

Global secondhand market  
size will skyrocket to  
**\$350 billion**  
by 2027



Gen Z to dictate  
apparel & fashion  
market

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UK's new Net Zero Plan  
likely to trigger circular  
fashion practices

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SMART ePANTS: U.S.  
Intelligence commits to  
invest \$22 mn for  
wearable 'spy' tech

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# Systematic adoption of Innovation can achieve \$100 bn export target

**Bangladesh apparel industry must focus on adopting innovativeness to reach the target of \$100 billion export by 2030, experts and apparel industry insiders said.**

■ Sayed Abdullah



Figure: Panelists in the seminar on 'Road to \$100bn Export by 2023' at Bangabandhu Bangladesh-China Friendship Exhibition Center, Purbachal, Dhaka.

As panel discussants at the seminar on 'Road to \$100bn Export by 2023', said the objective-oriented systematic change in the product, process, people and culture within a business can reduce its cost and boost its profit.

Textile Today innovation Hub and CEMS-Global organized the seminar TextIME Episode -23 on 14 September concurrently with 22nd Textech Bangladesh 2023 International Expo at Bangabandhu Bangladesh-China Friendship Exhibition Center, Purbachal, Dhaka. The seminar aimed to dive into the journey towards achieving a remarkable \$100 billion exports in the textile industry.

Keynote speaker Tareq Amin, Founder & CEO, Textile Today Innovation Hub -- in his keynote speech on 'Practical Method of Implementing Innovation to Achieve \$100bn Export' – said, “A small innovation can make a big change. Once we have a systematic innovation process in place, then we will find out the hotspot, identify an improvement area to work out for change.”

“We’re not talking about disrupting the existing process. With our existing process, innovation should be adopted as systematic way. This will give you competitiveness. We have to look at how the ideas can be adopted as innovation circles as a team – which will implement it in the whole factory,” Tareq Amin added.

“We need to work on our customer demand, market

demand and people. We need to have a systematic implementation of ideas to resolve practical problems,” he said.

Innovation scopes: Resource efficiency, Process upgradation, optimization and standardization, Quality enhancement, Productivity improvement, Compliance and sustainability, Market and merchandising, Product development etc.

“Our factories need an objective-driven team equipped with the innovation tools, techniques, and other resources to build a sustainable innovation culture. Training on Project Management Tools & Techniques for Innovation should be accessible for the employee to ensure a true innovation culture,” Tareq Amin emphasized.

Though most of the factories feel the necessity for innovation, however, this is usually difficult for a single company due to several day-to-day operational dynamics. A concentrated platform like Textile Today Innovation Hub can benefit companies by facilitating innovation in many ways.

Dr. Hasib Uddin - Chairman, APS Group, said, “I personally think that we do not spread our innovations.” He also emphasized focusing on human capital development.



# Global secondhand market size will skyrocket to \$350 billion by 2027

■ Faujia Mushtari

**52%**  
**Active Secondhand Shoppers**  
 In 2022, 52% of consumers actively engaged in secondhand clothing shopping.



**83%**  
**Gen Z Shoppers**  
 83% of Generation Z (Gen Z) individuals have shopped for or are willing to shop for secondhand fashion.



**5X**  
**US SECONDHAND MARKET**  
 U.S. Secondhand Market Expected To Reach \$70 Billion by 2027, which is 5X higher than 2022

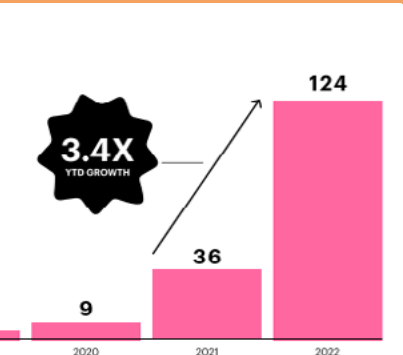


Year	Resale	Traditional Retail and Clearance	Total Secondhand
2020	10	10	20
2021	15	15	30
2022	20	20	40
2023	25	25	50
2024	30	30	60
2025	35	35	70
2026	40	40	80
2027	45	45	90

**61%**  
**Gen Z & Millennials are eco conscious**  
 61% of Gen Z and Millennials consider themselves eco-conscious or sustainability-focused, compared to 51% of consumers overall.



**3X**  
**Brands with resale program**  
 Retailers With Branded Resale Programs skyrocketed in 2022. 3X more brands starts resale program in 2022 than 2020.



Year	Number of Brands
2020	9
2021	36
2022	124

The global secondhand market is undergoing a remarkable transformation, poised for extraordinary growth. By 2027, it is projected to nearly double in value, reaching a substantial \$350 billion. This expansion is expected to outpace the entire global apparel market by a factor of three.



Figure: Resale fashion is becoming popular in Gen Z

Consumers' attitudes toward secondhand fashion have shifted significantly. In 2022, 52% of consumers actively engaged in secondhand clothing shopping, with an astonishing 75% demonstrating openness to the idea. Staggering 83% of Generation Z (Gen Z) individuals have either shopped for secondhand fashion or expressed a willingness to do so. As younger generations gain economic influence, they are anticipated to drive a significant share of the growing secondhand market.

Sustainability is at the forefront of this market's rapid ascent. Gen Z, in particular, is driving this trend, with 47% refusing to buy from non-sustainable apparel brands—an impressive 11-point increase from 2021. Moreover, 56% of Gen Z and Millennials prioritize unique styles over following fleeting fashion trends, signifying a pronounced shift in consumer preferences. Gen Z and Millennials are embracing climate-conscious consumerism, with 58% believing their closets contribute to climate change. These environmentally conscious individuals are motivated to reduce their carbon footprint, with 63% actively pursuing this goal. 61% of Gen Z and Millennials identify as eco-conscious or sustainability-focused, exceeding the broader consumer base.

Data Source: GlobalData 2023 Market Sizing and Growth Estimates & thredUP 2023 resale report

# Key Insights

- » The global secondhand market is expected to reach \$350 billion by 2027, nearly doubling in value from its current size of \$177 billion.
- » The secondhand apparel market is expected to grow at the fastest rate of any segment of the secondhand market.
- » The secondhand market is also growing rapidly in emerging markets, such as China and India.
- » Major retailers are starting to embrace the secondhand market. For example, Walmart has partnered with ThredUp to offer a secondhand clothing resale program in its stores.

In this evolving landscape, brands are adapting to meet the demands of sustainability-minded consumers. Several major brands have ventured into the resale market, offering innovative solutions for extending the lifecycle of apparel. Specialized designer resale platforms cater to those with a taste for luxury fashion, providing a curated experience in the secondhand market. As the secondhand market continues to thrive and sustainability remains a driving force, it is poised to play an increasingly significant role in the fashion industry's future.

## Resale Initiatives by Top Brands

Several prominent brands have entered the resale space to tap into this burgeoning market:

### Torrid's Clean Out program with thredUP

Torrid, a direct-to-consumer brand catering to curvy women, has partnered with thredUP for its Clean Out program, making it the first plus-size brand to leverage



Figure: Torrid is one of the pioneering fashion resale brand

thredUP's Resale-as-a-Service (RaaS).

### Lululemon's 'Like New' Program

Lululemon's "Like New" program aims to reduce waste by allowing customers to trade in gently used items for

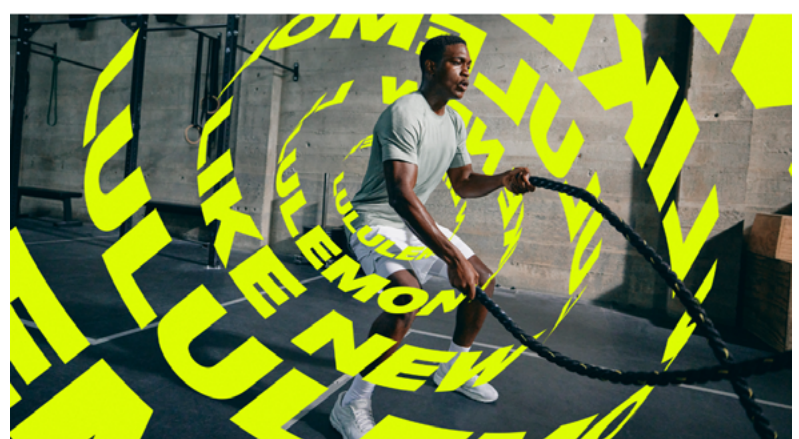


Figure: Lululemon introduces "Like New" program, which allows customers to trade gently used cloth for store credit



Figure: Most popular brands in resale



store credit. These items are refurbished to “like new” standards and resold on the brand’s website.

## ZARA PRE-OWNED

ZARA offers customers the opportunity to extend the life of their garments by buying and selling pre-owned items.



Figure: Zara's Pre-owned program

## THREDUP, World's Largest Resale Platform

As one of the world’s largest resale platforms, thredUP focuses on making secondhand shopping and selling accessible. Their mission is to inspire a new generation of consumers to prioritize secondhand items.

### Designer Resale Sites

For those with a penchant for luxury fashion, designer resale sites provide a curated experience:

**Vestiaire Collective:** Known for its authenticity verification processes and a vast online fashion community, Vestiaire Collective offers a wide selection of pre-owned luxury items.

**By Rotation:** By Rotation pioneers social fashion rental, allowing users to share their designer wardrobes within a community of sharers, fostering sustainability.



Figure: World's largest resale platform

**HURR:** HURR, a rental platform with a focus on ethics, now offers a re-sale function, allowing users to buy items

they’ve rented and loved.

**HEWI London:** HEWI London operates like an eBay for new or barely worn pre-owned designer goods, offering options for both buyers and sellers, including a VIP service for hassle-free selling.

The global secondhand market’s rapid growth and sustainability-driven motivations have reshaped consumer behavior. With key players embracing the resale trend and designer resale sites catering to luxury enthusiasts, the secondhand market is not only booming but also contributing to a more sustainable and eco-conscious fashion industry. As this market continues to evolve, brands and consumers alike are recognizing the value of secondhand fashion, making it a prominent fixture in the fashion landscape of the future.



Figure: Vestiaire Collective

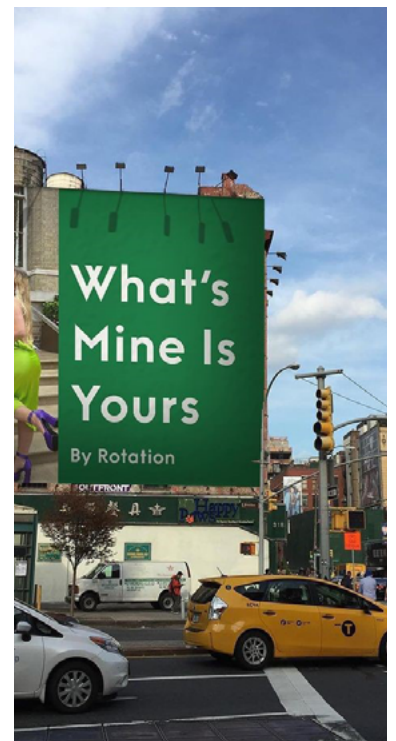


Figure: 'By Rotation' is actively participating and promoting resale culture



Figure: Hurr



Figure: HEWI London



# Stäubli Robotics Unveils 'SCOPE Products', an Industry 4.0 Solution

■ Faujia Mushtari

In a groundbreaking announcement at Automate 2023, Stäubli Robotics, in collaboration with its partner Calvary Robotics, unveiled its latest Industry 4.0 innovation – SCOPE Products. SCOPE Products represent a significant leap in the automation industry, offering seamless connectivity and monitoring capabilities for up to 50 robots. This technology provides real-time status updates and diagnostics, ensuring that manufacturing processes run at optimal productivity levels. With its intuitive PC interface, SCOPE Products promptly send out alerts when issues arise, enabling swift troubleshooting. This innovation promises to revolutionize production workflows, reshaping the landscape of automated manufacturing.

## SCOPE: A Transformative Industry 4.0 Solution

SCOPE, Stäubli Robotics' Industry 4.0 solution, serves as a secure and continuous EDGE data mining system for robot fleets. Its open and transparent data routing capabilities connect seamlessly with Manufacturing Execution Systems (MES) or Enterprise Resource Planning (ERP) systems, offering unparalleled flexibility for diverse manufacturing needs. SCOPE's real-time analytics capabilities are particularly noteworthy, as it can analyze robot health and stress on-the-fly and provide advance notifications for upcoming maintenance. This real-time overview of production assets empowers manufacturing professionals to exercise better control over Overall Equipment Efficiency (OEE).

## Integration and Data Ownership

SCOPE seamlessly integrates the latest Stäubli Technologies, elevating the performance of production processes and extending the operational life of the entire robot fleet.

It operates as a decentralized EDGE solution, assuring data ownership remains with the user. SCOPE's open data routing functionalities, which support HTTP, WebSocket, and MQTT protocols, ensure full connectivity with compatible MES and ERP systems.

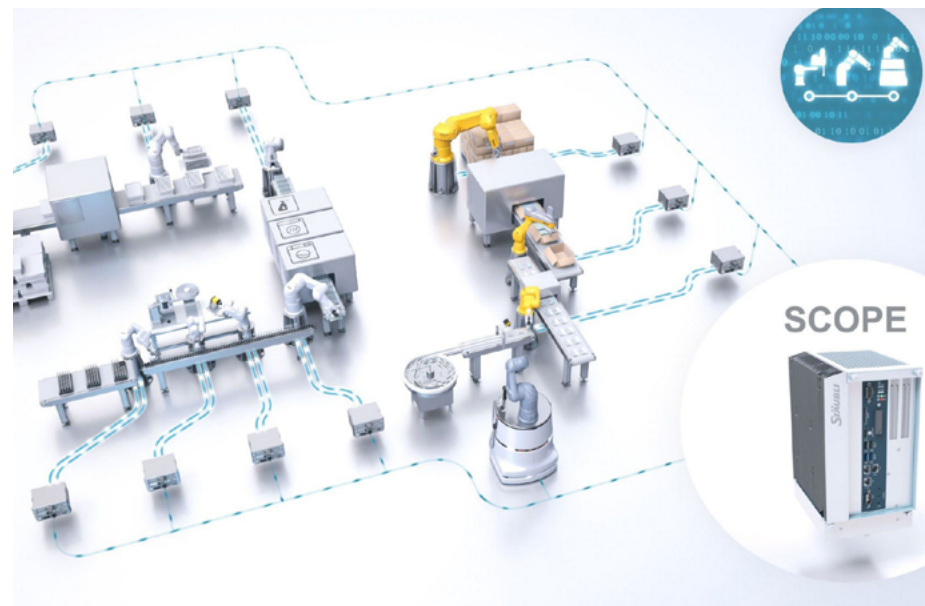


Figure: SCOPE, Digital solution for Smart Industry

## Optimizing Efficiency and Preventive Maintenance

SCOPE offers an array of functionalities designed to enhance manufacturing efficiency. It optimizes robot performance and trajectories, effectively reducing stress on robots and extending their operational lifespan. By supervising the robot fleet, SCOPE helps prevent production downtime, offering a global fleet overview that simplifies the scheduling of necessary maintenance actions.

## Future Developments

SCOPE's development roadmap is filled with promising features to further enhance manufacturing efficiency. Upcoming functionalities include robot motion analysis, application data analysis (I/Os), trajectory optimization, data backup and restoration, robot analysis (temperature, CPU load), additional notification types, and log analysis.

### At a glance

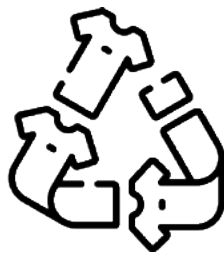
- » Industry 4.0 solution for robot monitoring & connectivity
- » Real-time status updates & diagnostics
- » Increased productivity, quality, & flexibility
- » Edge computing and cloud-enabled AI powered applications under development

# 20% European textiles can be recycled to make fresh clothes

■ Mashia Sahejabin



McKinsey study estimates that a circular economy for textiles could become profitable & **one-fifth of Europe's textile waste** can be made into new clothes



If only **1% is upcycled** into new fabric – **\$100 bn** worth of clothes are thrown away every year



**45% of EU** fashion shoppers said they were drawn to brands using recycled materials in their clothing

A recent McKinsey study showed that at least one-fifth of Europe's textile waste could be reworked into new clothing. By McKinsey's assessment, transforming 20% of old apparel into new would need kick-off investments of up to €7bn (US\$7.5bn) by 2030.

Making a new product from discarded waste is nothing new in the textile sector. In the fight to recycle textile may seem secondary in the panorama of ecological crusades, but it is not. Data from the Commission and the European Parliament show that the textile industry is responsible for 10% of global greenhouse gas emissions: more than all air and sea transport combined.

Recycling is an essential part of the circular economy that is developing globally. Clothes produce greenhouse gases when they end up in landfills, so recycling them with Planet Aid helps reduce the forces that contribute to climate change. Reusing fabric in old clothes means fewer resources, both financial and environmental, are wasted on growing fiber for new ones.

A study by McKinsey, which estimates that a circular economy for textiles could become profitable and create 15,000 new jobs in Europe by 2030. And at least one-fifth of Europe's textile waste can be reworked into new clothes.

By increasing the volume of fast fashion, some brands and the people behind those brands have caught millions of dollars in their pockets. Finiteness is spreading into infinity. The average lifespan of a garment is decreasing. The world is slowly turning into a wasteland of fashion.

Carbon is increasing. Against this, slow fashion, eco-friendly fashion, limited upcycling and recycling, thrift shop-like movements have started again.

What actually happens when we throw away clothes? The BBC has published a report entitled 'Why Clothes Are Hard to Recycle'. According to that report, 73 percent of clothing is either burned, thrown away, or landfilled as garbage. 12 percent of clothing is downcycled into mattresses, cleaning clothes, rugs, linens or other low-cost items. If only 1 percent is upcycled into new fabric – \$100 billion worth of clothes are thrown away every year.

While charity shops, textile banks and retailer "take-back" schemes help keep those donated fabrics in a wearable condition, the ability to recycle fabrics at end-of-life is currently limited.

Germany is the country with the least amount of waste in the fashion industry. They also recycle only 50% of discarded clothes to make new clothes. In 2016 alone, 1.1 million tonnes of fabric was wasted. The saddest thing is that 73 percent of it is pre-consumer waste. Means, those clothes were not bought by consumers or even if they were bought, they were not used. The amount of such old unused fabrics was 8 lakh tonnes. This was because the consumer did not have to go through the 'out of stock' experience, so many brands kept up to 10% surplus stock. But now a number of brands have emerged worldwide, who are working on sustainable and eco-friendly fashion.

A major hurdle is the data disconnect between fabric





Figure: Christy Dawn makes vintage-style dresses from deadstock fabric that would otherwise end up in landfills. Courtesy: forbes

suppliers, manufacturers and retailers, resulting in a lack of transparency about garment fibres, dyes and embellishments.

Digital ID and connected cloud platforms offer communication tools to help track items, impact data such as Scope 3 carbon emissions, streamline supply chains and report on textile waste reduction achievements. Digital Product Passport is the missing link.

In the future, more and more garments will link to a Digital Product Passport (DPP), either through a scannable QR code on a care label, or a hardware tag (such as NFC, RFID, or Bluetooth) embedded in the garment.

The 2022 report *Accelerating Circularity in the US Circular Textile Economy, Accelerating Workforce Development*, cites the potential benefits of RFID tags or QR codes on clothing to support textile recycling. Deadlines for EU legislation to meet sweeping climate targets - namely, the Green Deal and Fit for 55 – are fast approaching.

According to a Consumer Behavior Report 2023 (for which 6,300 global apparel shoppers were surveyed), 45% of European fashion shoppers said they were drawn to fashion brands using recycled materials in their clothing. A whopping 71% of global respondents said it was important to them for fashion brands to be transparent about their manufacturing practices. And 60% of global fashion shoppers see value in scanning a QR code on a garment with their smartphone to understand proper care and recyclability.

The big hope is that brands and government agencies successfully educate consumers about the importance of textile recycling, using Garment Connection and DPP technology. Growing public awareness must be coupled with appropriate investment in full-scale textile recycling facilities. We need a serious commitment from fashion brands to design with circularity in mind and embrace recycled fabrics. If this happens, it is especially possible to turn old clothes into new, scale, and it will look very good for all of us.

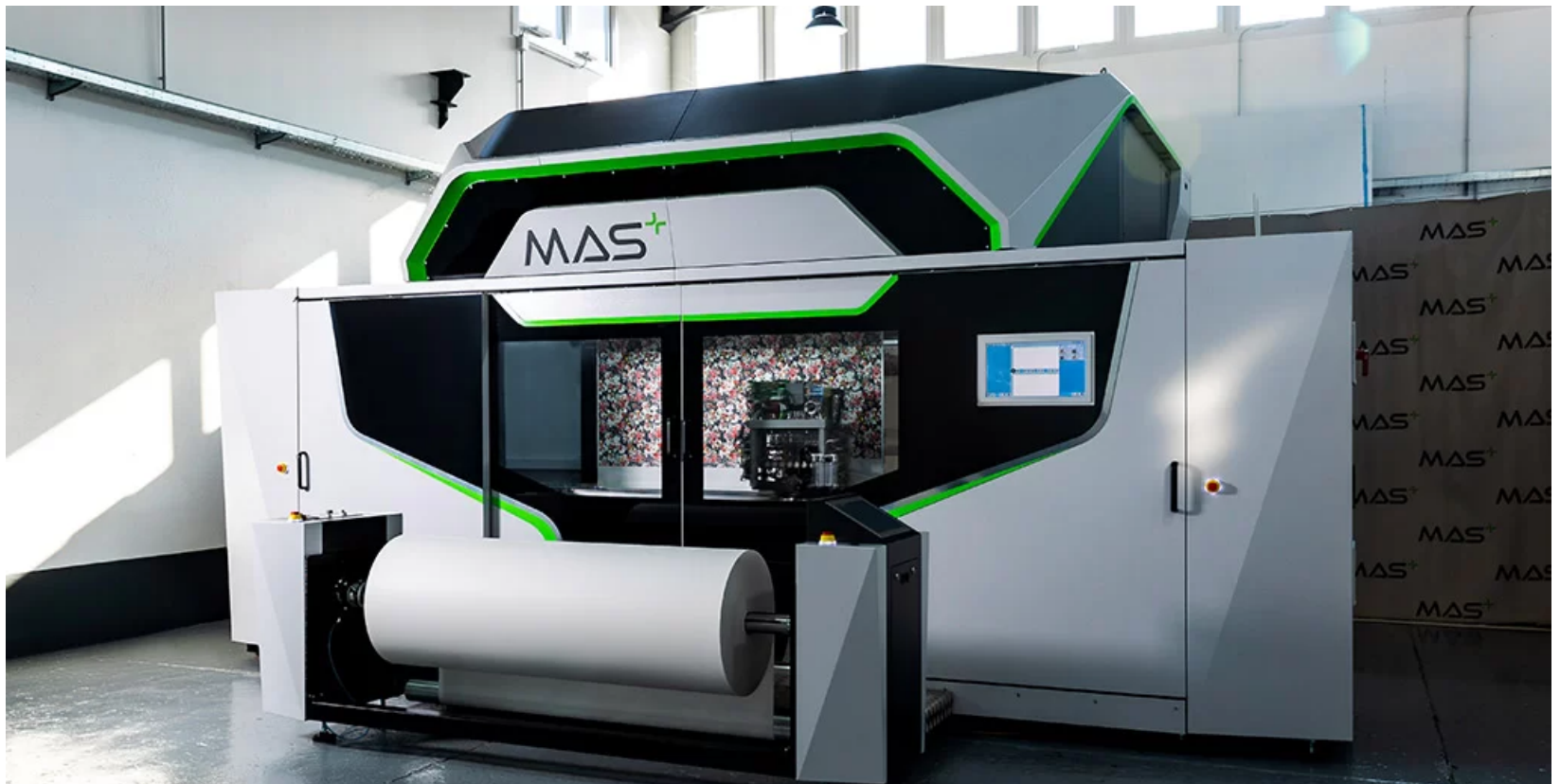
## Key Insights

- » Europe produces 26 million tons of textile waste annually, but only 15% is currently recycled due to complexities and inadequate infrastructure.
- » Growing efforts and innovations by companies, organizations, and the European Commission aim to increase textile recycling, with a target of 60% by 2025.
- » Several European countries have implemented policies to encourage textile recycling, and the industry itself is adopting measures to minimize waste and boost recycling.



# MAS Vertical: Digital Textile Printing in a new direction

■ Akhi Akter



MAS, a leading manufacturer of digital textile printers, has recently released a new product called MAS Vertical. This innovative printer is capable of printing on both sides of textiles simultaneously, which can significantly reduce production time and costs.

The MAS Vertical is available in two models: the MAS Twelve and the MAS Extreme. The MAS Twelve is designed for high production performance, while the MAS Extreme is the fastest digital textile printer on the market. Both models use a dual 4-colour printing process, or up to 8 colours, to reproduce images with high precision.

The MAS Vertical is also user-friendly and can be easily integrated with the main ERP systems. This makes it an ideal solution for businesses of all sizes, from small print shops to large textile mills.

MAS is committed to sustainable production and the MAS Vertical printer uses less water and optimizes the printing process. This makes it a more environmentally friendly option than traditional printing methods.

Here are some of the key benefits of the MAS Vertical:

**Increased efficiency and productivity:** The MAS Vertical can print on both sides of textiles simultaneously, which can significantly reduce production time and costs.

**High quality printing:** The MAS Vertical uses a dual 4-colour printing process, or up to 8 colours, to reproduce images with high precision.

**Versatility:** The MAS Vertical can print on a wide range of textiles, including cotton, polyester, silk, and wool.

**Sustainability:** The MAS Vertical uses less water and optimizes the printing process, making it a more environmentally friendly option than traditional printing methods.

The MAS Vertical Digital Textile Printer is a new era of efficiency and sustainability for the textile printing industry. It is a versatile and powerful machine that can help businesses of all sizes save time and money, while also reducing their environmental impact.





# Digital all over pigment printing technology: Sustainable printing solution by KERAjet

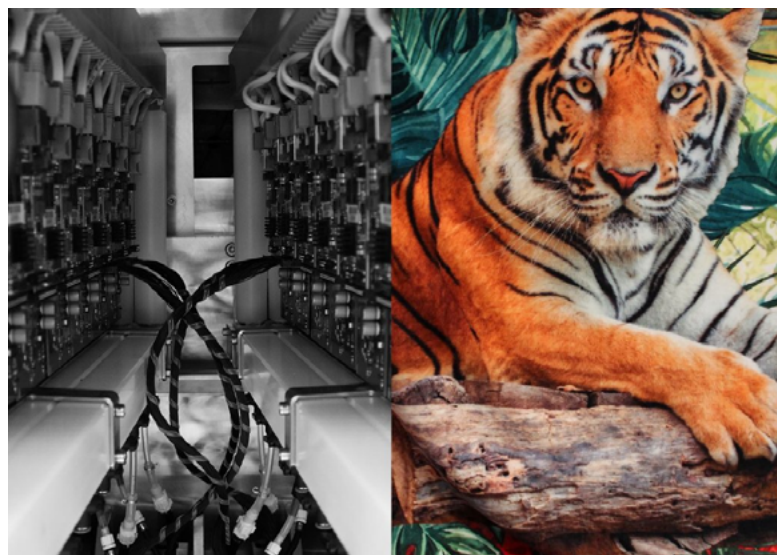
■ SAS ENTERPRISE



Digital textile printing has become a prevalent method in the apparel industry due to its cost-effectiveness and eco-friendly approach compared to alternative fabric engraving techniques. As a result, numerous businesses within the sector have embraced this approach to manufacture their products, appreciating its exceptional print quality and versatility when reproducing images. In the realm of technological solutions for the printing industry in Spain, one standout player is KERAjet. This company boasts an extensive catalog of digital devices designed specifically for digital textile printing.

Multi-head textile printers from KERAjet have the potential to transform the digital textile printing sector, presenting a versatile and efficient solution for printing various fabric types with pigments. These printers are engineered with the distinctive capability to accommodate multiple ink types within a single machine, providing enhanced flexibility and customization throughout the printing process. In contrast to alternative fabric printing techniques, this approach is not only more cost-effective but also environmentally conscious.

Depending on the unique requirements and production objectives of each company, there exists an appropriate KERAjet digital textile printer model. These printers cater to a variety of ink types, each possessing distinct characteristics tailored for specific applications and fabric varieties. To facilitate the application of various ink types, such as pigmented inks, dye-sublimation inks, or reactive inks, these models are equipped with a multi-head system on specialized print heads.



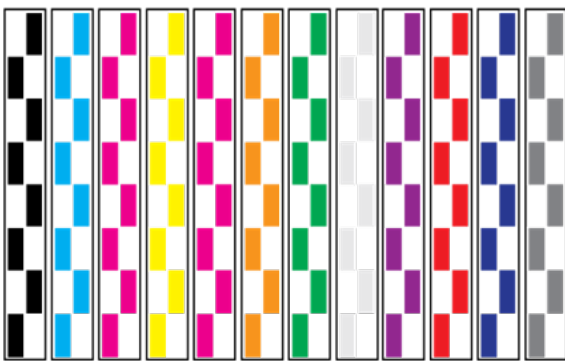


# KERAtex MEGA

by KERAjet



-  **PRODUCTIVITY**
-  **FLEXIBILITY**
-  **EFFICIENCY**
-  **QUALITY**



Up to 12 inks  
8 heads per color  
96 printheads  
High color fastness

Two formats:

- **KERAtex MEGA 1800** printing widths up to approx. 1800mm.
- **KERAtex MEGA 3400** printing widths up to approx. 3400mm.

## EFFORTLESS PRODUCTIVITY



- Perfect color reproduction
- Sharp design and output
- Fast color/design changes
- No color correction needed
- No screen/roller problem
- No chance of human error

Any volume with any number of color  
in all fabric construction;

**500 to 2,00,000**

Yards and even beyond  
(except- PES)



## MAXIMUM FLEXIBILITY



**No Water**  
needed in  
printing process



Up to  
**39%**  
Less electricity  
cost




**No Steam**  
Required

**SAS** ENTERPRISE | INNOVATIVE PRINTING SOLUTIONS  
Sole agent of Kerajet in Bangladesh


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Phone No Tel. +880 9609006216, 9609006215  
info@rhcorpbd.com

# Digital printing machines ideal for excellent results


KERAJet offers three models of digital textile printing machines, each with specifications that vary in terms of printing width, resolution, speed, and other features aimed at enhancing production efficiency in the textile industry. These machines represent a cutting-edge and versatile solution for fabric printing, unlocking new avenues for creative expression. The inclusion of a multi-head system enables experimentation with various ink types, allowing for unique combinations within the same print and the creation of innovative designs on textile products. Simultaneously, these machines are an excellent choice for cost-conscious businesses seeking to minimize investment and maintenance expenses, all while maintaining high product quality. With the capability to house multiple ink types within a single machine, there's no need for multiple specialized printers for each type. Therefore, KERAJet's multi-head digital textile printer streamlines production processes, reduces costs, and optimizes workspace by accommodating various printing needs with a single machine




Up to  
**39%**  
Less electricity cost



Up to  
**200%**  
Labor cost reduction



**No Steam Required**



**No Water**  
needed in printing process

In addition to the advanced technology integrated into the KERAJet textile printers, the process is so optimized that it can result in major energy, water and other resource savings. The printing process requires no steam and water. Moreover, as the process is fully automated and digitized the labor cost can be saved tremendously. Furthermore, the process does not require washing resulting in huge energy saving as well making the printing process more sustainable.



RESOLUCIÓN dpi. RESOLUTION dpi.	m/h	m <sup>2</sup> /h
600 x 600	3600	6480
*1200 x 600	1800	3240

Up to 12 inks  
28 heads per colour  
336 printheads

**Productivity**  
Printing in width: 1,8m  
Speed: 60m/min K15

**KERAtex** TERA  
by KERAJet



The single pass machine designed for fashion, with a printing width of 1800 mm.

TINTAS INKS	SUSTRATOS SUBSTRATES							
	POLIÉSTER POLYESTER	POLI-LICRA POLYLYCRA	NAILON NYLON	LANA WOOL	SEDA SILK	ALGODÓN COTTON	RAYÓN RAYON	LINO LINEN
SUBLIMACION SUBLIMATION	✓	✓						
REACTIVAS REACTIVE			✓			✓	✓	✓
PIGMENTADAS PIGMENT	✓		✓	✓	✓	✓	✓	✓
DISPERSAS DISPERSE	✓	✓	✓					
ACIDAS ACID				✓	✓			

It is a high productivity and ultra high quality machine, this is due to the K16 (1200 dpi, ultra high quality), K15 (600 dpi, high quality) and K10 (600 dpi, high discharge) heads. It can have up to 12 inks with 28 heads per colour, which means 336 heads and the possibility to include pigmented, reactive, disperse and acid inks.

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info@rhcorpbd.com



# Gen Z to dictate apparel & fashion market

■ Saiful Islam Saad

## Key Insights

- » Gen Z is the largest and most diverse generation in history, with a spending power of \$14.3 trillion.
- » Gen Z consumers are more likely to shop online and to follow fashion trends on social media.
- » Gen Z is driving demand for more sustainable, inclusive, personalized, and customized clothing.
- » Brands that want to succeed in the future need to cater to the needs and values of Gen Z consumers.

With current estimates at two billion globally, Gen Z is slated to be the single largest group of consumers worldwide in just a few years. The generation makes its own impact in terms of choosing fashion.

This demographic, born roughly between the mid-1990s and early 2010s, has unique preferences, values, and behaviors that are reshaping the fashion industry. Global fashion and textile brands must need direct supervision into the Gen Z community for a better impact on business and brand marketing. Gen Zers are looking beyond tangible products and actually trying to understand what is it that makes the company tick.

We're already looking at them as the core influencers today that have a really big impact on both millennials and Gen Xers in terms of what they buy. In size, they will definitely reach scale in the next ten to 15 years, but it's about their influence today—that's what's so important.

Basically, GenZ has Five consumer trends as mentioned graphically below:

### 'Uniqueness' is a key tool for selection of brands

Uniqueness, fluidity, and openness are top priorities for Gen Z in a certain way. They are less concerned with fitting into traditional molds or conforming to



Figure: Generation Z or Gen Z (born roughly between the mid-1990s and early 2010s)

societal expectations. For Gen Z, there's more emphasis during adolescence on creating their own path, whether that means building new educational systems or their own personal brands. Gen Z is more accepting and open-minded when it comes to diverse identities and backgrounds.

### Gen Z also known as...

iGen / Thumbies / iGeneration / Generation Scapegoat / Meme Generation / Delta Generation12 / Memelords / Memennials / Generation Snap / Hopeful Generation / The Cleaner-Uppers / The Last Generation / The



Xanax Generation / Post-Millennials / The Mass Shooting Generation / Doomed / Spimes / The Anxious Generation / Sisu Generation

## Gen Me and Gen We are a matter of discussion

For the most part, Gen Me is highly documented, easily understood and currently being marketed towards by the majority of brands. “Gen We” refers to Generation Z’s perception as being more collective and inclusive. They tend to emphasize collaboration, shared values, and inclusivity in their approach to various aspects of life.

They have certain Instagram or TikTok role models which create a social hemisphere around them which makes them hooked to a certain culture.

## Wanghong or Internet celebrity culture



Figure: Internet celebrity economy is booming

In China, where the wanghong (Internet celebrity) economy is booming, over 54% of Gen Zers listed “livestreamer” as their dream profession. Social media influencing and promoting brands create a solid impact on their minds. Brands must create a channel between consumers and video creators or influencers. Companies are creating alternatives to college. They surround themselves with the immersiveness of social media segmentation. Female Gen Zers now spend \$368 annually on beauty, with skincare being a leading driver, up 18% year-on-year.

Gen We prefer their acceptance and glance towards mental health issues, sustainability and social engagement, equality, accountability towards society, and rules, rights, and safety. Gen Zers like to research before they shop. They are especially interested in finding deals.

Gen Zers are considerably more likely than millennials or Gen We to say that they always, or almost always, look for discounts. Gen Zers view significantly more video media on platforms such as YouTube or TikTok than other cohorts do.

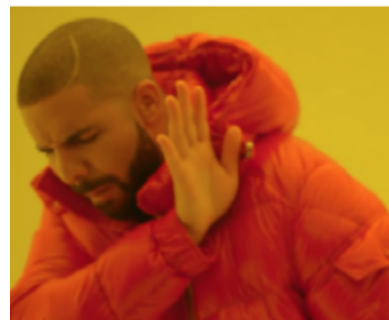
## Hype Culture in Gen Z

Hype culture is a big deal for Generation Z. They love brands like Supreme, Palace, and Bape because these brands create a lot of buzz and excitement around their products. Gen Z not only buys these items but also promotes them. This kind of hype has become a new form of luxury for them. Instead of working part-time jobs, they’re willing to wait in long lines or pay extra online to get these trendy and exclusive items. Some young entrepreneurs, like Boris Kunin, have even started their own reselling businesses. Instagram and other social media platforms have played a big role in this trend, helping resellers reach large audiences and charge higher prices. Hype culture in Gen Z is all about being part of something exciting and exclusive.

## Gen Z loves memes, and brands are using that for marketing

Memes and other genres are utilizing creative minds and enabling a personal desire towards such fashion and dresses including some cult classic movies and songs. Brands must be aware of the social trends in TikTok or Instagram for their market capture and growth.

### OTHER SOCIAL MEDIA MARKETING STRATEGIES



### MEME MARKETING



## Relevant ways to accelerate loyalty of brands to GenZ

A significant share of Gen Zers surveyed see a major brand as a source of strength; they may associate the brand with quality (for premium shopaholics) or simply see it as an easy choice (for disengaged conformists). The brands must create a loyal and genuine impact through their quality impact rather than concentrating on quantity. Gen Zers want brands to be personalized, be customized, and help them be distinctive.

Generation Z’s high digital literacy and easy access to information enable its members to pick and choose to ensure that they are spending their money on what they really want. In a world in which most consumers research significantly before they buy, being competitive in both quality and price is a prerequisite to winning the allegiance of Gen Zers. Brands need to innovate and create competitive prices to offer so that they can make their brand economically viable.



Figure 1: Markus Wurster, Director Sales and Marketing at Trützschler Group (left) with Osman Balkan, Owner Balkan Textile Machinery. INC.CO.

# Trützschler and Balkan collaborate for textile recycling

■ Sayed Abdullah

Balkan Textile Machinery. INC.CO has joined forces with Trützschler for recycling by cutting and pulling solutions, making Trützschler the first full-liner in spinning preparation for recycling! Thanks to Trützschler's combined machinery expertise and technological know-how with which customers can produce yarns at the highest possible quality level – and literally turn waste into value. Both Balkan and Trützschler are family-owned companies for whom sustainability in the textile chain is a major concern. Balkan is well established in Türkiye, one of the most important markets for textile recycling. Its robust and reliable machines will help to cut, mix and tear textile waste into individual fibers, and press them

into bales of secondary fibers. The bales can be fed to the preparation process with Trützschler machines.

“We are now able to provide a complete line-up of technologically leading machinery which has been specifically developed for rotor and ring yarns from recycled materials”, says Markus Wurster, Director Sales and Marketing at Trützschler Group.

“Customers benefit from less complexity when planning and executing a mill project. The combined processes from Trützschler and Balkan are perfectly fine-tuned, reliable and reproducible. And of course, customers have access to Trützschler's premium service,” said Osman



## At A Glance

- » Trützschler and Balkan, two family-owned companies with a shared commitment to sustainability, have partnered to develop a new textile recycling solution.
- » The solution combines Trützschler's expertise in textile machinery with Balkan's expertise in textile waste processing.
- » The solution can process a wide range of textile waste, including hard textile waste such as carpets and denim.
- » The output of the solution is high-quality recycled fibers that can be used to produce new textiles.

Balkan, Owner, Balkan Textile Machinery. INC.

“I am very happy that we can join forces with such a strong international player like Trützschler. Together we can make a significant contribution to dealing with textile waste globally,” Balkan added.



Figure: Balkan Logo

### Processing secondary fibers with appropriate card clothing

Appropriate card clothing is part of Trützschler's complete recycling solution. Trützschler Card Clothing continuously developed its card clothing to meet the technological challenges in the processing of secondary fibers and to improve the resulting yarn quality. Special attention has been paid to the flat top as the heart of the carding process. Trützschler Card Clothing has combined the strength of MT/PT 40 and the cleaning power of MT/PT 45, resulting in the development of the MT/PT 45R – the new flat top for recycled materials. The right combination of flat top and cylinder wire is the key to yarn quality. Therefore, Trützschler Card Clothing offers various cylinder wires suitable for different recycling applications depending on production rates, type of textile waste and raw material – pure or blended. Thanks to this specification, customers can benefit from the best possible carding result, long lifetime of wires and high production in recycling applications.

“We are excited to offer our customers globally a complete package for recycling from June 2023 onwards,” said Markus Wurster.

“Including tearing line, blow room, card, draw frame, card clothing and of course our service and technological know-how,” Wurster added.

TRUECYCLED stands for state-of-the-art recycling installations from Trützschler. These Trützschler preparation processes enable manufacturers to achieve a high-quality end product from hard waste. With TRUECYCLED, manufacturers can rest assured they use the best technology and a reliable and reproducible manufacturing process – the pre-requisite for high-quality yarn made from hard textile waste.



Figure: Trützschler Logo

TRUECYCLED process is based on Trützschler's technological recommendations and a Trützschler machinery line-up to ensure ideal results from recycled materials. For example, Trützschler recently worked with a fashion company to make use of their own pre-consumer waste. Thanks to a special combination of Trützschler blow room machinery, the usage of TC 19i for Recycling and Trützschler draw frames, it was possible to create a ring yarn containing 60 % of pre-consumer waste – a true TRUECYCLED product! Trützschler customers and partners may use the brand TRUECYCLED for both the process itself and the end product, as long as it contains a significant amount of textile waste.

# UK's new Net Zero Plan likely to trigger circular fashion practices

■ M A Mohiemen Tanim

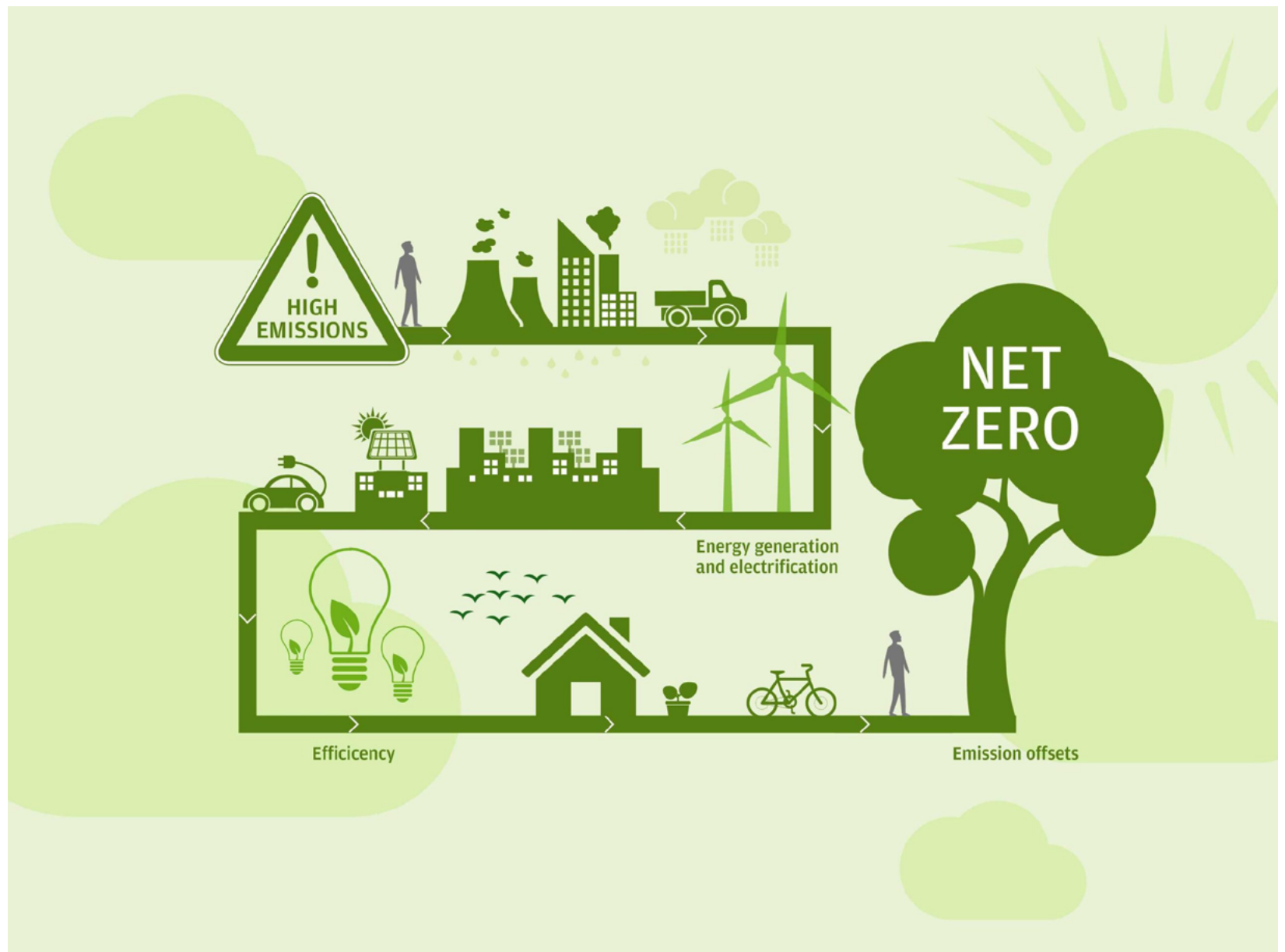


Figure 1: UK's new Net Zero Plan. Courtesy: majalahcsr.id

Due to its huge environmental imprint, the fashion, garment, and textile industries are coming under closer scrutiny as the world community ramps up its efforts to address climate change. In response, the UK government's ambitious net-zero plans have sparked discussions about how these measures will shape the future of the T&A industry.

Due to UK's Climate Change Act (2008) and Environment Act (2021), the UK has already made huge progress in decarbonizing its economy and decoupling emissions from economic growth.

According to the UK's Department of Energy Security & Net Zero, between 1990 and 2021, the UK cut its emissions by 48%, decarbonizing faster than any other

G7 country, whilst growing the economy by 65%.

The UK was also the first G7 country to sign net zero greenhouse gas emissions by 2050 law.

Recently Ministers announced the UK's net zero strategy, this new plan includes commitment to Carbon Capture Usage and Storage (CCS), investments in the offshore wind industry, new green hydrogen production projects, the announcement of Great British Nuclear, changes to the planning process, increased support for energy efficiency, investments in electric vehicle charging stations, a £30 million heat pump investment, and many more.

The core objective of the UK's net-zero plans is the transition to cleaner and sustainable material sources.



Traditional textile production often relies heavily on resource-intensive materials like cotton, which require vast amounts of water and pesticides. The government's plans to support clean energy industries could encourage the adoption of alternative materials such as organic cotton, hemp, and recycled fibers. This shift towards sustainable material sourcing would not only reduce the sector's carbon footprint but also promote eco-friendly

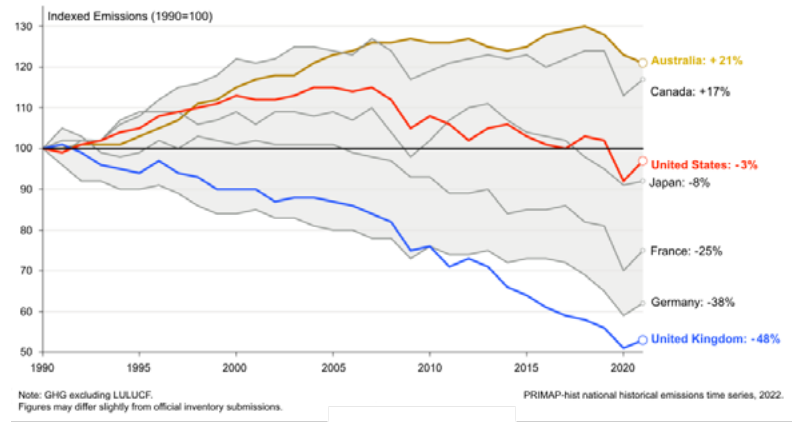


Figure2: UK's new Net Zero Plan. Courtesy: majalahcsr.id



*“People should be really proud of the UK’s track record on all of this. If you look at it, we’ve decarbonized faster than any other major economy. Our carbon emissions have been reduced by over 40%, much more than all the other countries that we compete with.”*

**Rishi Sunak**

Prime Minister, United Kingdom

recyclable products. As a result, clothing items will be less likely to end up in landfills, making it possible to recover valuable materials for reuse. Such regulations could incentivize companies to design longer-lasting, repairable, and recyclable products, thereby reducing the sector's environmental impact and promoting a sustainable consumption model.

This plan could drive the development of advanced textile recycling technologies. Circular fashion practices prioritize the recycling of old garments to create new ones, reducing the industry's reliance on resource-intensive raw materials. Innovations in recycling techniques could enable the transformation of discarded clothing into high-quality fibers, contributing to a more sustainable production cycle.

New Net Zero strategy are likely to trigger increased investment in research and innovation related to sustainability in the fashion and textile industry. Collaborative efforts between government bodies, research institutions, and industry stakeholders could result in the development of groundbreaking technologies, such as new sustainable fabrics, dyeing methods, and recycling techniques. These innovations would not only reduce the sector's environmental impact but also position the UK as a global leader in sustainable fashion practices, fostering economic growth and job creation.

practices throughout the supply chain.

The fashion industry is notorious for its linear "take-make-dispose" model, contributing to massive amounts of textile waste. The UK's net-zero plans could catalyze a shift towards circular fashion practices that prioritize resource efficiency and waste reduction. One of the UK's Net Zero Growth plans is Extended Producers Responsibility (EPR), EPR encourages fashion manufacturers to take full responsibility for their product's lifecycle. This shift in accountability is expected to prompt manufacturers to design more durable and easily

## At A Glance

- » UK's new Net Zero Plan will accelerate shift to circular fashion.
- » Plan includes measures such as Extended Producer Responsibility (EPR), investment in research and innovation, and support for sustainable businesses.
- » Circular fashion aims to reduce waste and pollution by keeping materials in use for as long as possible.
- » Circular fashion can be achieved through design for durability and recyclability, repair and reuse, and recycling

# Pailung's Upgraded 4-Way Stretch Fabric Advances Elastic Fabrics

■ Arif-Uz -Zaman



Pailung, a Taiwanese knitting machine manufacturer, is at the forefront of innovation in the textile industry. Its upgraded 4-way stretch fabric has revolutionized elastic fabrics, setting new standards for quality, sustainability, and design potential.

## Overcoming Transparency Issues

One of the biggest challenges with 4-way stretch fabrics is that they can become see-through when stretched. Pailung's team of engineers spent years researching and developing a solution, eventually altering the original yarn structure to prevent transparency while retaining the fabric's flexibility.



## Enhanced Durability

Pailung's 4-way stretch fabrics are also highly durable, thanks to rigorous in-house testing and the use of high-quality materials. The brand's Open Innovation Lab (OIL) puts fabric through rigorous repeated testing, in line with international standards, to observe its functionality and find areas for improvement. Results from the lab show that Pailung's fabrics have an elastic recovery rate of over 150%, surpassing industry standards. Additionally, the fabrics excel in pilling and snagging tests, with the vast majority reaching level 4.5+ in the latter, a benchmark for high quality.

## Color Jacquard 4-Way Stretch

Pailung's color jacquard 4-way stretch is a particularly innovative fabric that uses a jacquard technique to knit up to three colors into intricate patterns. This method obtains excellent color purity and saturation with noticeably less grin-through than printing. Additionally, different yarn types can be mixed to allow designers to create fabrics with different functional properties, such as moisture-wicking and breathability.





## Benefits for Consumers and the Environment

Pailung's color jacquard 4-way stretch fabric offers several benefits for both consumers and the environment. In contrast to traditional printing, knitting colored yarns together directly to create patterns is better for both the consumer and the environment. It reduces energy consumption by cutting the number of finishing steps, and produces durable patterns that extend garments' lifespans. Pailung's technology also allows designers to meet the growing demand for dyed yarn or dope-dyed yarn, which further increase fabric's color fastness and durability by preventing dyes from leaking out.

## Boosted Production Capacity

Pailung has also made significant strides to enhance the production processes of its 4-way stretch fabrics. The knitting machines for both plain and color jacquard 4-way stretch have experienced significant boosts in output capacity, producing more fabric in less time. For plain, Pailung's KD3.2B-W machine has been ramped up by 25%, while color jacquard's KD2.5CJB-W machine has seen increases of 16% compared to its predecessor. This boosted output saves energy during fabric production and helps to improve sustainability within the textile industry.

## Programmable Continuously Variable Transmission (PCVT) Take-Up System

What's more, Pailung has released its own programmable continuously variable transmission (PCVT) take-up system. This cutting-edge technology provides multiple winding speed settings for each winding rod from the beginning to the end of the fabric winding. Typically, fabric rolling machines have two axes, an upper and a lower one. In the past, the speeds of the upper and lower axes had to be the same. However, the PCVT now allows the speeds

to be independently adjusted, making it more suitable for handling fabrics that are sensitive to tension, especially 4-way stretch.

## Versatile Application Potential

Pailung's upgraded 4-way stretch fabrics have a wide range of applications, including underwear, swimwear, sportswear, and fashion. The fabric's seamless blend of functionality and style has led to an increasing trend in fashion applications.

Pailung's upgraded 4-way stretch fabric is a revolutionary textile innovation that offers superior quality, sustainability, and design potential. The company's commitment to innovation is evident in its ongoing research and development efforts, as well as its investments in cutting-edge production technologies.

Pailung's 4-way stretch fabric is setting new standards for the textile industry and has the potential to revolutionize a wide range of applications.



# 2 AI solutions that can determine perfect body fit

■ Ahosanuzzaman Roni



Figure: An illustrative image of the sizer app

According to the National Retail Foundation reports, In 2020, online sales increased by 32.4%, but there were \$428 billion worth of returns, causing a \$101 billion loss for retailers & in average, per return causes 500g of CO<sub>2</sub> emissions. Interestingly, 52% of these returns are specifically due to sizing issues.

## Sizekick's AI size recommendation tool: BodyFinder & BodyScanner

In September of the previous year, Hohenstein made a significant investment of 1.3 million euros (equivalent to \$1.41 million) into Sizekick, an emerging company. Beyond just the financial support, Hohenstein brought to the table their extensive expertise spanning more than six decades in the realms of sizing and fit. This encompasses a deep understanding of measurements, as well as the intricate art of pattern development.

One of the most fascinating aspects is Hohenstein's vast collection of over 18,000 3D body scans. These scans encompass a diverse range, ranging from infants to fully grown adults. What makes these scans particularly valuable

is the meticulous study of the differences in body shapes that arise across varying sizes. This trove of data proved to be the perfect training ground for Sizekick's artificial intelligence.

“

*“Feedback from the market and future partners in the fashion and sports industries was crystal clear—people are looking to solve a real problem when it comes to sizing,”*

*“They need a size recommendation solution that takes into account the fact that users have different body shapes as well as the inherent differences between individual styles and brands. This is exactly what we are offering at Sizekick, and we are taking e-commerce sizing to a new level.”*

**David Oldeen**  
Sizekick CEO and Co-founder



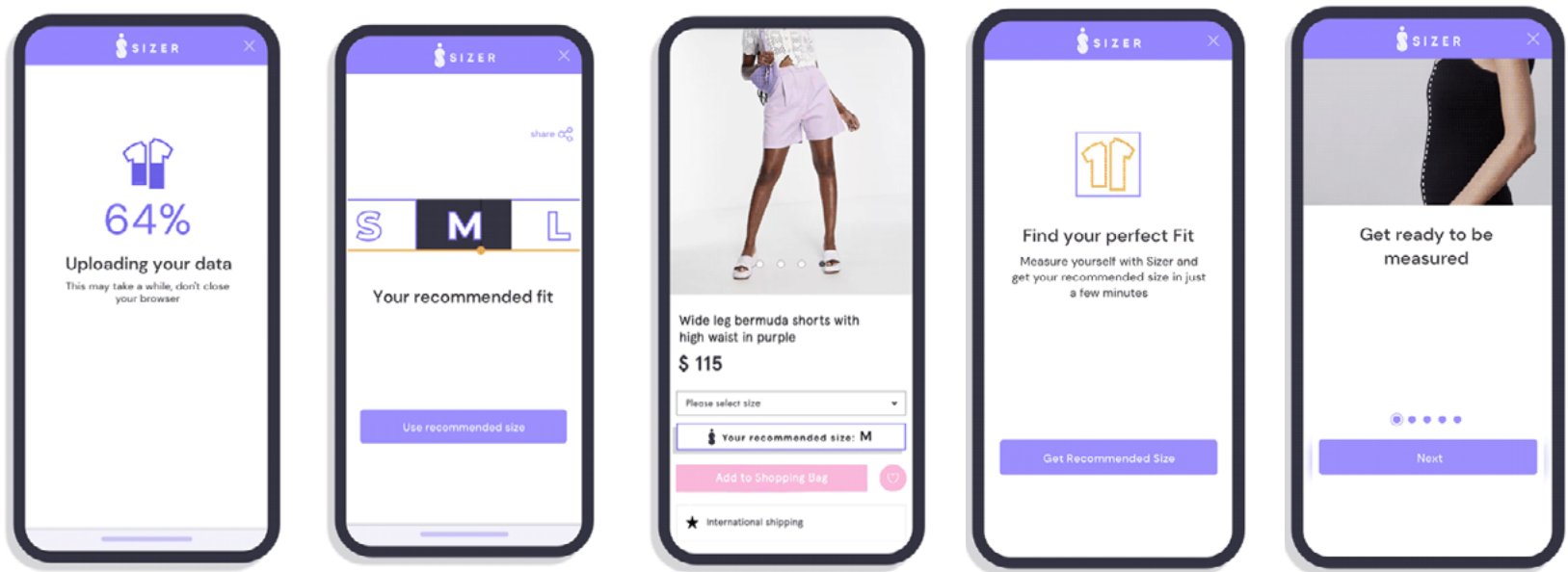


Figure: Sizer's body measuring solution

By tapping into this dataset, Sizekick has effectively trained their AI to significantly enhance the accuracy of the size recommendations it provides to its customers. Online clothing shopping often brings the challenge of finding the right fit, leading to inconvenient returns due to sizing issues. This predicament wastes time, money, and resources for both consumers and companies. In fact, an alarming trend reveals that consumers spend nearly 3 billion hours annually returning ill-fitting clothes purchased online.

Sizekick introduces an AI size recommendation tool using shoppers' body measurements to reduce size-related returns. The AI-based solution, seamlessly integrated as a web app in online stores, offers users two distinct size recommendation paths: the transformative BodyFinder solution and the video-based BodyScanner approach. The BodyFinder employs AI algorithms to swiftly propose realistic body shapes, enhancing decision-making in seconds. On the other hand, the BodyScanner allows users to effortlessly scan their bodies using a smartphone, requiring a simple 360-degree turn in front of the camera. The BodyFinder

employs AI algorithms to swiftly propose realistic body shapes, enhancing decision-making in seconds. On the other hand, the BodyScanner allows users to effortlessly scan their bodies using a smartphone, requiring a simple 360-degree turn in front of the camera. Rrrevolve, Black Diamond, Avocado Store, Marc-cain, Olakala and many more brands are currently using this technology

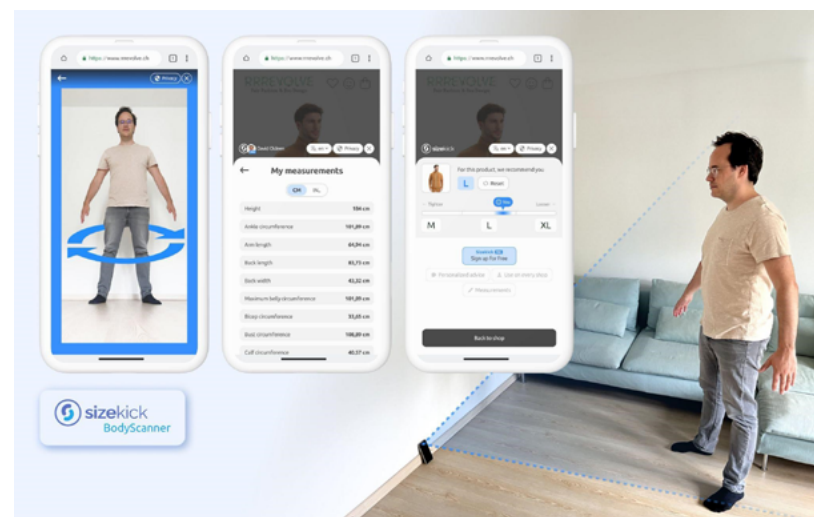


Figure: Sizekick BodyScanner User Journey Process

## Sizer's AI powered body measuring technology

Through a simple scan using the front camera of a mobile device, the app provides personalized and precise sizing information tailored to the individual's unique fit. This exceptional accuracy significantly diminishes size-related errors, enabling shoppers to confidently shop online while also assisting fashion companies in enhancing their value chain and advancing sustainability initiatives. According to sizer, in e-commerce industry, conversion rate would be increased 2.4x times just by using this technology. With this solution, brands can get analytics, insights and data sets to optimize product design and improve inventory planning.

These AI technologies can easily be embedded into online stores, customers can easily find out their right sized dress and it will significantly reduce the return rate of online shops.



*“At our core, Hohenstein studies how textiles interact with humans and the environment, including topics like ergonomic comfort, body shape and sustainability.”*

*“Sizekick's approach combines accurate body measurements from each user with Hohenstein's extensive garment knowledge. We are confident that this approach can sustainably reduce returns in fashion e-commerce.”*

**Jan Beringer**  
senior scientific expert at Hohenstein

# H&M's Sustainable Goals Pioneering a Greener Future

**■ Saiful Islam Saad**

In recent years, the fashion industry has faced increasing scrutiny for its environmental impact and labor practices. In response to these concerns, H&M, a global fast-fashion retailer giant, has taken steps to align its operations with sustainable practices and has set ambitious goals for reducing its environmental footprint. This report delves into H&M's sustainability objectives, highlighting its achievements and addressing the challenges it faces on the path to sustainability.

H&M's commitment to sustainability is evident through its comprehensive goals aimed at mitigating its impact on the environment and society. The company has set forth key targets that encompass various aspects of its operations, including climate, circular design, materials sourcing, packaging, chemicals, water, and promoting fairness and equality within its supply chain. Climate Goals Central to H&M's sustainability efforts is its commitment to combat climate change. The company has pledged to achieve net-zero emissions by 2040 and to reduce its absolute CO2e emissions (Carbon dioxide equivalent) by 56% by 2030, using a 2019 baseline. These goals have received verification from the Science Based Targets Initiative, underscoring their credibility and alignment with climate science.

As of 2022, H&M has made commendable progress,



Figure 1: H&M Group President & CEO, Helena Helmersson. Courtesy: H&M

achieving an 8% reduction in scope 1 and 2 emissions, and a 7% reduction in scope 3 emissions. This signifies a noteworthy step toward its overarching emission reduction targets. H&M Group President and CEO, Helena Helmersson said, “To tackle the climate crisis – we have recently set up a Green Investment team whose main task is to reduce our emissions in the most cost-efficient way and Energy Efficiency teams that will help the suppliers transition to renewable energy.”

### Circular Design and Materials

H&M recognizes the importance of circularity in the fashion industry to reduce waste and resource consumption. One of its key goals is to design all products with circularity in mind. The company is actively testing and developing tools to enable this goal, such as the Circulator, a circular product development tool and guide.

## Sustainable Development Goals



Figure 2: United Nation's sustainability development goals.



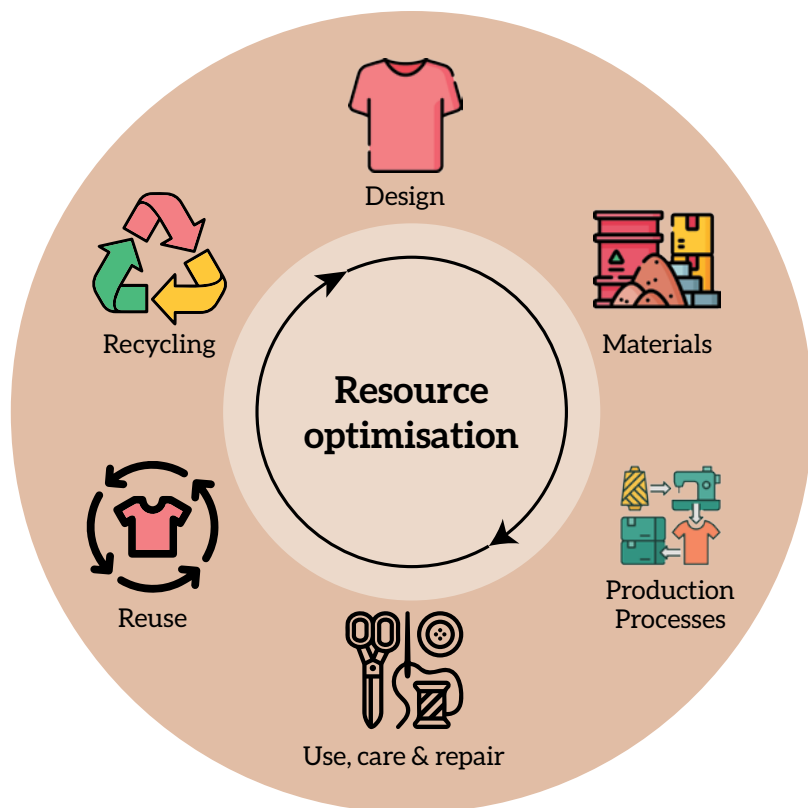


Figure 3: H&M's circular design and materials.

In terms of materials sourcing, H&M aims to have 30% of materials for commercial goods certified as recycled by 2025, and an impressive 84% progress has been achieved by 2022. Furthermore, the company is working towards having 100% of materials sourced for commercial goods either recycled or sustainably sourced by 2030, reaching a current progress rate of 23%. Helena Helmersson said, “We partner up and invest to scale innovations in materials, is our work together with Renewcell to increase the use of its Circulose® (material made from recycled cotton waste) to accelerate the development. Last year, H&M’s Conscious Exclusive collection featured the newly patented material Circulose®, marking the first time the material was used in garments sold at scale.”

## Packaging and Chemicals

Addressing plastic waste, H&M aims for a 25% reduction in plastic packaging by 2025, and by 2022, it has already achieved a remarkable 44% reduction against a 2018 baseline. Moreover, the company strives to make 100% of its packaging from recycled or more sustainable materials by 2030, with an 85% progress achieved in 2022.

In terms of chemicals, H&M's goal is to ensure that 100% of its supplier factories comply with the ZDHC Manufacturing Restricted Substances List (MRSL) by 2030, and it has achieved a significant 97% progress by 2022. “Our newest packaging initiative is another important step towards becoming circular and climate positive. Swapping single-use plastic for more sustainable paper for online orders means we can get our products to our customers without using plastic that is not always recyclable. In addition, recently, we reduced our packaging by 14% including 24% less plastic packaging,” Helena Helmersson added.

## Water Conservation

Recognizing the importance of water conservation, H&M is actively reducing water usage in its supply chain. The company has achieved a 21% reduction in production water use (water intensive tier 1 and 2 suppliers) by 2022 against a 2017 baseline. Additionally, 21% of water used in production has been recycled in 2022. Moving forward, H&M's Water Strategy 2030 aims to achieve a 10% reduction in absolute total freshwater use by 2025 and a 30% reduction by 2030, both against a 2022 baseline.

## Fairness and equality

H&M also emphasizes promoting fairness and equality within its workforce. The company is committed to increasing the percentage of female supervisors and worker representatives in its tier 1 production supply chain. As of 2022, there has been progress in this area, with 27% female supervisors and 63% female worker representatives.

H&M's sustainable goals encompass a wide range of initiatives that aim to mitigate its environmental impact and promote fairness within its supply chain. The company's progress in areas such as emissions reduction, circular design, materials sourcing, and water conservation is commendable.

As H&M continues to work towards its sustainability objectives, collaboration within the industry and with stakeholders remains crucial. Achieving these ambitious goals requires collective action, innovative solutions, and a steadfast commitment to creating a more sustainable and equitable fashion industry. All eyes are on H&M's progress as it strives to meet its climate ambitions and make a meaningful impact.



Figure 4: Swapping plastic for paper.

# bluesign® reaches ZDHC CtZ 'Progressive Level'

*bluesign's CtZ certification will ensure safe chemical usage in apparel, footwear, leather and textile sectors*

■ Mashia Sahejabin



Textile chemical formulators that have undergone bluesign® chemical evaluations have now been approved by the ZDHC as part of its new Chemical Zero Framework (CtZ) for the 'Progressive Tier', aiming for new breakthroughs.

Textile articles manufactured using bluesign® approved chemicals shall comply with the safe consumer rights and required safety limits set out in the BSSL and AFIRM RSL. Their long-standing concept has now been recognized by the ZDHC.

bluesign® continues to be a pioneer in chemical evaluation. bluesign® has always ensured that bluesign® approved chemicals meet strict consumer safety rights and requirements.

ZDHC has now launched its CtZ-Progressive Transitional Phase, which is used in direct chemical formulation in the apparel, footwear, leather and textile sectors and is extensively designed to drive safe chemical usage.

bluesign® has been approved as a certification standard for CtZ (Chemicals to Zero) – the 'progressive level' which is the highest conformance level according to the

ZDHC framework and which joins the MRSL 3.1 Level 3 approval. CtZ - Equivalent to 'Progressive Level' AFIRM RSL compliance if the listed chemistry is applied in accordance with the chemical supplier's instructions.

All bluesign® approved chemical products are automatically transferred to the CtZ - 'progressive level' on 28th July 2023. A formal confirmation of the chemical supplier/formulator at the gateway is a must for all products to make the updated status visible. A step-by-step guide can be found on the ZDHC website: ZDHC Gateway (Formulator) - Chemicals to Zero in Stitching ZDHC Foundation Help Center ([roadmaptozero.com](http://roadmaptozero.com)).

Please be aware that bluesign® APPROVED means more than just the CtZ-Progressive level and includes their system as well.

- Hazard assessment of chemical products
- Evaluation against SVHC substances
- Wastewater impact assessment
- Air emissions impact assessment
- Risk assessment to ensure workers are safe
- Potential to claim sustainability attributes such as renewable feedstock materials and recycled materials





Figure: Tonello's B.O.P laser marking is so fine that even a blind folded can operate this

## B.O.P. by Tonello: AI-Powered Garment Laser Marking at Its Finest

■ Najmus Sakib

The B.O.P. (Be On Point) system uses artificial intelligence and machine learning to automatically detect and position garments, eliminating the need for manual adjustments. This results in flawless, repeatable laser marking, even on garments that are placed at different angles and heights. This breakthrough technology sets a new standard for the industry, streamlining garment finishing and raising the bar for quality and efficiency.

### [An Industry-Transforming Advancement in Garment Marking](#)

#### [The B.O.P. system simplifies the entire laser marking process in four steps:](#)

**1.Preparation of the Laser Project:** The journey begins with the creation of a laser project using Tonello's Crea software. Designers and operators define the design they want to apply to garments.

**2.Positioning of the Garment:** Unlike traditional methods that require precision, B.O.P. allows for casual placement of garments on the work table, without the need for meticulous alignment.

**3.Automatic Garment Detection:** B.O.P. employs advanced artificial intelligence and machine learning to instantaneously recognize and analyze a garment's position. It doesn't matter how inaccurately it was initially placed; B.O.P. will determine the exact position.

**4.Marking of the Design:** With garment's position accurately detected, the system proceeds to apply the design with laser precision. The result is a flawless, repeatable application of designs, as specified during the initial project setup. Advantages Beyond Imagination

**Faster Process:** B.O.P. reduces the time required for laser marking, making it a game-changer in fast-paced manufacturing environments. It offers various production modes capable of simultaneously detecting as many as eight garments.

**Unbeatable Accuracy:** The use of AI guarantees pinpointing accuracy & eliminates human error from the equation.

**Quality Assurance:** Operators can have confidence that every garment will meet the highest quality standards, thanks to the precision of B.O.P. Consistency in quality is guaranteed.

**Ease of Use:** Managing the system is a breeze, with control of the operator's fingertips directly through Crea software.

Tonello's B.O.P. Automatic Garment Detection System has paved the way for a new era in garment laser marking. It demonstrates how AI and innovative technology can streamline processes, enhance quality, and boost efficiency in the fashion manufacturing industry. Going forward, B.O.P. is poised to lead the way, setting new benchmarks for excellence.

# Recycled Cotton's Unrivaled Benefits for Biodiversity Preservation and Ecological Progress

**Ahosanuzzaman Roni**

Recycled fibers are emerging as a promising solution to reduce the environmental impact of textile production and conserve biodiversity. McKinsey & Company highlighted that recycled fibers repurpose waste with a smaller biodiversity footprint than virgin fibers.

The production of a single cotton t-shirt consumes 2,700 liters of water. Cotton is a key source of income for 250 million people globally and it corresponds to 7% of all labor in developing countries. It demands 20,000 liters of water to produce just 1kg.

## Benefits of Recycled Cotton Fiber

**1. Save Water:** Each tonne saves 765,000 liters, offering a sustainable option with reduced water usage. Textile manufacturing contributes to around 20% of worldwide clean water pollution due to dyeing and finishing



processes. Textile dyeing stands as the second-largest global water polluter, often leading to waste disposal in water bodies. Recycled cotton fibers, it is not necessary to dye because the final color corresponds to the color of the waste



**2. Landfill Diversion:** Tackles the massive 25 billion-pound annual Less CO<sub>2</sub> emissions: Approximately 600g of oil is consumed and 2kg of CO<sub>2</sub> is emitted for every single kilogram of textiles produced textile waste, diverting from landfills.

**3. Less CO<sub>2</sub> emissions:** Approximately 600g of oil is consumed and 2kg of CO<sub>2</sub> is emitted for every single kilogram of textiles produced



**4. Circular Economy Contribution:** Today's fashion demands a shift from a linear system depleting natural resources for short-lived trends. Urgent transformation is needed toward a circular model, where used items find new life through upcycling, recycling, composting, or safe biodegradation, reintegrating them into the productive cycle. Recover™ recycled cotton is a type of cotton that has been recycled and can help reduce the impact of a garment on biodiversity. This has been proven by a study called the Recover™ LCA Spain, which was verified by EcoReview in 2022.

## 1 kg of 100% Recover™ recycled cotton offers the following savings:

- Water:** 2,116 liters (559 US gallons)
- CO<sub>2</sub> emissions:** 1.73 kg (3.81 lb)
- Eutrophication (PO<sub>43</sub>-eq):** 0.0245 kg (0.054 lb)
- Energy:** 15.29 kWh
- Land use:** 3.89 m<sup>2</sup> (41.87 ft<sup>2</sup>)





Figure: Calculated using Recover™ LCA Spain verified by EcoReview (2022).

Excess nutrients like nitrogen and phosphorous, along with other chemicals, harm biodiversity on land and in water. Eutrophication occurs when water gets too many nutrients, causing too much algae and plants, less oxygen, and trouble for aquatic ecosystems.

**The Recover™ process Retailer/Brand Clips:** Leftover fabric from brands is collected for recycling through either a closed-loop or mass-balance approach.

that are set for garment production.

According to Cotton Incorporated’s Lifestyle Monitor™ research Statistics, 24% of consumers are willing to pay extra for "recycled" clothing or home textiles, with 32% actively seeking such items. However, merely 5% associate "sustainable" with "recycled." Instead, consumer preference leans toward labels like "100% cotton," "natural," or "environmentally friendly," signifying perceived value.



Figure: The Recover™ process (wastages to cotton cloth)

**Recover™ Process:** The innovative technology at the Recover™ hub is employed to process the collected fabric waste.

**Recover™ Fiber:** This process produces top-quality, environmentally friendly Recover™ fiber, which is ready to be integrated into the supply chain.

**New Yarns:** Local spinning partners use the Recover™ recycled cotton fibers to create fresh yarns.

**Custom Fabrics:** Collaborating with local weavers, custom fabric development takes place, crafting materials

#### Challenges of Recycled Cotton Fiber

**Fiber Weakening:** During the recycling process, cotton fibers and scraps can weaken, affecting yarn and fabric properties like strength, length, and texture.

**Blending Requirement:** Recycled cotton's limitations necessitate blending with other materials to maintain product quality, aesthetics, and durability.

**Limited Recyclability:** Recycled cotton items are challenging to recycle again, leading to potential landfill disposal.

**Resource Intensive:** The collection, processing, and transportation of recycled cotton products remain resource-intensive, impacting costs, energy use, CO2 emissions, and fossil fuel consumption.

**Blending Necessity:** Recycled cotton must be blended with other fibers to create durable yarn, limiting continuous recyclability.

**Higher Production Cost:** Recycled cotton's production complexity often results in higher costs compared to virgin cotton.

**Contamination Risk:** The risk of contamination by other fibers is higher for recycled cotton due to its sourcing from various textile waste

# BOSS & HeiQ jointly unveils innovative fabric at Milan

■ Sayed Abdullah

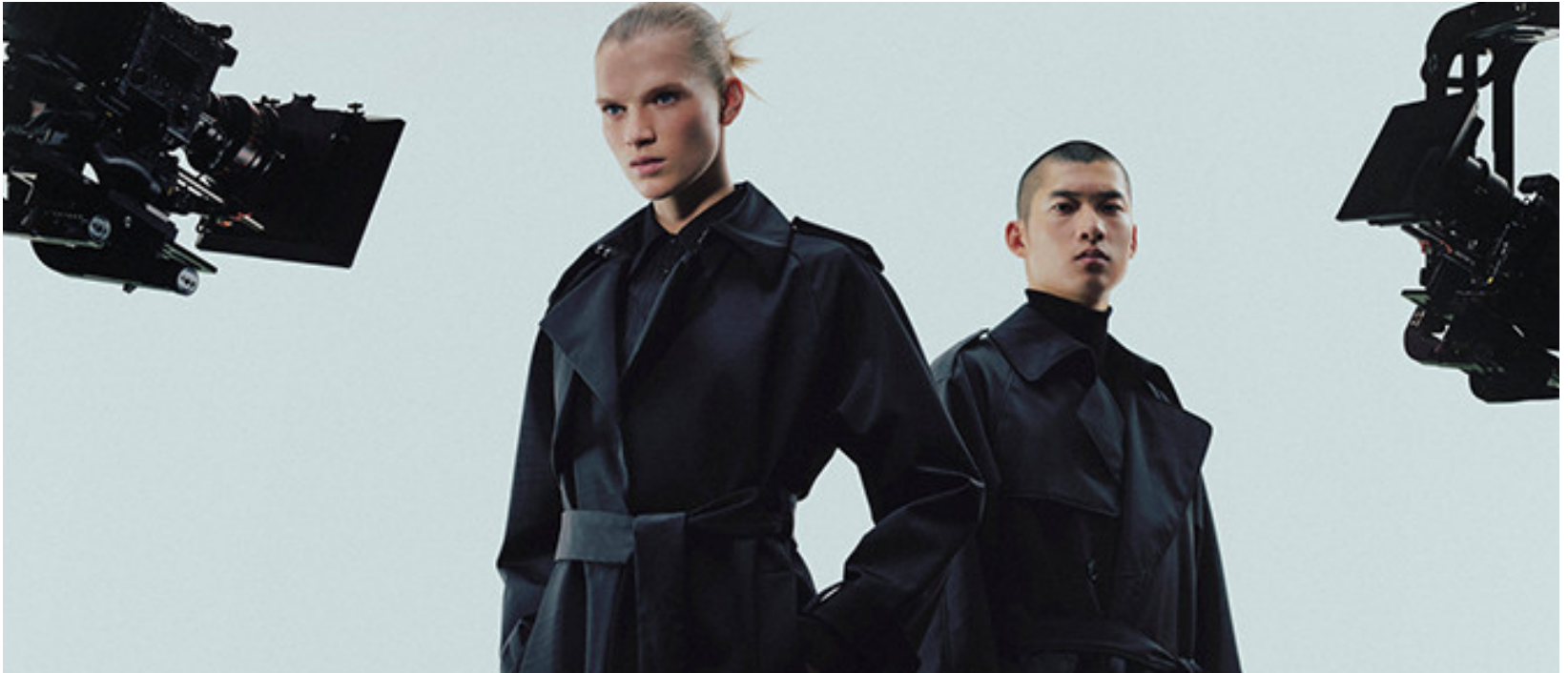


Figure: The BOSS Fall/Winter 2023 Fashion Show in Milan will feature three, “see-now, buy-now” outerwear styles crafted in cutting-edge HeiQ AeoniQ™ fabric. Courtesy: HUGO BOSS

The HUGO BOSS Fall/Winter 2023 Fashion Show in Milan will feature three, “see-now, buy-now” outerwear styles crafted in cutting-edge HeiQ AeoniQ™ fabric that form the limited-edition capsule collection of the brand’s THE CHANGE initiative. The more sustainable fiber is engineered to substitute oil-based filament yarns, such as polyester and nylon. The pieces will be made available for purchase online and in selected BOSS stores just after the BOSS runway show scheduled for Friday, September 22, at 9pm CET, as part of the Milan Fashion week calendar.

Customers will be able to learn more about the specific styles and THE CHANGE initiative via a dedicated website at [boss.com/thechange](https://boss.com/thechange).

All three of these exclusive items coolly combine plant-based fibers with high-tech, state-of-the-art construction methods. For menswear, the singular styles include a double-breasted trench coat with a removable belt that can be used to cinch the generous silhouette. This piece is crafted from a 3-layer textile comprised of HeiQ AeoniQ™ fabric bonded with a bio-based, waterproof membrane, while the third, inner layer is a Swiss pima cotton.

Its iconic construction includes flap pockets, shoulder tabs, a breast flap, and back vent, making it timeless and modern at the same time.

The womenswear selection also features an impressive double-breasted trench made in a regular fit with a removable belt and an outer shell constructed from HeiQ AeoniQ™ fabric, laminated with the same bio-based membrane. The third and final style is a sleek, gender-

neutral bomber jacket designed with a relaxed silhouette and dropped-shoulder construction that boasts classic BOSS tailoring elements.

Crafted from HeiQ AeoniQ™ fabric and further embellished with trimmings made from environmentally conscious materials, it features light padding derived mostly from recycled silk, welt pockets, cuff and hem adjusters, as well as a concealed, two-way zipper that closes down the front.

All of these pieces will be embroidered with a unique series number to indicate their limited-edition nature. Lastly, they will feature a woven label with a QR code where consumers can find more information on THE CHANGE initiative and BOSS’s collaboration with HeiQ AeoniQ™.

HUGO BOSS entered into a long-term strategic partnership with HeiQ AeoniQ, LLC, in 2022, to usher in a more sustainable approach to fashion that contributes to the company’s aims toward climate neutrality within its own area of responsibility by 2030.

The brand presented its first polo shirt using HeiQ AeoniQ™ yarn, worn by brand ambassador and Italian tennis star Matteo Berrettini, at the Australian Open in early 2023.

A second, limited-edition drop of the collarless polo shirt was later presented at the BOSS Open in Stuttgart in June. This marks the first of many capsule collections that will be created as BOSS continues to collaborate with HeiQ AeoniQ™ and their revolutionary textile.



# Textile waste-to-power incineration experienced input shortfall in China

■ Faujia Mushtari



Figure: Engineers at Beijing's Gao'antun incinerator power plant control giant claws with joysticks on special chairs inside a cockpit. The claws are capable of lifting eight tons of garbage with each scoop. Courtesy: Rob Schmitz/NPR

In the past four years, China has significantly transformed its textile waste management strategies, primarily by introducing mandatory waste sorting regulations in Shanghai. This policy shift has had unforeseen outcomes within the textile waste processing industry and has resulted in a nationwide overhaul of waste management practices.

China's ambitious approach, which includes mandatory textile waste sorting and an increase in waste-to-power incineration capacity, has brought about substantial changes in its textile waste management landscape. These policies not only have an impact on population behavior but have also unveiled unexpected challenges in managing waste in the world's one of the most populous nations.

## The advent of mandatory waste sorting

Shanghai led the way four years ago with the introduction of mandatory waste sorting regulations, marking a pioneering step in waste management. These regulations

aimed to revolutionize how waste was managed by Chinese residents and quickly expanded to include most major cities in the country, setting the stage for a significant shift in waste management practices.

## Unintended consequences for waste-to-power incineration

While the mandatory waste sorting policy promised to enhance recycling rates and reduce the volume of waste sent for incineration, its implementation resulted in unforeseen challenges for the waste-to-power incineration sector. The reduction in waste available for incineration created an overcapacity crisis, leading to the idling of some incineration facilities. For example, in May, the Wuhu Ecology Center's data revealed a staggering 8,499 "planned stoppages" during that month, indicating that some incinerators were underutilized. While several factors contribute to these stoppages, the primary issue is the reduced availability of waste for incineration due to successful waste sorting policies.

## Government policy coordination challenges

The clash between government policies has compounded the challenges of waste management. Effective waste sorting policies have found themselves at odds with concurrent policies like the "zero-waste city" initiative. Achieving better policy coordination across ministries and regions becomes paramount to harmonize these seemingly contradictory directives.

## Impact on incineration rates

The data from Shanghai serves as an illuminating case study, showcasing the tangible impact of mandatory waste sorting. For instance, in 2021, the city witnessed a notable uptick in the recovery of recyclables and wet waste, translating into reduced incineration rates. This shift had a profound impact on incinerators, which, prior to the sorting policy, were operating at or beyond their full capacity. Consequently, after the policy's implementation, incinerators faced fuel shortages and, at times, were forced to shut down. By 2021, Shanghai had the capacity to burn 7.65 million tons of waste per year but only managed to incinerate 6.652 million tons, leading to high rates of stoppage and overcapacity.

## Overcapacity predicament

China's unbridled enthusiasm for achieving incineration targets, as seen in the 12th and 14th Five Year Plans, has contributed significantly to the overcapacity crisis. Multiple factors, including overestimations, aggressive private investments, data manipulation by local governments, and a lack of interregional resource sharing, have fueled the problem. The report details a study by the Wuhu Ecology Center that assesses overcapacity figures across province-level administrations, uncovering a disconcerting national

overcapacity figure for 2022.

## Environmental and health risks

The accelerated growth of incineration facilities in China has raised concerns regarding environmental and health risks. A dearth of government subsidies since 2020 has exacerbated the financial challenges faced by these plants. Recent studies have highlighted health risks associated with waste-to-energy facilities, calling for the expansion of buffer zones to mitigate these hazards.

## Carbon emissions and environmental impact

The environmental repercussions of incineration extend to carbon emissions. Waste-to-power plants have become notable emitters of carbon dioxide equivalent, raising questions about their sustainability within the broader context of China's environmental goals. For example, data from the Ministry of Ecology and Environment indicates that China's waste incineration power generation emitted approximately 100.65 million tons of carbon dioxide equivalent in 2022. This report elaborates on the magnitude of emissions and their environmental consequences.

China's journey toward mandatory waste sorting and the expansion of incineration capacity has given rise to complex challenges and unforeseen consequences. Balancing the goals of waste reduction and resource recovery with the practicalities of waste disposal presents a formidable task. To navigate these challenges successfully, China must prioritize careful policy coordination, a clear vision for sustainable waste management, and the proactive resolution of policy contradictions. The path forward will require adaptability, innovation, and a commitment to sustainable waste management practices across the nation.

## At A Glance

- » China's mandatory waste sorting policy has led to a decrease in the amount of waste available for waste-to-power incineration.
- » This has created a challenge for the incineration industry, which is now facing input shortages.
- » Waste incineration is associated with a number of environmental and health risks, including air pollution and the release of toxic chemicals.
- » China needs to develop more sustainable waste management solutions, such as recycling and composting



# Unraveling apparel waste mystery with AI and blockchain

■ Aminul Haque, CEO, Montrims Ltd.



*Figure: With AI and blockchain technology, there is hope for a more sustainable future in fashion.*

The issue of apparel waste has long plagued the fashion industry. With the fast-changing trends and the constant pressure to stay in style, consumers often discard their clothes after just a few uses, contributing to the ever-growing problem of clothing waste. However, with artificial intelligence (AI) and blockchain technology, there is hope for a more sustainable future in the fashion world. AI is revolutionizing the way we approach sustainability in the apparel industry. By analyzing vast amounts of data, AI algorithms can identify patterns and predict consumer behavior, enabling fashion brands to create garments that are not only stylish but also durable and timeless. This means consumers can invest in high-quality pieces that will last longer, reducing the need for constant replacements and minimizing clothing waste.

Furthermore, AI-powered supply chain management systems can optimize production processes, reducing material waste and lowering environmental impact. By accurately forecasting demand, brands can avoid overproduction, which is one of the key drivers of apparel waste. Machine learning algorithms can analyze historical

sales data, weather patterns, and social media trends to make accurate predictions, ensuring the right amount of inventory is produced.

But how does blockchain fit into the picture? Blockchain technology offers a transparent and immutable record-keeping system that can revolutionize how we track and verify the sustainability of garments. By implementing blockchain solutions, fashion brands can assure consumers that their products are manufactured ethically and sustainably.

Through blockchain, every step of the garment's lifecycle can be recorded, from the sourcing of materials to the manufacturing process and even the disposal or recycling phase. This creates a comprehensive and trustworthy traceability system that holds brands accountable for their environmental impact. Consumers can easily access this information by scanning a QR code or using a mobile app, enabling them to make informed decisions and support brands that prioritize sustainability. Moreover, blockchain technology can also facilitate the resale

and secondhand market for fashion items. By creating digital certificates of authenticity, blockchain ensures that the provenance and condition of pre-owned clothes can be easily verified. This encourages consumers to embrace the circular economy and extend the lifespan of their garments, further reducing apparel waste and its associated environmental footprint.

In conclusion, combining AI and blockchain technology holds tremendous potential in combating apparel waste in the fashion industry. By leveraging AI algorithms, brands can produce garments that are not only fashionable but also sustainable and long-lasting. Additionally, blockchain's transparent record-keeping system ensures that brands are held accountable for their sustainability claims, empowering consumers to make conscious choices. As we continue to unravel the apparel waste mystery, AI and blockchain will play a pivotal role in shaping a more sustainable future for fashion.



*Author: Aminul Haque,  
CEO, Montrims Ltd.*

# Italian textile machinery companies to showcase innovation at TITAS TAIPEI 2023

■ **Rahbar Hossain**

A delegation of Italian textile machinery companies will attend TITAS TAIPEI 2023, scheduled from October 17 to 19, 2023. This event, held in the vibrant city of Taipei, is set to bring together industry leaders and innovators from around the world. Notably, Taiwan's textile market, with a strong focus on technical textiles and nonwovens, has been a key interest for Italian manufacturers.

In the year 2022, Italian textile machinery exports to Taiwan surged, exceeding an impressive 17 million euros in value. The growth trend has continued into 2023, with exports already surpassing 7 million euros in the first half of the year. Recognizing the immense potential of the Taiwanese market, ACIMIT (Association of Italian Textile Machinery Manufacturers) and the Italian Trade Agency have collaborated to establish an exclusive pavilion at TITAS TAIPEI.

Within this pavilion, six distinguished Italian textile machinery manufacturers, all ACIMIT member companies, will proudly showcase their cutting-edge technologies. These industry leaders include Ferraro, Danitech, Lgl, Ms Italy, Reggiani, and Unitech. Visitors to TITAS TAIPEI 2023 can expect to immerse themselves in the world of Italian textile machinery technology, reaffirming its pivotal role in the global textile production process. ACIMIT represents an industrial sector comprising approximately 300 manufacturers, collectively



*Figure: Textile Expo, Courtesy: Kohan Textile Journal*

employing around 13,000 skilled professionals. These companies contribute to an impressive turnover of roughly 2.7 billion euros, with an outstanding 86% of their products exported internationally. Their dedication to creativity, sustainable technology, reliability, and uncompromising quality has firmly established Italian textile machinery manufacturers as leaders on the global stage.

TITAS TAIPEI 2023 promises to be a dynamic platform for Italian textile machinery companies to forge new partnerships, share innovative solutions, and contribute to the ongoing evolution of the textile industry. Stay tuned for the latest updates and innovations from this exciting event.



# Shipping industry aims to reach net zero by 2050

■ Saiful Islam Saad

Over 90 percent of world trade is carried across the world's oceans by an estimated 90,000 marine vessels. The shipping industry is responsible for a significant proportion of the global climate problem although a lot of industrialists, consumers, and fashion brands don't pay heed to this issue. The shipping industry contributes 3% Green House Gas annually across the globe. If it were a country, it would be considered the sixth largest emitter, according to (europe.oceana.org).

Retailers ship huge volumes of clothes from production centers in countries such as China, Vietnam, and Bangladesh to consumers around the world, causing carbon dioxide emissions. The shipment of huge textile product containers in these marine ships has caught the attention of retailers and consumers recently. Overall, the textile industry is estimated to be responsible for between 2% and 8% of global greenhouse gas emissions, according to a United Nations Environment Programme "one planet" report published last month.

The bigger picture is that the shipping industry is going towards net zero by the year 2050 according to the latest data and agreements toward a sustainable future.

The shipping industry must achieve its 2030 breakthrough objective of having scaleable zero-emission fuels makeup 5% of the worldwide shipping fuel mix in order to adhere to the Paris Agreement's 1.5 degrees Celsius target.

## Global disruptions and challenges of green shipping:

The shipping industry's five change levers to energy transition Image: UMAS & High Level Climate Champions, 2022

Due to the urgency of the industry to become decarbonized and net-zero carbon emission sector, some issues and challenges must be mitigated as soon as possible. There are a lot of political, environmental, economic, investment decisions, partnership, etc factors involved in the common objective and a plethora of challenges in the shipping industry right now.

In a BCG survey of 125 companies that rely on shipping, 71% of respondents said they would pay a premium for carbon-neutral shipping, and 63% of respondents



expected they would be more willing to pay a premium within the next five years. But at least a premium of 10% to 15% over current rates would be needed to fund the industry's transition to net-zero emissions by 2050.

Shipping companies face a highly uncertain regulatory environment. Despite the rules sanctioned by IMO, shipping companies need to go through several laws including fuel consumption, vessel improvements, EU ports, etc factors. The time consumption between the passing of several laws is hindering the pathways for net zero initiative.

According to GFMA, An estimated \$2.4 trillion dollars will be needed for shipping to achieve net-zero emissions by 2050. The technological costs, investments, initiatives, and alternative fuel costs are a drastic situation to be considered. This huge amount of money is being transaction through several years of financial channels. The financing issue is still a fundamental issue regarding the net zero initiative.

According to the IMO, two levers—operational- and technological-efficiency improvements—have lowered carbon emissions per transported unit by 20% to 30% since 2008 and could cut them by a further 20% to 25% by 2050. For fashion firms, switching to more environmentally friendly shipping techniques could initially mean higher transportation expenses. These costs may be passed on to customers, which might result in increased fashion product retail pricing. The overall marketing towards go green initiative can help build customer reputation.

The fashion industry would likely collaborate more closely with shipping companies to develop new eco-friendly logistics solutions. These solutions can try to decrease cost of containers and other miscellaneous costs from shipping. The beneficial sustenance of both fashion and shipping industries can easily transition towards a better future. The fashion industry's efforts toward net-zero shipping could raise consumer awareness about the environmental impact of fast fashion. As fast fashion is a scar on the face of the environment, radical change is necessary for the upcoming future.

The second-largest fashion retailer in the world, H&M, stated in 2022 that it had acquired eco-fuel for a "significant share" of its ocean transportation over the previous two years. By 2040, it intends to achieve "climate positive" status. Major retailers like Amazon and IKEA have promised to ship exclusively with zero-carbon fuel by 2040.

The problematic rules and regulations which are pending for years must be mitigated for the timely impact of green initiatives. Thus, compliance with fashion industry can be a strategic way forward. Fashion supply chain should be more compliant with green laws and rules about green shipping by 2050 for creating a balance. Thus, local and international brands will be privileged to adopt a sustainable approach to their fashion and accessories.

### Strategic way of getting net zero initiative in shipping:

Current policy and industry actions are insufficient to support the shipping industry's transition. Policy makers need to assess the urgency of the situation for the greater

good. Shipping companies must adapt quickly to certain measures and strategies for tackling the decarbonization system. The need to further optimize the logistic chain and its planning, including ports, is also identified as a short-term measure, alternative low-carbon and zero-carbon fuels, and innovative technologies to further enhance the energy efficiency of ships for greener shipping.

It is clear that the global introduction of alternative fuels and/or energy sources for international shipping will be integral to achieving the overall ambitions of IMO's initial strategy for reducing GHG emissions from international shipping. There is room for all options to be considered, including electric and hybrid power, hydrogen, and other fuel types. Alternative fuels are essential for the industry to reach net zero by 2050. Major structural changes will be required to enable their adoption. Indeed, commercially viable zero-emission vessels must start entering the global fleet by 2030 to hit the net-zero goal.

Forming or joining alliances that will have a tangible effect on companies' decarbonization efforts. Shipping firms should engage in cooperative R&D collaborations with shipyards and other ecosystem participants for the upbringing of long-term applications. They may exchange ideas and gain from increased size and improved resource management. Different managerial approaches can be gathered by the effective implementation of these strategies.

Companies should invest in solutions that improve maintenance and prolong asset life by analyzing data from ship-based sensors. They should also consider



Eco-logistics solutions implementation



Improved focus on sustainability



Compliance with rules and regulations



Eco-shipping

Figure: Several benefits of fashion industry by implementing net zero shopping system. This system can easily validate the sustainability in both fashion supply value chain and shipping industry.



creating digital twins, which enable faster, better decisions by replicating equipment in a virtual environment. Collaborations between shipping companies along the value chain can open new pools of financing by demonstrating a broad sector-wide commitment and signaling to investors. These financial assets can bring change more susceptible to the fashion industry.

By being open about their decarbonization efforts, companies can encourage consumers to view their business as a safe environmental choice. Better transparency will also help players differentiate themselves from rivals. Thus, more profits can be gained from either end of the spectrum. With AI, it becomes

possible to harness accurate and disaggregated emissions calculations and predictions. This would allow the industry to go beyond historical annual averages, or even emissions by company or individual ship per year.

Businesses that take the initiative today will benefit from several real benefits. Players may benefit from the enhanced brand impression, better customer acquisition and retention, and increased financing prospects by committing to net zero and taking proactive actions to achieve this aim. Additionally, by acting now, companies may encourage the development of practical solutions and assist shape laws in the next years, giving them a competitive edge over rivals.

# MS Printing Solutions to Exhibit at CINTe Techtextil China 2023

■ Zakir Hossain

MS Printing Solutions, a leading provider of digital printing solutions for the textile and paper industries, will be exhibiting at CINTe Techtextil China 2023, which will be held at the Shanghai New International Expo Centre from September 19-21, 2023. At the show, MS Printing Solutions will be showcasing its latest digital printing solutions, including the:

JP7 - A single-pass digital textile printer that offers high-speed printing and excellent quality.

JPX - A digital textile printer that is ideal for printing on a variety of fabrics, including synthetic, natural, and blended fabrics.

JPV - A digital textile printer that is designed for printing on carpets and rugs.

JPW - A digital wallpaper printer that offers high-quality printing and a wide range of design options.

MS Printing Solutions will also be demonstrating its new Pigment Solution, which reduces water and energy



Figure: MS JPK EVO Textile Printer



Figure: MS Printing Solution and the JK Group have highlighted digital textile offerings at the recently concluded ITMA.

consumption, as well as chemical use, by 95%. The Pigment Solution also offers a wider range of colors and better durability than traditional digital textile printing solutions.

MS Printing Solutions is committed to providing its customers with the latest and greatest in digital printing technology. By exhibiting at CINTe Techtextil China 2023, MS Printing Solutions will be able to showcase its latest products and solutions to a global audience.

MS Printing Solutions is a leading provider of digital printing solutions for the textile and paper industries. The company offers a wide range of products and services, including digital textile printers, digital wallpaper printers, and digital printing inks. MS Printing Solutions is committed to providing its customers with the latest and greatest in digital printing technology, and its products are used by customers all over the world.

# Recover™ appoints Anders Sjoblom as CEO

■ A H Monir

Sjoblom Joins the Fast-Growing Leader in Disruptive Circularity after more than a decade at the H&M Group, most recently as Global Managing Director of H&M Lifestyle Brands

Recover™, the leading materials science company and scale producer of sustainable, high-quality recycled cotton fiber and cotton fiber blends, appointed Anders Sjoblom as the company's global chief executive officer, which will be effective from January 1, 2024.

Sjoblom is a seasoned executive who will join Recover from the H&M Group where he is the global managing director for H&M lifestyle brands. The appointment of Sjoblom follows Recover's recent appointment of Matthew Neville as the company's first global chief commercial officer to build a customer-centric sales team and provide exceptional customer focus.

Olof Persson, Recover chairman and former chief executive officer of the Volvo Group said, "These leadership changes enable Recover to focus on ensuring operational and financial excellence while continuing to innovate and lead disruptive change for the apparel and textile industries."

"Anders has an outstanding track record of successfully scaling global businesses while driving growth and brand awareness, while Alfredo will return to his roots as he focuses on strategic product vision and innovation."

Recover has perfected the art and science of scaled production of sustainable recycled cotton fiber over more than 75 years across multiple generations of the Ferre family in Spain.

The company offers plug-and-play supply chain integration, technical support, flexible applications, and collaborative innovation around circularity and serves some of the largest and most recognizable retailers, brands, and vendors in the world.

The company opened the world's largest technically advanced facility for mechanically recycling cotton fiber in Bangladesh in 2022, adding to existing facilities in Spain and Pakistan and a planned facility in Vietnam.



Figure: Anders Sjoblom, CEO, Recover™ Figure: Anders Sjoblom, CEO, Recover™

Recover is at the forefront of its industry, developing differentiated, cutting-edge solutions to meet the needs of global retailers and brands. My focus will be on delivering these outstanding solutions with excellence. I am proud to take on the chief executive officer role and thrilled to have the opportunity to lead Recover's exceptional team, he added.

Sjoblom has a strong passion for driving change and positive impact and currently serves as global head of H&M lifestyle brands with responsibility for H&M Home, H&M Move, and H&M Beauty.

Its premium, environmentally friendly, and cost-competitive products are created in partnership with the supply chain for global retailers and brands, offering a sustainable solution to achieve circular fashion for all.

Recover's brand ethos, communication ecosystem, and brand and retailer collaborations empower consumers to participate in creating a more sustainable tomorrow. The company is backed by leading institutional investors including STORY3 Capital and Goldman Sachs.



# Recover™ and Watershed partner to cut GHG emissions for T&A industry

■ Nurnahar Tania



Figure: Recover™ Joins Forces with Watershed in Ambitious Bid to Slash GHG Emissions in the Apparel Industry

In a pivotal move to combat the looming climate crisis, Recover™, a pioneering player in the textile recycling sector, has partnered with Watershed, a renowned climate platform. This groundbreaking collaboration aims to dramatically reduce greenhouse gas (GHG) emissions in the apparel and footwear industry. The urgency of climate change cannot be overstated, as highlighted by the UN's Emissions Gap Report, which underscores the

inadequacy of current efforts to limit global temperature rise to 1.5°C. Instead, we face the prospect of a devastating 2.8°C temperature increase by the end of the century, with profound impacts on ecosystems worldwide.

The fashion industry, notorious for its substantial carbon footprint, is responsible for a significant portion of global emissions, ranging from 2% to 8%. Recover™ recognizes the industry's role and is taking proactive measures to

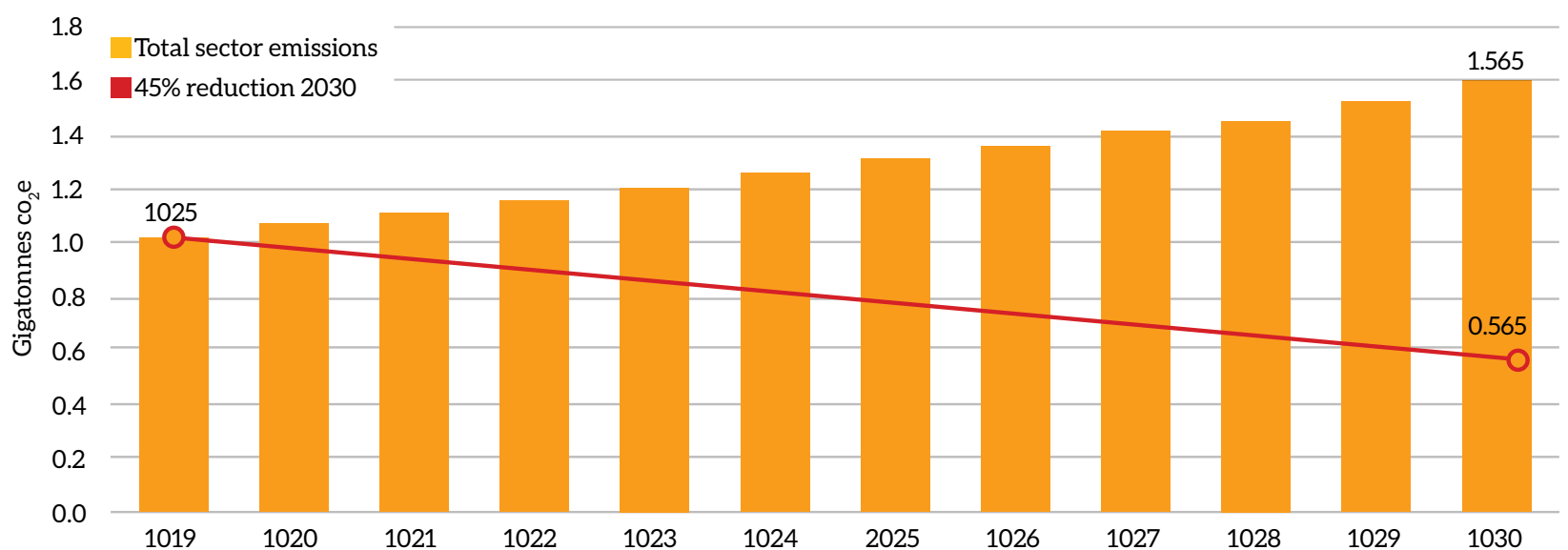


Figure: Projected GHG Emissions for the Apparel Sector, 2019–2030, Source: WRI

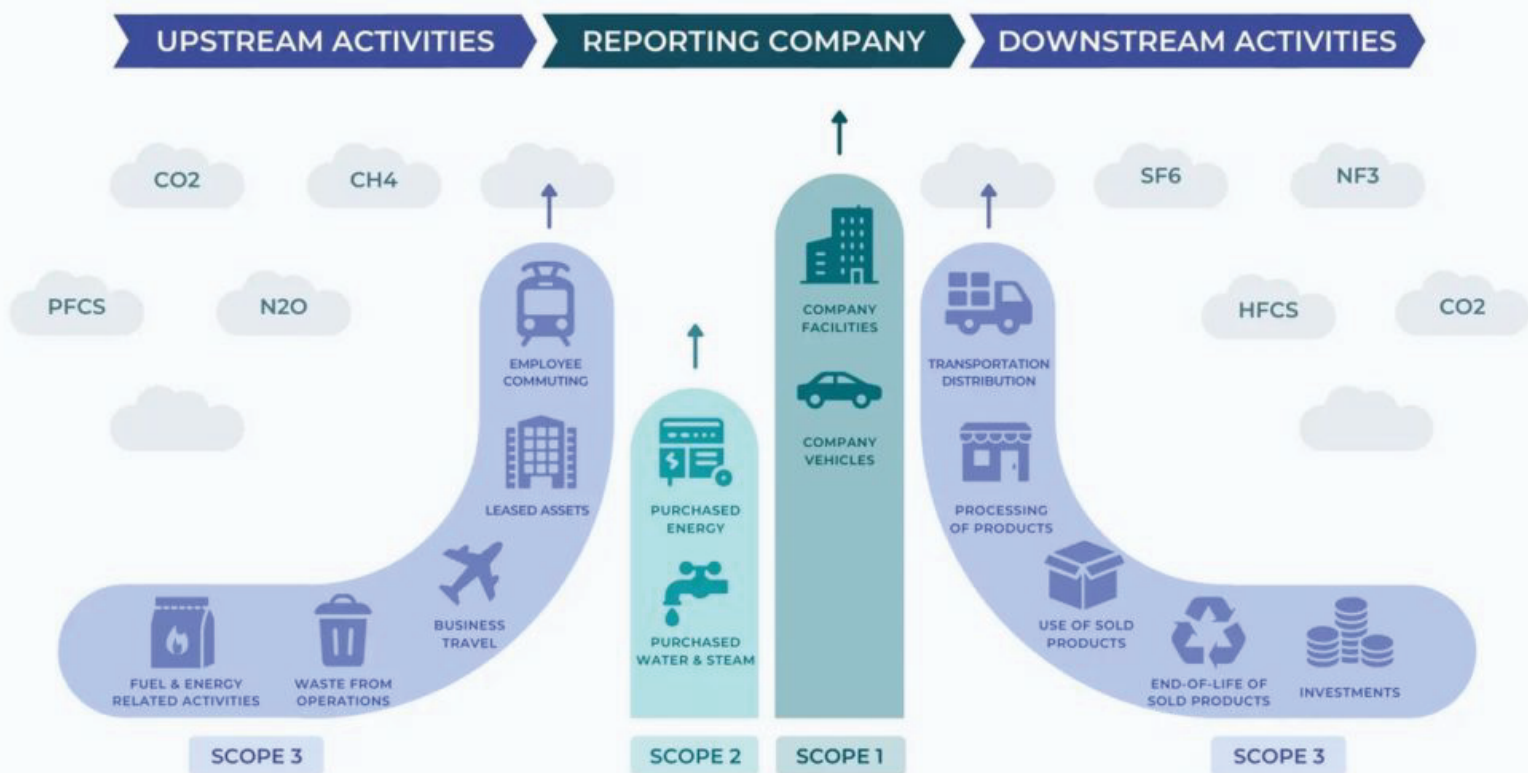


Figure: Scope 1,2,3 GHG emission, Courtesy: Tapio

address this challenge.

One of Recover™’s key strategies is recycling cotton, with Recover™ LCA Spain verified by EcoReview (2022), revealing impressive results. According to the assessment, every kilogram of Recover™ recycled cotton saves up to 1.73 kilograms (3.81 pounds) of CO<sub>2</sub> equivalent emissions and 15.29 kWh of energy. This not only reduces environmental impact but also showcases the lower global warming potential of recycled cotton compared to virgin conventional cotton. Moreover, Recover™’s recycling process diverts industrial textile waste and end-of-use garments from landfills and incineration. This innovative approach generates recycled fibers that can replace virgin cotton in apparel products. By doing so, Recover™ is not only reducing its own GHG footprint but also enabling brands and retailers to cut their Scope 3 GHG emissions.

Scope 3 emissions are indirect emissions linked to activities beyond an organization’s immediate control or ownership, including those associated with the entire value chain, such as suppliers, customers, and other stakeholders. Major brands like C&A, Primark, and Revolve have already committed to carbon targets that encompass Scope 3 reductions, emphasizing the importance of tackling these often challenging-to-measure emissions.

In a significant move, Recover™ has joined forces with Watershed, a climate platform renowned for delivering audit-grade carbon measurements, streamlined disclosure and reporting, and real emission reductions. Watershed’s experts will meticulously analyze Recover™’s GHG

emissions, formulate a detailed decarbonization plan, and establish carbon targets aligned with the rigorous standards of the Science-Based Targets initiative (SBTi).

Recover™’s recent 2022 Sustainability report disclosed its Scope 1, 2, and 3 GHG emissions and their sources. Scope 1 encompasses emissions from company facilities and capital vehicles, while Scope 2 covers purchased electricity, steam heating, and cooling for internal use. However, Scope 3 emissions, the focus of this ambitious partnership, pose unique challenges due to their indirect nature.

As part of this initiative, Recover™ is committed to diligently tracking its global GHG footprint on Scope 1, 2, and 3. The company aims to implement concrete GHG reduction actions and is dedicated to establishing a climate target by 2025, subject to verification and monitoring by the Science-Based Targets Initiative. This commitment underscores Recover™’s determination to lead the charge toward a more sustainable future.

To maintain transparency and accountability, Recover™ will continue its reporting efforts, ensuring that it remains ready for essential disclosures and public reporting, exemplified by its annual Sustainability report.

In a world where climate action is imperative, Recover™ and Watershed’s partnership promises to be a catalyst for transformative change within the apparel industry. By leveraging innovation, data-driven insights, and a steadfast commitment to sustainability, these two entities are set to rewrite the script for fashion’s role in the fight against climate change.



# Rieter adds traceability to fiber preparation process using Haelixa technology

■ Mashia Sahejabin

Rieter has signed an agreement with Haelixa, the winning spin-off of the Swiss Federal Institute of Technology (ETH), to add traceability technology to its spinning process. This makes Rieter the first mover among spinning machinery manufacturers to identify fibers during yarn preparation. By partnering with Rieter Spinning Systems, yarn manufacturers partner for textile branding and ensuring exceptional transparency throughout their supply chain.

Textile supply chains are known for their complexity and lack of transparency, with production occurring in fragmented process steps across different geographies. But consumers and fashion brands are increasingly calling for an identifiable physical fingerprint to provide forensic evidence of the origin of textile materials, with increasing pressure for stricter regulations.

Combining Rieter's expertise in short-staple fiber processing with Haelixa's technology will create more visibility and resilience in the supply chain based on a solution that seamlessly integrates into existing spinning systems. Traceability solution available for retrofitting Rieter and Haelixa have completed joint internal testing and validation, resulting in an automated application of DNA markers on Rieter spinning systems, which will be available to customers in the coming months.



Figure: Rico Randegger, Head of Business Group After Sales, Rieter and Gediminas Mikutis, Co-Founder and CTO of Haelixa.

A spraying system dispenses unique DNA markers during mixing to ensure each fiber is physically identified. In a first step, Rieter incorporated automatic sprayers into their fiber mixing machines UNImix B 72 and B 76, retrofits to other machine types are also available. Verifying Product Claims, Improving Transparency Every manufacturer across the value chain, including fashion brands, will be empowered to substantiate product claims such as desired product mix, manufacturing location and ethical standards.

The material is identified as early as possible in the spinning process to ensure these product claims are credible. This occurs in the blowroom, where the short-staple fibers are opened and cleaned. Each spinning mill can apply multiple customized DNA markers to suit the requirements of their different customers. Material marked with DNA markers can be mixed with unmarked material at a later stage, for example, when processing a blend of recycled and virgin cotton. Depending on the desired product mix, the corresponding amount of DNA marker will be applied to the bloomroom so that it can be traced through the final product. The DNA marker is designed to withstand all mechanical and chemical stress during production, such as carding, weaving, stone washing, bleaching, heat treatment and others. The marker does not harm people or the environment and does not change the properties, appearance or processability of the fiber.



*“We are proud to partner with Haelixa to help our customers differentiate themselves with an innovative solution that creates much-needed transparency in the textile supply chain. This solution also underlines the importance of yarn production in making the textile value chain more equitable, inclusive and sustainable.”*

**Rico Randegger**  
Head of Business Group  
After Sales, Rieter

# SMART ePANTS: U.S. Intelligence commits to invest \$22 mn for wearable 'spy' tech

■ Hasan Mia

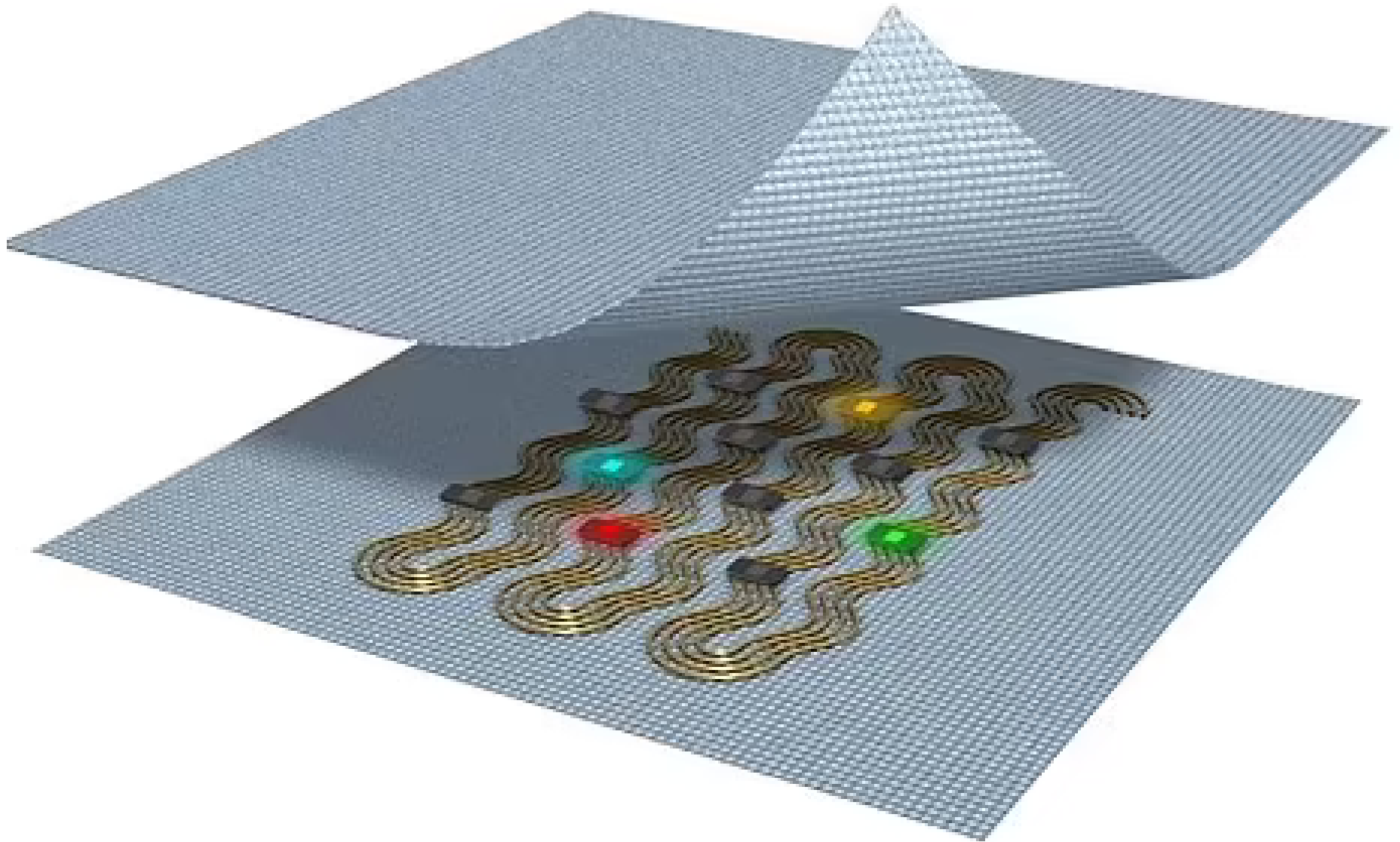


Figure: IARPA plans to develop AST electronic components completely integrated into the fabric - something no public or private group has achieved to date, Courtesy: Dailymail, © MIT

Imagine your regular clothes but with secret powers. The U.S. Intelligence is investing \$22 million into a wearable tech project called SMART ePANTS. The computerized garments will 'feel, move and function' like regular clothes but include capabilities to capture audio, video, and geolocation data.

'The Smart Electrically Powered and Networked Textile Systems (SMART ePANTS) program represents the largest single investment to develop Active Smart Textiles (AST) that feel, move, and function like any garment,' IARPA shared in a press release.

The SMART ePANTS program aims to develop performance-grade, computerized textiles that deliver unparalleled flexibility, durability, and washability, akin to

everyday attire. These innovative garments are poised to enable Intelligence Community personnel to capture crucial information from their surroundings hands-free, eliminating the need for unwieldy, discomfort-inducing devices.

Designed to function seamlessly in high-stress, high-risk environments such as crime scenes and arms control inspections, SMART ePANTS represents a quantum leap in wearable surveillance technology. This advancement promises to bolster the capabilities of first responders and intelligence personnel, allowing them to operate swiftly and safely without impediment.

"The innovative clothing will improve the capabilities of personnel working in dangerous or high-stress



environments, such as crime scenes and arms control inspections. As a former weapons inspector myself, I know how much hand-carried electronics can interfere with my situational awareness at inspection sites.

In unknown environments, I'd rather have my hands free to grab ladders and handrails more firmly and keep from hitting my head than holding some device."

-Dr Dawson Cagle, SMART ePANTS Program Manager

The investment in SMART ePANTS follows a pattern of high-risk, high-reward projects undertaken by IARPA, a counterpart to the renowned Defense Advanced Research Projects Agency (DARPA). While some projects have yielded groundbreaking results, others have faced setbacks—a testament to the inherently speculative nature of pioneering technology.

Contracts have been given to five groups, including big players Nautilus Defense and Leidos, as well as respected schools like the Massachusetts Institute of Technology, SRI International, and Areté. Although the amounts for three of these contracts have not been made public, the fact that these strong partners are involved shows the great potential of SMART ePANTS. The emergence of SMART ePANTS gives rise to valid concerns about government biometric surveillance. With the capability to detect substances on a person's skin, inquiries about privacy and civil liberties understandably come to mind. IARPA has promptly addressed these concerns by affirming its unwavering dedication to robust privacy protection protocols, along with continuous compliance reviews at every stage of the research process.

In addition to national security, private companies like Meta (formerly Facebook) are also exploring smart clothing technology. The intelligence community's

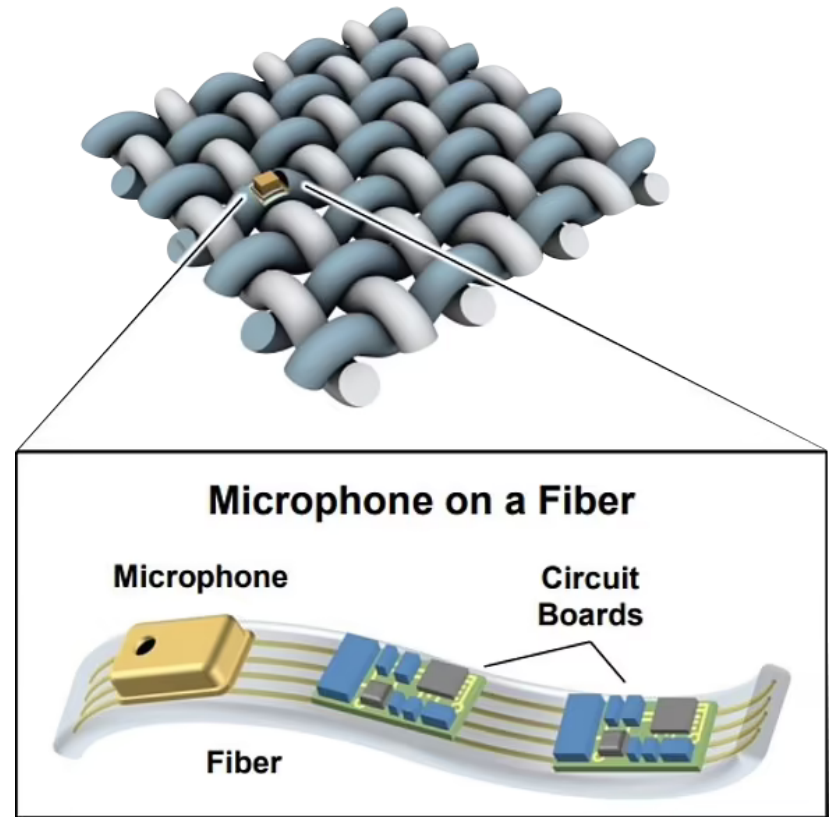


Figure: Officials plan to produce shirts, pants, socks, and underwear with tiny cameras, sensors, and microphones that behave like threading and energy harvesters powered by the wearer's body

significant investment matches a larger trend of investigating advanced, interconnected technologies.

This effort, similar to the previous development of technologies like the Tactical Assault Light Operator Suit (TALOS), shows the U.S. Intelligence Community's commitment to leading in technological advancements. TALOS focused on a powered exoskeleton, while SMART ePANTS represents a more subtle but equally significant step forward into the future.

As SMART ePANTS leads the way in surveillance wearables, the technology world is changing quickly. The combination of smartness, fabrics, and advanced technology will not only change how we keep our country safe but also how we live our daily lives.



Figure: The program aims to provide surveillance clothing to government personnel and first responders. Cameras could be placed inside fabrics to go undetected (pictured), Courtesy: Dailymail

# YarnMaster®'s new technology boosts efficiency on manufacturing floor

■ Hodayra Anjumi Hoque

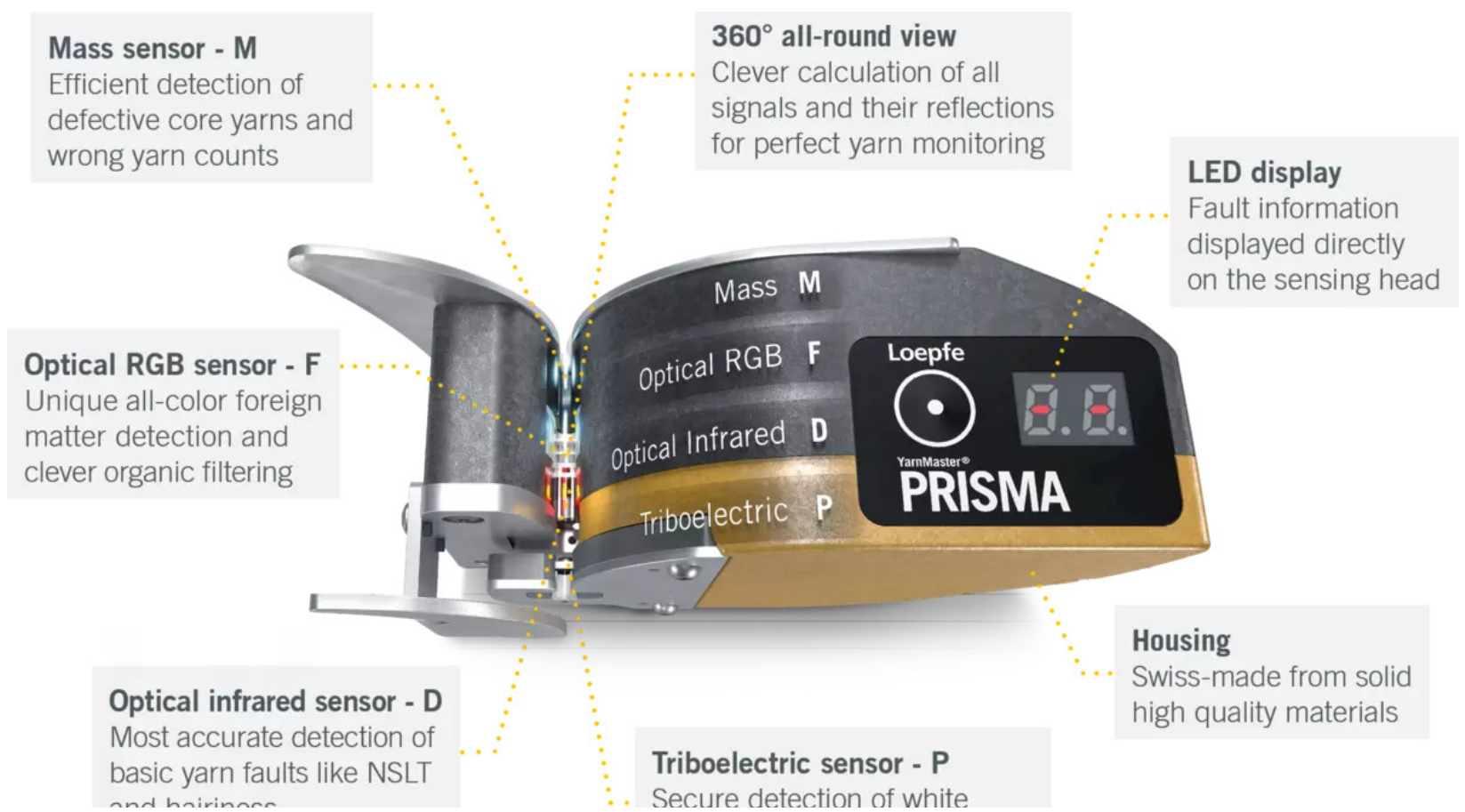


Figure: YarnMaster® PRISMA. Clever yarn clearing - profitable, efficient, easy

Loepfe's latest PRISMA software, YarnMaster® 2023-H1 has been updated to the features of new autostart and improved autocorrect, providing the best support and security, user experience, and time and money. Autostart provides the fastest and safest way to create security settings for new and existing items. Intelligent software automatically generates curves on the basis of yarn quality from the first 100 km/group. This reduces the need to manually traverse all matrices and their curve parameters.

PRISMA provides an array of efficiency-boosting solutions by using cutting edge technology.

The functionalities of this technology can be classified as below:

1. PRISMA MATRIX CLEARING
2. PRISMA LENGTH LIMIT ALARM
3. PRISMA BOBBIN STARTUP ALARM
4. PRISMA CENTRALIZED ALARM MANAGEMENT

PRISMA Matrix cleaning:

PRISMA Matrix cleaning is the perfect solution for spinners in order to reduce yarn waste and maximize raw material utilization. Loepfe's matrix clearing is the foundation of easy and profitable production. It has now been extended to the longest observation lengths on the market. Spinners can be sure that their production is optimized for maximum profitability.

Some key features of Loepfe's matrix cleaning:

- Classification of every deviation in absolute length

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## Some key features of Loepfe's matrix cleaning:

- Informs users about the actual fault deviation at different lengths and limits
  - Provides data about the fault distribution and yarn structure even with an open setting
  - Longest observation lengths on the market for the following fault types and matrices:
  - OffCount (Deviations in Count)- up to 50m
  - SFI/D (Hairiness and CV)- up to 80m
  - OffColor (Deviations in Color)- up to 50m
- Benefits of PRISMA Matrix cleaning: The shorter observation lengths of conventional systems cause cuts immediately when the faults exceed the set curve. Slicing long faults into pieces will significantly downgrade the winding efficiency as well as cause more yarn waste. PRISMA Matrix cleaner removes long faults in the yarn in a single cut and accurately identifies them, providing the most complete picture of the yarn structure in the process. The matrix comes with multiple set points to provide the highest flexibility in setting the clearing curve to ensure the required fabric appearance.

## PRISMA Length limit arm:

The innovative textile alarm – Length limit alarm – is now available for the matrix of OffCount, SFID, and optionally for OffColor. The Length limit alarm

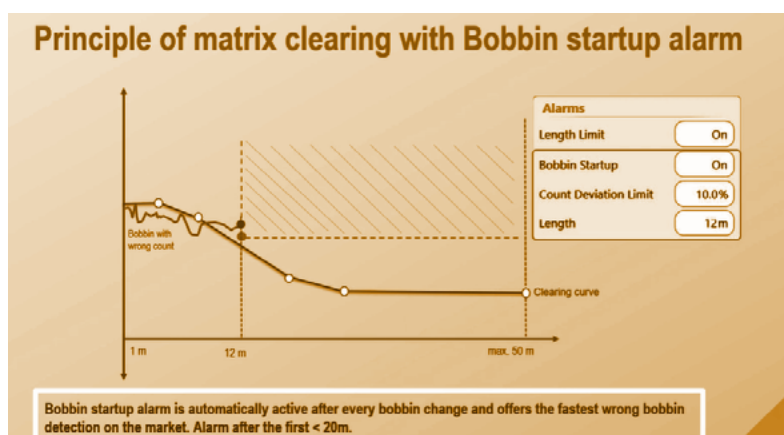


Figure 3: Graphical Analysis of PRISMA Bobbin startup alarm

maximizes winding machine and production efficiency with fewer splices and less hard waste. Faults are detected with the “red” clearing curve in the green clearing field until their length touches the “purple” length limit curve. This triggers immediately the Length Limit Alarm and a signal to remove those long faults from the package is

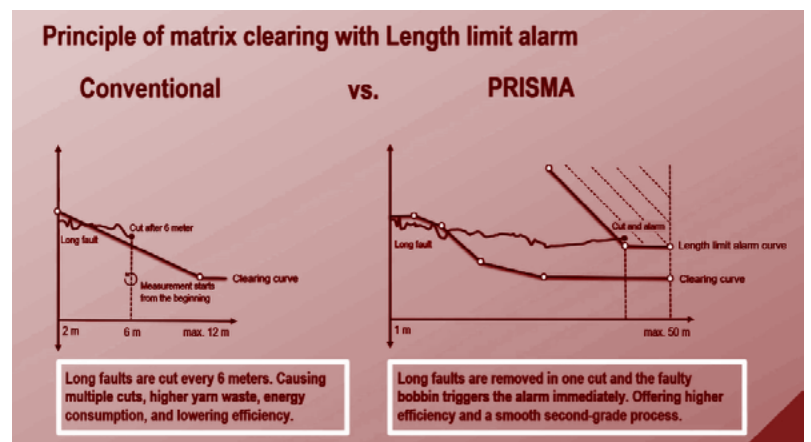


Figure 2: Graphical analysis of PRISMA length limit arm

sent to the winding machine. This bobbin can then be processed further through the second-level yarn quality process. With the higher efficiency and the possibility of a smooth second-grade process. The length limit curve can be adjusted fully to meet with the spinner's requirements.

## Benefits of PRISMA length limit arm:

- Optimum utilization of raw materials
- Second grade process
- Process optimization
- Better Yarn quality

## PRISMA Bobbin startup alarm:

### Key features:

- This textile alarm detects bobbins with the wrong count, and optionally with the wrong color, within the first wound 11 to 20m.
- The Bobbin startup alarm is preferably used on winding machines with the round magazine to immediately alarm bobbins with different yarn properties.
- The Bobbin startup alarm is automatically active after every bobbin change for the first 20 meters of wound yarn.

## Benefits of PRISMA Bobbin startup alarm:

- It provides the fastest detection of faulty bobbins.
- The Bobbin startup alarm will reduce hard waste and improve production efficiency, while also providing the ability to classify cuts and monitor material processes more efficiently.

## PRISMA Centralized alarm management:

YarnMaster® PRISMA centralized alarm management provides the perfect overview to manage OffStandard bobbins effectively. PRISMA's centralized alarm management shows all settings of repetitive yarn faults at a glance. This simplifies alarm management and enables the user to set all allowed cut repetitions per bobbin at one central point. This centralized alarm management view is available for every fault type and provides the perfect overview to manage OffStandard bobbins effectively.

# Dilo Group presents latest developments at ITMA 2023

■ Hasan Mia



Figure 1: DiloGroup displays MicroPunch technology at ITMA 2023.

DiloGroup, a leading supplier of nonwoven production lines, presented its latest developments at ITMA 2023, the world's leading trade fair for textile machinery, held in Milan, Italy from June 8 to 14, 2023.

On a booth with floor space of 750 m<sup>2</sup>, with the aid of 36 employees, Dilo presented its latest technologies in needling technology, modules of Industry 4.0 applications for further digitalization, and universal and special applications of the complete nonwoven technology.

In the field of needling technology, Dilo presented its latest developments in terms of needle boards, including the new DiloNeedling Needle Board Type 12, which is designed for high-speed production of nonwovens with excellent quality. Dilo also presented its latest developments in terms of needle punching machines, including the new DiloPunch Needle Punching Machine Type NP 12, which is designed for high-speed production of a wide range of nonwovens.

In the field of Industry 4.0 applications, Dilo presented its latest developments in terms of data collection and analysis, as well as process control and optimization. Dilo also presented its latest developments in terms of artificial intelligence (AI) and machine learning (ML), which are being used to develop new and innovative nonwoven products and production processes.

In the field of universal and special applications, Dilo presented a wide range of nonwoven products and production lines, including lines for the production of synthetic fiber needlefelts, glass fiber needlefelts, and natural fiber needlefelts. Dilo also presented lines for the production of special nonwoven products, such as medical textiles, automotive textiles, and filtration textiles.

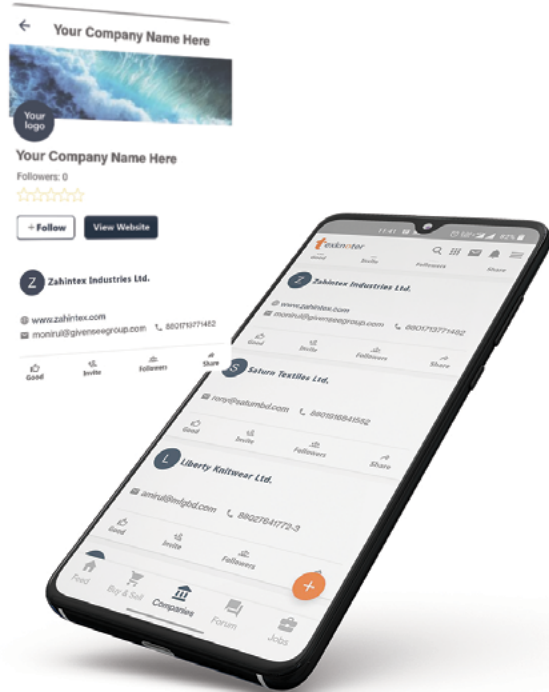
Dilo's participation in ITMA 2023 was a great success, and the company received a lot of interest from potential customers from all over the world. Dilo is committed to providing its customers with the latest and greatest in nonwoven technology, and the company's participation in ITMA 2023 was a testament to this commitment.



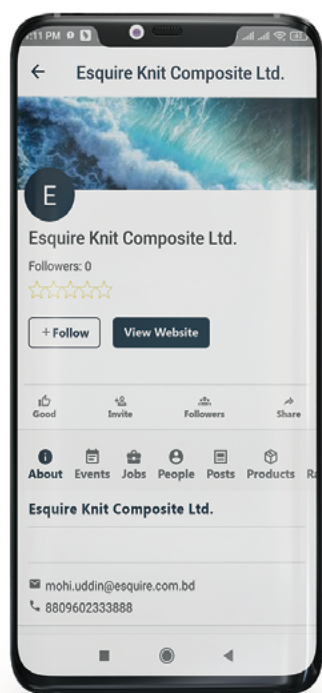
Figure 2: The Dilo team installing this complex line within 10 to 12 days including commissioning demonstrated its capabilities under high time pressure.



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