non-compliance were more effective, Wright thought some combination of the two might yield the best results. And he noted that government involvement in creating incentives and regulations had a positive outcome in some case studies.

All in all, Wright's research shows that, despite their pitfalls, certifications can play a role in greening a supply chain, especially earlier in the sector's sustainability journey — so long as they're designed carefully with farmers' input at the center.

Learning from LED LIGHTING

Key Takeaways From the LED Lighting Adoption Curve

With *Project Drawdown*



AMANDA D. SMITH,
PROJECT DRAWDOWN

For an example of a sustainability solution where the transition is already successfully underway, one need look no further than the shift to more efficient lighting. LED lights are a far more energy-efficient source of light than their predecessors — as much as 80–90 percent more efficient than incandescents — making them a significantly more climate-friendly option and leading the UN to declare energy-efficient lighting a “high-impact solution.”

The shift to LEDs over the last ten years has been quite rapid in many parts of the world. In the US, for example, LEDs represented less than 20% of the market just ten years ago, according to **Amanda D. Smith**, senior scientist at climate solutions non-profit Project Drawdown. But today, LEDs make up about half the market for new lighting.

So how was the lighting industry able to transition so quickly?

On the face of it, the answer’s obvious: LEDs are so much more efficient that they always end up being cheaper over the course of a building’s lifetime than incandescents.

But that hasn’t meant that the transition to LEDs has been without its challenges. While LEDs cost less over time, they cost more up front. “The two places where it’s really hard to adopt a new technology around energy are if you’re shifting costs between parties — say, from owners to renters — or when the cost shifts within the life cycle,” said Smith.

Asking the average citizen to pay ten times more than they’re used to for a lightbulb isn’t a small ask. Scale that up to the size of a commercial building, and it’s an even bigger one.

To spur along the LED adoption rate in the US, it took more than a simple cost-savings for buyers — it took policy change. Around 2010, a professional organization of builders drafted a standard for building codes that included efficient LED lighting. Individual

states could then choose to adopt that code as the most up-to-date code available, and as they did, it made LED lighting mandatory in many building codes, especially in commercial buildings.

“Eventually it becomes, ‘Hey, this supply chain is set up; they’re everywhere; everyone else is using them,’ and then people just kind of start to fall in.”

That in turn helped prepare the way for contractors, building supplies retailers and decision-makers to start prioritizing LEDs. “There’s a time period for things to change over, because everyone doesn’t necessarily want to be the first adopter. But eventually it becomes, ‘Hey, this supply chain is set up; they’re everywhere; everyone else is using them,’ and then people just kind of start to fall in,” Smith said.

Outside the US, the process and curve of LED adoption has often looked different, but a clear theme arises from the latest International Energy Agency report of government-mandated minimum energy performance standards for lighting, which have encouraged the adoption of LEDs around the world.

That’s not to say that the problem of energy-inefficient lighting has completely been solved. In developing economies, higher up-front costs continue to be a barrier, and worldwide, electricity consumption for lighting actually increased in 2022, despite more energy-efficient options, pointing to a need to maintain the already-steep rate of adoption in order for lighting to hit global net zero goals by 2050.

But the current trajectory of the lighting sector is proof that a sustainability transition — even in the face of higher up-front costs — is possible.

Conclusion

The challenges to decarbonizing different sectors, or even individual commodities within sectors, vary widely. But as these case studies show, there are a few common themes that emerge.

The first is that, in the case of agricultural commodities, programs need to be designed with farmer input, and farmers’ wellbeing in mind. This is in part because those living closest to the animals or ecosystem being managed often have the best insight into what sustainability actions are most pressing in a specific context.

But it’s also because the financial investments made by stakeholders anywhere along the value chain will come to nothing if the initiative being proposed isn’t implemented properly and maintained over time – and since farmers are the ones that will be doing that implementing, their buy-in is crucial. Consulting them at the outset, as well as finding ways to pass along technical and financial support, allow them to deliver the best bang for an investor’s sustainability buck.

The second is that sustainability transitions may require higher up-front costs, which can pose a challenge to adoption – but that challenge can often be overcome if the stakeholders investing in the transition are able to take a long view.

As demonstrated by brands investing in New Zealand merino wool, or commercial contractors adopting LED lights, the willingness to spend a little more up front can often yield savings over time. Other examples of this principle at work that were not explored in this report, but merit further study, include switching from coal-powered to renewable energy sources like solar, or switching from gas automobiles to ones that run partially or fully on electricity.

Finally, these case studies pointed to the role that governments can and do play in making sustainability transitions financially feasible. While fashion and textile supply chain players do not have direct control over governmental initiatives, they can play a role by throwing their weight behind legislation intended to reward industry actors looking to operate responsibly and to regulate those that do not.

Without such policies, it is likely that growers, factories, mills, brands and any other supply chain stakeholders who are willing to act irresponsibly will continue to “outcompete” their more responsible peers by externalizing their costs in the form of exploitation of workers, animals and landscapes.

TEXTILE EXCHANGE RECOMMENDS:

- 1 **Involve farmers from the start.**
Seek out and incorporate grower input from the beginning when designing sustainability initiatives, and offer them stable and reliable pay, as well as ongoing technical support, if you want the programs you’re investing in to yield tangible sustainability results that last.
- 2 **Take a long view on sustainability investments.**
In the case of both LED light adoption and forward contracting, the upfront costs involved in the more sustainable choice are sometimes higher — but over the lifetime of the program, they end up breaking even or even saving stakeholders money.
- 3 **Pursue policy incentives.**
Across sectors, some of the most impactful sustainability initiatives have been made possible by government incentives and regulation. Fashion and textile stakeholders should throw their weight behind legislation that rewards supply chain actors for making responsible choices.