

WORLD FOOTWEAR

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MAGAZINE FOR THE GLOBAL SHOE INDUSTRY



The return of elegance

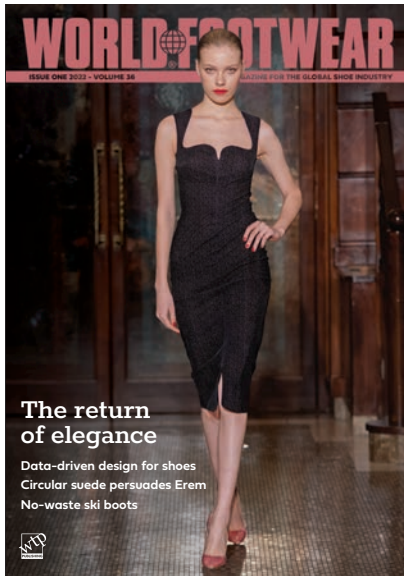
Data-driven design for shoes

Circular suede persuades Erem

No-waste ski boots



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Our review of 2021 indicates that, covid notwithstanding, last year was better than the year before and, if more opportunities to dress up present themselves in 2022, it will be good news for shoes.

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Global news

Portugal Portugal has become the fifth European Union country to enact a law to protect leather's identity. Using terms such as 'vegan', 'cactus', 'mushroom', 'synthetic', 'faux', 'artificial', 'PU' in conjunction with the word 'leather' will now carry legal consequences, including fines and criminal prosecution. COTANCE, the leather industry's representative body, said this will help consumers to make informed choices.

Italy Italy's footwear sector has reported a 16% rise in turnover during the first nine months of 2021 compared with the same period the year before, although this was still around 15% less than in 2019, according to industry association Assocalzaturifici. However, recovery is uneven: the big names are making "great progress", while two-thirds of other companies finished the year with revenues well below pre-covid levels.

Scandinavia The winners of the Scandinavian Outdoor Award for autumn-winter 2023 have been announced, with the top accolade going to Alfa for technical boot Stad made of Norwegian wool. The Footwear Award went to Polyver from Sweden for a boot made from a new material called CLI Tech (Comfort, lightness and insulation). The Kids' Award went to Reima for a boot with recycled insulation from Primaloft.

Turkey Turkey's leather sector export values rose 29% in 2021 to more than \$1.75 billion. Footwear accounted for most of this, at just over \$1 billion. Italy was the biggest export market, buying \$98 million worth of products.

Tunisia The Tunisian Observatory of Economy (OTE) has reported that the worsening trade deficits with China and Turkey are having a severe impact on the country's leather and textiles sectors. It said: "The textile and leather sectors have suffered huge losses since the signing of the free trade agreement with Turkey [in 2005], which caused the shutdown of about 7,000 shoe factories." Reports in local press said the OTE welcomed the suggestion to revise the FTA with Turkey.

Rwanda A Rwandan shoe company that uses recycled car tires as a raw material has been chosen as a winner of the third Tommy Hilfiger Fashion Frontier Challenge. More than 430 start-ups from 22 countries submitted their ideas. Uzuri K&Y was awarded €100,000. Its CEO, Kevine Kagirimpundu, said the opportunity has provided mentorship, guidance and "a platform to share our dream of bringing sustainable footwear options from Africa to the global market".

Tanzania A new leather footwear factory in Zanzibar that will make shoes for the army, will cut by half the bill to taxpayers as the shoes have previously been imported. The government has invested in Zanzibar Quality Tailoring and Zanzibar Leather and Shoe Factory to create jobs and reduce reliance on imports. Tanzania's vice-president, Philip Mpango, told the factories' management: "If you produce quality products at competitive prices, consumers will prefer yours over imports."

China Yue Yuen's retail division, Pou Sheng, will seek to "implement Nike's retail concept at scale in the China market". Pou Sheng operates Nike stores in more than 300 cities, serving 150 million consumers every year. Those customers will now have extra access to products, offers, experiences and premium services from Nike, online or offline.

■ Shandong-based footwear company Weihai Golden Monkey made the leather boots for members of China's sporting delegation that attended the Beijing 2022 opening ceremony, according to local press. In 2019, the company also made footwear in celebration of the 70th anniversary of the establishment of the People's Republic of China.

Mongolia Rob and Paul Forkan, the founders of UK-based footwear brand Gandys, have said work on their fifth kids' campus is under way in Mongolia. The pair – who were orphaned, alongside two siblings, in the 2004 tsunami – have worked to help other orphans and disadvantaged children by using profits from the brand to set up 'kids' campuses' that provide shelter, food and education. The first centre was set up in Sri Lanka in 2014, followed by Malawi, Nepal and Brazil.

Bangladesh The country's leather industry earned export revenues of \$682.7 million during the seven months to January 2022, 30% more than in the same period last year. Exports of leather footwear brought in \$414.5 million, an increase of 25% year on year. Bangladesh's export promotions agency has set the leather industry an export target for this fiscal year of \$1 billion, a growth of 9.5%.

Philippines Filipino politician Stella Luz Alabastro Quimbo has filed the Philippine Footwear, Leather Goods and Tannery Industries Development Act of 2022. The bill proposes increased government support for manufacturers, such as loan packages, training initiatives and an industry roadmap. It would also recommend penalties for those who fraudulently declare their goods as locally made.

Brazil National footwear industry body Abicalçados has reported exports in the first 11 months of 110 million pairs in volume, bringing in \$805.7 million in revenues – an increase of 31% and 35% respectively. Abicalçados executive president Haroldo Ferreira said the speed of the recovery had been surprising.

■ The fifth edition of the Design Na Pele initiative, a leather design competition in Brazil, is under way. Five tanneries will create new leathers that will be used by young designers to make bags and shoes. Winning designs will become part of the Brazilian Leather collection and will be exhibited at trade fairs and global events.

Argentina Footwear producer Unisol is to invest \$4 million in its factory in La Rioja, to expand its production capacity to 2.5 million pairs of shoes per year. Unisol is a long-standing outsource manufacturing partner of Puma. In recent years, the company has closed two factories in the north-western province of La Rioja. The expansion at its remaining factory will create 100 jobs.



Footprints

High-level advisory committee for BFA

The Footwear Distributors and Retailers of America (FDRA) and Pensole Lewis College of Business & Design have rebranded the African American Footwear Forum (AAFF) as the Black Footwear Forum (BFF).

They said the new name will strengthen and better represent the thousands of black footwear professionals and employees who work in the footwear industry today.

In addition, the BFF announced the formation of an Advisory Committee, which will direct the BFF in issues of community engagement, education, networking, events, and the soon-to-be-established regional BFF chapters. Committee members are

- **Brandis Russell**, Converse
- **Dr. D'Wayne Edwards**, Pensole Lewis College of Business & Design
- **Portia Blunt**, Reebok
- **David Ballin**, Puma
- **LaShae Boone-McCray**, RG Barry Brands
- **Jazerai Allen-Lord**, Founder, True to Size Agency
- **Kris Wright**, Nike
- **Darla Pires DeGrace**, DeGrace Group Consulting
- **Dace Graham**, Target; and
- **Sabria Butler**, FDRA

Converse executive Brandis Russell (*pictured*) said: "Since the organisation's inception in February 2019, the Black Footwear Forum has served as the key platform for connecting black professionals as they advance the footwear industry. As we rebrand and with the establishment of this committee, I am excited to continue our work together in service to those in our dynamic community who drive creativity, architect new product expressions and bring joy to consumers all over the world." ■



Students reinterpret Tod's footwear

Italian footwear and leathergoods company Tod's has announced its latest link up with fashion students, titled Re-Generation, following last year's collaboration with London's Central Saint Martins design school.

Carlo Alberto Beretta, brand manager at the Marche-headquartered firm, said the main objective behind the tie-up with Istituto Marangoni in both Milan and Florence was to support Italy-based students this time around.

Twenty of the institute's students, originally hailing from all around the world, make up the cohort, which joined Tod's academy at its headquarters in December.

"Tod's academy is a laboratory of ideas, imagined as a place for doing and thinking, in which our artisans accompany and support young people, offering them skills and techniques to make products," Mr Beretta said. "It is the expression of the highest culture of Made in Italy and is designed with a view to generational continuity, to give impetus to young creatives to help them in their growth path."

The brand's intention is for the group to take their inspiration from its self-described core values or "DNA" - specifically, sustainability - as they

Church's appoints CEO

Prada has appointed its group commercial director, **Denni Manzatto**, as chief executive of footwear brand Church's. Mr Manzatto joined Prada in 2013 and worked in various roles before becoming group commercial director in 2019. The group acquired Church's in 1999 and still manufactures the brand's shoes at the company's historic factory in Northampton. ■

Tecnica hires for new role

Outdoor footwear and ski equipment group Tecnica has appointed **Matthew Miller** to the newly created position of social and environmental 'impact guide'. Mr Miller joins the group, whose brands include Tecnica, Nordica, Moon Boot, Lowa, Blizzard and Rollerblade, after working at an international human rights organisation for the last 10 years. Before that, he worked in outdoor education. ■

Artengo deal involves co-design

France's top-ranked player on tennis's ATP Tour, **Gaël Monfils**, has signed a deal to use shoes, clothes and rackets from Artengo, the tennis brand that the Decathlon group launched in 2006.

Cyril Perrin, Artengo director, said the deal, which will run for the next five years, will be more than "just a sponsorship agreement".

He said: "We hope to go much further than that, notably in the area of co-design projects. We want 100% collaboration between Gaël and the team, especially with regard to the future look of our products."

Gaël Monfils said he, too, regarded this deal as something beyond the usual sponsorship arrangement. "It's something I intend to live out 100%," he said. ■

CTC names director general

Footwear, leather and leathergoods research and training organisation CTC has appointed **Françoise Nicolas** as its director general. Ms Nicolas has worked at the Lyon-based organisation since 1990. She will spearhead CTC's work to help its member companies in France make their businesses more digital and more sustainable. ■

progress through the project, which also includes high-profile mentorship from global industry figures. Leather, weekend boots, moccasins, Tod's lion motif and its signature studded rubber Gommino style were all listed as important design codes, ripe for 'reinterpretation' through this eco-minded lens. ■

Thousands of new jobs at adidas

Sports brand adidas has said it plans to hire thousands of new employees this year. In terms of numbers, it will hire more than 2,800 people at 307 locations in 47 countries. More than 800 of the new hires will be in Germany.

Of these, more than 900 people will be deployed in adidas retail stores. More than 500 people will be recruited for positions in digital, IT and data & analytics. Adidas is also continuing to hire in the area of sustainability, having already doubled the number of jobs in this area last year. In addition, the company is awarding more than 50 positions for apprenticeships or dual studies in Germany starting this autumn.

In total, adidas employs around 62,000 people, about 7,700 of them in Germany. Some 5,300 employees work at the company headquarters in Herzogenaurach. ■

Inov-8 hires for push into France

UK-based footwear brand inov-8 has set big growth ambitions for France after adding the country to its portfolio of European direct markets.

The brand has appointed **Emmanuel Fedon**, known as Manu, as its sales manager for the country. Mr Fedon lives in Annecy and brings two decades of sports industry experience to the role. He previously worked for Asics and most recently enjoyed a successful five years as commercial director for On Running in France.

Up until now, inov-8's business in France has been handled by a distributor partner, most recently Ricochet. However, from autumn/winter 2022 the country will join the UK, US, Germany, Austria and Scandinavia as being a direct market for inov-8.

The company is the first footwear brand to incorporate graphene in its designs, first in the rubber and more recently in the foam.

Tim Parkin, inov-8 head of sales, said: "We'd like to thank Ricochet for the fantastic job they have done over the last four years in building our brand and business in France. Their energy, enthusiasm and technical knowhow has been invaluable to us, and helps make them one of the strongest distributors in the sports and outdoors market.

"We've now made the decision to go direct in France as of A/W22, which will allow us to place a greater focus on this key European market and set ambitious growth plans. We also feel it's a real coup to have someone of Manu's calibre at the helm. He has an outstanding reputation within the industry and a wealth of contacts across all of France." ■

Superfeet founder passes away

The founder of insole maker Superfeet Worldwide and Northwest Podiatric Laboratory has died at the age of 96.

Dennis Brown had a goal of bringing affordable and engineered podiatric orthotics to the public, launching the Superfeet company with partner Christopher Smith in 1977.

John Rauvola, CEO at Superfeet, said: "From becoming one of the first people to parachute behind enemy lines in World War II, to nearly representing Britain in both boxing and soccer in the 1952 Olympics, to establishing more than 60 orthotic product patents, Dennis was a truly inspiring human being. He led a life by a set of core values and will be greatly missed by anyone who had the pleasure of knowing him."

Mr Brown helped establish student scholarship programmes with his wife, **Audrey**. ■

Mephisto sparks interest

Students from the Institut Supérieur Textile d'Alsace (ISTA) visited the factory that footwear brand Mephisto runs in Sarrebourg, France. ISTA is a business school that focuses on textiles, fashion and leather. Mephisto said it had been pleased to show the students the wide variety of processes that take place in a footwear factory. The shoe brand said it had been a pleasure to discuss the artisanship of the people who work in it. ■

Puma celebrates founder

Puma's latest football boot has been designed to pay homage to its founder, **Rudolph Dassler**, who launched the brand in 1948 and created its first football boot 20 years later. In tribute to Rudolph's days working as a laundry boy, Puma has reissued the King style with laundry-inspired care labels and gold metal charms. The King Top Dassler Legacy features a fold over tongue, premium leather with double stitching and silicone backing and the original Dassler branding. ■

Award for Tata

Industrial group Tata International has won a national award for excellence in employee relations from the Employers' Federation of India (EFI). The award was for 'significant achievement in pan-India employee relations'.

Sameer Tungare, head of human resources for the leather products division of Tata International, accepted the award on behalf of the company. ■

Addressing skills challenge

A total of 118 organisations have signed a Pact for Skills that Europe's main representative bodies for textiles, clothing, leather and footwear have drawn up. As part of an initiative promoted by the European Commission, it calls for recognition of a "skills challenge" in these industries, and for a commitment to addressing this. Industry bodies involved are CEC for footwear, COTANCE for leather and EURATEX for textiles and clothing. ■



Industry & Innovation



Coats offers increased precision

Industrial thread producer Coats has developed fibre-laying technology for use in composite materials for footwear. This technology, which the company has called Lattice Lite Eco, enables yarns to be positioned in exactly the right place.

This means the thickness, flexibility, torsion and rigidity of each section of a footplate can be created to ensure they support every part of the foot, eliminating the need for additional resin steps, such as prepeg or resin transfer moulding.

Coats has calculated material waste of 5% using Lattice Lite Eco, compared with over 30% for what it called “more traditional composite operations”.

The company has used a range of materials including recycled carbon, recycled nylon and materials from natural sources such as basalt and flax in the composite. This development work took place at the company’s innovation hub in Turkey.

Other footwear components that the technology can be used to produce include toe caps, torsion bars, heel counters and bindings.

Adrian Elliott, Coats president for apparel and footwear, said in addition to reducing waste, manufacturers would be able to produce these components more quickly using Lattice Lite Eco. ■

Umbro and Texon team up

Materials solutions developer Texon and sportswear and equipment manufacturer Umbro have revealed a weaving technology said to deliver zonal, multi-directional stretch, resulting in enhanced structural support, and which has been included in Umbro’s autumn-winter 2022 speed silo plans.

The two parties also explained that Umbro will retain exclusive rights to use of the technology in the football boots category until 2023.

Texon’s business acceleration leader for ProWeave, Paul Jackson, said: “We are incredibly excited to be working with Umbro on a world first in the football boot arena.

“ProWeave is a unique solution that opens up infinite new creative possibilities, enabling footwear designers to place zonal features exactly where they want them. This has huge benefits for the wearer in terms of performance, movement and comfort. We look forward to seeing the technology in action on football pitches worldwide in autumn-winter 2022.” ■

University to work with INESCOP

Spanish footwear technology institute INESCOP has signed a partnership agreement with a research group called UNICAD, which is based at the University of Alicante. Their main aim will be to develop digital design applications for the shoe sector. They talked of introducing “disruptive technologies for the footwear industry that will lead to important technical advances”. ■

Texon joins consortium

Footwear component supplier Texon has joined the TransFIRE (Transforming Foundation Industries Research and Innovation hub) consortium. The UK-based association comprises 20 academics from 12 universities, over 60 companies and 14 non-governmental organisations. Texon’s director of new product development, Boyd Mulder, said the company sees joining TransFIRE as one route to reducing its own environmental footprint. ■

Skechers to enter metaverse

Footwear brand Skechers is on course to reach \$10 billion in sales by 2026 after reporting a record 2021. Each quarter hit a record, with a full-year total of \$6.3 billion. CEO Robert Greenberg said: “We are finalising plans to enter the metaverse, creating an entirely new opportunity for the Skechers brand. With our creativity, product, operational support and global reach, we expect 2022 to be another record year.” ■

Double launch from Ortholite

Footwear component supplier OrthoLite’s investments in in-house recycling has resulted in two insoles containing at least 50% recycled material, following requests from brands. HybridPlus-Recycled uses 7% recycled rubber powder and 43% recycled PU foam. HybridPlus-Bio is made with 7% bio-oil derived from castor, 43% recycled production waste foam, and 7% recycled rubber. ■

Adidas says 'moonshot' becomes reality

Adidas has announced the commercial launch of Futurecraft.Footprint, its joint project with Allbirds that has produced a shoe with the lowest carbon footprint, at 2.94kg CO₂e per pair.

The companies say the collaboration shows how quickly progress can be made by sharing innovations and collaborating with competitors.

Teams across product design, material innovation, sustainability and supply chain studied every component and all aspects of the process, reimagining materials, manufacturing techniques and packaging to reach the lowest possible footprint.

A core part of this was considering pattern efficiency when creating the rolls of material from which the individual pieces of the shoe are cut and fitting pieces to minimise wastage.

Brian Grevy, a board member at adidas, said: "Our ambition is to take Futurecraft.Footprint from moonshot concept to something that sparks systemic change. We wanted to demonstrate how collaboration and an open-source mindset can create a halo effect across the industry and help make progress towards net zero.

"Now, our sights are set on a 15% average CO₂e footprint reduction on every product by 2025, and Futurecraft.Footprint is a major step forward for this ambition and our journey to create low carbon footwear at scale."

Tim Brown, co-founder & co-CEO at Allbirds, said: "We are on our own journey to cut our per-product carbon emissions by 95% by 2030, and the unrelenting focus both teams brought to Futurecraft.Footprint is exactly what we'll need to achieve this ambitious goal. But far beyond its impact for either of our brands, our hope is that this product can inspire others in the industry to rethink the way things have always been done, and that specific learning from our development process can unlock carbon savings for their teams, as well." ■

Nike outlines operating updates

Sportswear group Nike has outlined changes it has made in its supply chain and operations to make it more resilient, following pandemic-related disruptions.

It has opened regional service centres to increase capacity and speed. Prior to winter 2020, in North America, Nike had operated almost entirely through national distribution centres in Memphis. It has added service centres near Los Angeles, in Bethlehem (Pennsylvania) and in Dallas.

In Europe, Nike added a regional service centre in Madrid to begin evolving its distribution network beyond its European Logistics Campus in Belgium.

Andrew Campion, Nike chief operating officer, said: "We have already tripled our capacity to serve digital consumers in North America and Europe, the Middle East and Africa over just the past two holiday seasons. And we are just getting started."

Within distribution centres, Nike has deployed more than 1,000 "cobots" (collaborative robots) to aid the sorting, packing and movement of products.

It is also using AI and machine learning services such as Buy Online, Pick Up in Store (BOPIS), Ship to Store, the No Rush Shipping and Direct Order Drop.

By reducing the number of split packages and leveraging pop-up cartons that are made of 65% recycled content and 35% virgin material, Nike says it has optimised its packaging.

Ground-only shipping, available across the US, provides a less carbon-intensive option than air freight and initiatives such as Nike Refurbished extend the life of products.

It also enhanced protocols and sick leave and pay continuity for workers in manufacturing, distribution centres and retail stores. ■

BASF boosts nylon 6.6

Chemicals group BASF has announced two developments that will help it expand the polyamide 6.6 business that it acquired from Solvay at the start of 2020. It is to build a new plant at Chalampé in eastern France for producing hexamethylene diamine (HMD), a precursor in the production of high-quality polyamide 6.6 plastics and coating raw materials and expand its polyamide 6.6 production in Freiburg, Germany. ■

Keen's plant-based soles

Specialty chemicals developer Huntsman has helped footwear brand Keen create a new range of sneakers with plant-based soles. Named Field To Foot, the sneakers use a bio-based polyurethane system that contains a by-product from agricultural processing. Bio content in the polyurethane system ranges from 35% to 51%. Development work took place at Huntsman's footwear centre in Belgium, and is based on the company's Daltop S technology platform. ■

Leather myths surprising

A Leather UK-commissioned survey of 2,000 adults showed that only 24% of respondents were aware that the hides or skins used to make leather are a by-product of the food industry that would otherwise go to waste. Half of the people taking part said they thought cattle were bred specifically for leather. The director of Leather UK, Kerry Senior, said respondents' lack of knowledge regarding the origins of leather was surprising. ■

Huntsman's TPU update

Chemicals group Huntsman has developed a recyclable thermoplastic polyurethane (TPU). The product, a special grade of its Irogran TPU, also offers UV-protection and can be extruded into a film for expansion into foamed sheets. Huntsman worked with Shincell New Material Company, which will create foam sheets for use in insole, midsole and forepart applications. It will expand the TPU film without any additional chemicals. ■



Backtrack

11.02.22

Investment pays off for ISA TanTec with LWG gold

ISPO provides push for innovation, 3M claims

10.02.22

Fruit-based textiles take a new turn

Sixty-day challenge for leather suppliers

09.02.22

Safety footwear brand in the running for circular award

Former Ferragamo lead relaunches 'niche' brand

08.02.22

Record figures for Columbia Sportswear in 2021

07.02.22

Price matters in luxury too

04.02.22

Adidas launches 'biggest commitment to women'

Bright future for Capri

03.02.22

Vans owner reports 22% uplift in quarterly revenues

02.02.22

Hundreds of landmark Virgil Abloh shoes exceeding estimates

Double-digit rise for Pollini, Moschino owner

WFSGI emerges strongly from 2021

01.02.22

Strong growth for Salvatore Ferragamo

28.01.22

Goatskin growth for Australia

Date shifts elsewhere prompt Futurmoda change

27.01.22

Positive results for Tod's

Footwear dominates in Scandinavian Outdoor Awards

World Footwear's publishing cycle and limitations on space make it impossible for us to run more than a carefully selected sample of news from across the industry. However, we publish hundreds more stories on www.footwearbiz.com. The site is updated every day with news from every continent and every part of the industry, making footwearbiz.com one of the most comprehensive archives of news anywhere on the web for the global footwear industry.

We list below just a few of the headlines that have appeared on the site in recent weeks — www.footwearbiz.com allows you to read those you have missed.

26.01.22

Dolce Vita and Steve Madden step into resale

China's domestic spend on luxury nearly doubles in two years

25.01.22

Footwear group announces investment plan

Used sports shoes wanted

24.01.22

Prada Group sales soared 41% in 2021

21.01.22

Micam moves to March

20.01.22

Children's focus groups inspire Nike strategy

Leather waste company wins place on LVMH start-up programme

19.01.22

Italian brand makes Manhattan acquisition

UK leather industry to feature in new book

Guangdong manufacturers could save millions on exports to Japan
Streetwear favourite to shape Bally

17.01.22

Anta picks Donghua as latest research partner

14.01.22

Growth for Stella International in 2021, although uncertainty remains

13.01.22

Leather shoe factory will pay off for Tanzania

Shushu/Tong collabs with Charles & Keith

12.01.22

Udog cycling shoes unleash new tension tech

Sorel aims for inclusivity with Zappos Adaptive line

11.01.22

Amer Sports to focus on footwear and apparel

10.01.22

Team Korea's Winter Games gear revealed

07.01.22

Prada celebrates a departure from virgin nylon with Adidas collection

06.01.22

Armani pulls out of Milan and Paris shows

05.01.22

Italian shoe brand acquired by Crocs
Wenzhou shoes enjoy preferential tariffs from RCEP agreement

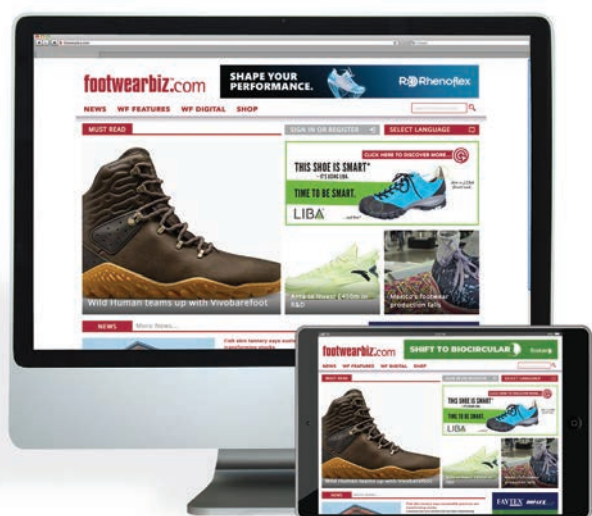
22.12.21

Chennai fair postponed until May
Accelerator programme open for applications at Asics

Closures in Vietnam lead to flat Nike revenues



STAY A STEP AHEAD



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Enabling a more sustainable future

Paola Faoro, Huntsman

The global footwear industry produces an estimated 24 billion pairs of shoes annually. Estimates vary, but a recent market study indicates that PU and TPU account for approximately 7-8% of the total footwear soling involved. In Europe this figure is higher (~30%). Some 35 years ago, the main use for PU was in casual and fashion shoes. Today, with consumers demanding more lifestyle type shoes, its popularity has risen and looks set for future expansion. Estimates suggest a compound annual growth rate (CAGR) of 4.4% during 2022-2025 for PU and TPU, almost twice the rate expected for the total footwear industry. So, what lies behind this? Well, their popularity is largely due to their versatility

PU is one of the few materials that can be used in almost every footwear application. From midsoles to outsoles and unit soles, for sockliners and uppers, and hard components such as soccer plates and stiletto tips, the application flexibility of PU is unparalleled. The fact that it can be manufactured in different ways has also boosted its popularity. Over the years, the ways in which PU and TPU can be processed have evolved. Beyond traditional production methods such as thermoplastic injection moulding for TPUs, and casting and direct moulding for PUs, innovative spray

systems are now becoming more mainstream. Furthermore, specialist forms of PU can now be 3D printed while TPU is also being employed in yarns used to make woven uppers.

The environmental credentials of urethane-based systems are also fuelling a new phase of growth. Like the automotive sector, the footwear industry has been ahead of the sustainability curve for some time, shaping the narrative and pushing the boundaries of what is possible. Engaging closely with end consumers, many brands now demand that suppliers offer products that provide environmental performance ahead of what is actually required by legislators. While sustainability objectives differ between companies, there are some very clear themes that stand out.

Broadly speaking, brands want materials that:

- Are based on clean(er) chemistries
- Contain more bio-based materials and recycled content
- Help them actively reduce their carbon footprint and cut energy consumption
- Can be recycled when shoes reach the end of their life

PU and TPU tick all of these boxes, offering advantages at every step of the footwear production process.



KEEN's F2F sneaker features a sole that uses a bio-based PU system containing by-product from agricultural processing waste.

CREDIT: KEEN INC

Cleaner chemistries

When it comes to creating clean(er) chemistries, PUs and water-blown polyether-based systems in particular, have excellent credentials. Huntsman was the first company to introduce water-blown polyether-based CFC-free footwear systems and is continuing to innovate in this area. In 2019 it launched its Daltoped AquaPUR water-blown polyether range of PUs. Extremely robust, with good flow properties and a well-defined surface finish, this technology is used for midsoles and outsoles, typically in lifestyle shoes. Designed for manufacturers that want to switch to using a water-blown system but do not want to compromise on quality, it provides good cold flex properties plus hydrolysis and slip resistance. Suitable for both direct moulding and casting of unit soles and midsoles, it is compatible with standard PU processing machines and can enable the production of complex soling designs in multiple colour combinations. It also has superior blend stability in the machine tank and can be processed at room temperature, which helps reduce energy consumption and shortens the production cycle.

More bio-based content

As well as using chemistries that are cleaner, there is a big push from the footwear industry for systems that are bio-based. Huntsman is currently formulating TPU and PU systems that are up to 55% bio-based under the Avalon S and Daltoped S product lines respectively. At this level, these systems can reduce carbon impact by around 25%. Looking ahead, the company is working to expand bio-content to 70% in the near term, while also investing in high impact projects where the goal is 85%. These projects utilise bio-based feedstocks that do not impact on the food chain. When it comes to sourcing bio-content, the priority is clear as only raw materials that come from agricultural waste streams are used, as for example, in the case of the company's work with Keen, Inc.

Huntsman recently helped this company develop a range of sneakers with plant-based soles. The Field to Foot (F2F) sneakers were created by Keen's Advanced Concepts Team, utilising a specially developed bio-based PU system that contains a by-product from agricultural processing waste. With a bio content ranging from 35% to 51%, the system has a lower carbon footprint than petroleum-based alternatives. Developed at Huntsman's footwear centre in Belgium, this direct moulding system offers comparable performance to conventional ones when it comes to resilience, rebound, hydrolysis, comfort and durability but, crucially, is fully aligned with the brand's commitment to incorporating clean, environmentally focused, high-performance technologies into its footwear. Keen is said to regard this as the most significant environmental technology launch in its history and a meaningful step towards setting a new industry standard for sustainable footwear.

Cutting virgin content

Alongside the development of bio-based systems, the use of materials containing recycled content is a major focus for many of the world's leading footwear brands. Cutting the use of virgin materials is much easier when using PU, where its inherently adhesive properties make it ideal for incorporating 'chopped up' recycled content. Huntsman's work with Blumaka, an innovative supplier of foam components, is a case in point. It is using Huntsman's PU and TPU systems as part of its recycled technology platform, which produces the highest recycled foam content products in the footwear industry. Used in Sanuk's SustainaSole footwear collection, its innovative recycled technology platform employs an Irogran TPU and a Suprasec PU system to deliver all the comfort and performance properties expected of conventional foam components for midsole and insole applications, with 85% recycled foam content by volume and 35% recycled content by weight.

To create these products, waste foam is ground into granulated particles and mixed with Suprasec PU to create the midsole unit. A special Irogran TPU film is then used to help to ensure the finished product is fashionable and stylish, but also functional and high performing. In addition to using recycled foam content, Blumaka's manufacturing process has a greenhouse effect that is roughly four times less than conventional footwear foam manufacturing. It uses no silicone, far less water, does not require the use of heating ovens to cure the foam and, as part of running a 'leave no trace' foam manufacturing facility, the company also takes any scrap or trimmed foam from its footwear operation and uses it to create anti-fatigue mats, which help reduce pressure on the knees and feet of people who have to stand up all day at work.

Alongside its work with environmentally conscious innovators, Huntsman has other recycled content initiatives in the pipeline that will transform what footwear producers can achieve in this area. The company has recently started to incorporate its Terol specialty polyols into its footwear systems. These are made using a proprietary process that upcycles scrap polyethylene terephthalate (PET) bottles. Historically,



Simplicity Works' 3D Bonding Technology requires no stitching or lasting and connects all pieces of a shoe simultaneously in just a few seconds.

CREDIT: SIMPLICITY WORKS

these polyols have been supplied to the insulation market. Now, the footwear sector is a firm focus, fitting neatly with the environmental ethos of some of the world's biggest brands and conversations across the sector are ongoing.

Improving energy efficiency

The environmental benefits of specifying PU do not stop at the point of system formulation. As well as delivering materials that are cleaner and can incorporate more bio-based and recycled content, PU and TPU can also help companies cut their carbon footprint during the production process. PUs have a lower carbon footprint than some other materials which have longer cycle times and take a lot of energy to process. Not satisfied with this, Huntsman is innovating further and has recently developed a range of speciality Daltoped systems that have a carbon footprint 30% lower than traditional polyester-based PU ones. Due to a combination of chemistry know-how and technology fit, these materials can be processed at significantly lower temperatures to save energy. In addition, PUs can also be processed in multiple ways, many of which are also less energy intensive. From direct moulding processes that eliminate the use of adhesives and reduce manufacturing steps, to spray systems that use materials more economically and generating less waste, PUs are delivering a new wave of manufacturing flexibility that is both freeing up time and unlocking new creative possibilities.

When it comes to manufacturing efficiency, PUs are helping to disrupt conventional forms of footwear production. Spanish company Simplicity Works working together with Huntsman and DESMA has developed a revolutionary new shoe production method that offers game-changing possibilities to manufacturers looking to produce products closer to customers in Europe and North America (*World Footwear* September/October 2018). In collaboration, the three companies have created a highly automated, cost-effective way of bonding together two-dimensional components in a single shot to form a seamless three-dimensional upper. Requiring no stitching or lasting, the process connects all pieces of a shoe simultaneously and in just a few seconds. Faster and cheaper than conventional footwear manufacturing techniques, the new technology can be customised and is already proving popular with a number of big brand shoe companies, helping them bring local production overheads into line with lower labour cost countries.

Closing the loop on waste

The story doesn't stop there. PUs also come into their own at the end of the footwear life cycle, helping the footwear industry address one of its biggest environmental issues: what to do with shoes once consumers no longer want them. The average shoe contains multiple materials from different sources. In the most complex shoe designs, this can include as many as 40 different materials. When it comes to recycling, the use of so many materials can prove problematic. As a result, some brands are now actively designing shoes for



Using Huntsman's TPU materials, OESH has created a 100% recyclable shoe sole via 3D printing with positive results.

CREDIT: OESH

disassembly. Others are exploring the development of mono material shoes, which are far easier to recycle.

The footwear industry is now at the point where it is possible to make a whole shoe out of TPU. This could be 3D printed or, alternatively, the shoe might have different component parts made from TPU using different techniques such as a TPU outsole with an expanded TPU midsole, a TPU sock-liner or footbed and an upper made out of TPU either 3D-printed or using TPU yarns. In 2020, Huntsman announced details of a footwear project with OESH, the US footwear brand that makes women's shoes that are 'healthy by design'. Using Huntsman TPU materials, OESH created a 100% recyclable shoe sole via 3D printing with positive results. Motivated to offer environmentally conscious customers a fully recyclable shoe, it worked with Huntsman to create a whole shoe that could be shredded and recycled for reuse. A series of soles were produced using its unique 3D printing technique which creates parts directly from pellets. The soles were then recycled into pellets and put back into the 3D manufacturing process used for three regular OESH styles. Tests showed that the recycled soles had the same functionality as the original sole with no drop in performance properties.

Helping define the future

As in all industries, sustainability in the footwear industry is multi-faceted and there are numerous ways in which companies can shift the dial to reduce the impact of their activities. As the world works to reverse climate change and make the production of consumer products more carbon neutral, PU and TPU will become increasingly important assets in the footwear industry's armoury. Delivering a truly flexible material solution, PU and TPU can add value at every stage of the footwear manufacturing process, offering the footwear industry multiple solutions to help deliver a brighter future with a better environmental footprint, while raising the bar on what's possible in terms of material performance, comfort and processability. ■

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Dope dyeing is one of the environmentally friendly techniques employed by Faytex.

CREDIT: SHUTTERSTOCK / OLEG KLYUCHINSKIY

Eco-conscious fabrics

Nowadays, it is hard to believe that 40 years ago, shoe linings were very much of a secondary item with regard to shoe uppers. They were after all, hidden inside the shoe and, at that time, foot comfort and health were not always priority considerations. All this began to change when William Fay Snr. launched Faytex Corp. in 1978. Within two years, he brought his first innovative product to North America's footwear market in the form of Cambrelle*. This heat bonded by component nylon fabric was revolutionary as its exceptional breathability offered a high degree of comfort to the foot. Things are now very different.

In 1988, he introduced Dri-Lex, closely followed by the patented Dri-Lex Aerospace in 1989. These were among the first synthetic moisture management linings on the footwear market that used specialised yarns to move moisture away from the foot. He was also one of the first suppliers in the industry to brand his products to his customers having foreseen how important branding would become to the consumer in the future. Today, Dri-Lex fabrics in the form of linings, uppers and packages are used by top footwear brands around the world under its trademark brand names of Dri-Lex, Dri-Lex Eco, Dri-Brelle, Dri-Freeze, Dri-Blaze, Dri-Lex Aerospace and Dri-Lex Weatherproof.

In 2007, the company introduced its first environmentally friendly fabrics under the Dri-Lex Eco Collection banner. By adding recycled nylons and polyesters to Dri-Lex fabrics over time, as well as a new line of sustainable fabrics featuring DuPont Sorona in 2010, Faytex now claims to have the most complete line of verifiable, eco-friendly fabrics in the footwear

industry. Faytex head of Sales and Marketing Katie Stangl says that, "We have always prided ourselves on our quality so we develop and/or partner up with companies to bring these quality and technical products to the market. We have evolved our products (while staying true to our roots of quality and comfort) as the industry has changed. The major technologies we work with today are in the category of the sustainable markets."

Working with partners

15 years ago the company teamed up with Unifi to begin offering their third party certifiable and traceable recycled Repreve yarns in its products after having had a longstanding relationship with them on other yarns they offer. "We knew this was a direction the industry would eventually have to go in and so we wanted to team up with a company like Unifi that is trusted for the transparency on the products they offer. A lot of brand customers we had at the time realised the importance and started adding these sustainable stories to their apparel and other products which is usually first to happen and footwear will follow along with these marketing stories."

Faytex says that the Repreve recycled fibres in Dri-Lex Eco fabrics offer distinct advantages that are easy for footwear producers and their customers to understand. They are initially certified as recycled and can be verified at any point in the lifecycle of a product through independent third-party testing. Each pound of Repreve polyester fibres saves the energy equivalent of 0.4 gallons of petrol with fewer chemical by-products created during the recycling process

compared to virgin polyester. Their characteristics in a finished fabric are close to those of it in critical areas such as durability, hand, abrasion resistance, etc. Furthermore, the price gap between the two is closing rapidly.

Initial reluctance

Whilst it would appear that some brands stand behind the sustainability stories and have been utilising products the company offers in those categories for some time now, others have not been as quick to pick it up, mostly due to the cost involved. More recently, however, there has been a major shift with brand customers asking to switch a core product they are putting in their shoes to an eco-friendly version as they now realise that it does not add much more to the cost of a pair of shoes and has increasingly become a positive selling feature for consumers. Although this latter factor is now becoming ever more important, introducing a 'green' material source has sometimes proved difficult. Take Dri-Lex Eco and its use of Sorona, for instance. This is a polymer made from the fermentation of plant sugars. All Sorona fabrics are certified to look good, feel good, and do good through the Common Thread Fabric Certification Program thus ensuring the performance customers deserve and the accountability our industry needs.

"What we discovered at forward-thinking smaller brands were people who wanted to make a difference and an environmental statement. First, they realised they weren't sacrificing anything since these Dri-Lex constructions performed as well as or better than most other polyester- or nylon-based fabrics in abrasion resistance and durability tests. The soft hand also gave them a product advantage at retail as soon as the customer picked up the shoe and felt the fabric. Finally, they had the ability to use Sorona's sustainability feature to tell a 'green' story if they so chose," says Ms Stangl.

In fact, it quickly became apparent that the value of the new fibre was not just that it was environmentally friendly, but that it also had the potential to perform to a high standard in everything from athletic footwear to fashionable urban chukka boots. Sorona is said to have a full, soft hand and higher elasticity than common polyester and to its fibres to contain 37% non-petroleum derived chemicals obtained through the fermentation of renewable and sustainable plant sugars. It can also be dyed at lower temperatures, saving energy.

Other technologies

Dri-lex Eco with Cleansport NXT* offers a process that uses pro-biotic technology to provide a method of odour control within athletic footwear. Beneficial microbes, which are found all around us and are naturally occurring, are selected and bonded to the surface of the fabric. This innovative process of applying live micro-organisms to fibres results in natural, non-toxic health benefits to both consumers and the environment.

Dri-lex Eco products also employ other eco friendly techniques in their manufacture such as saturated dyeing. In this instance, a rapidly moving conveyor system rotates materials through the dyeing process at a constant speed and sprays them with water rather than



Faytex uses circular knitting techniques to create product from rPET and Repreve rPET yarns.

CREDIT: FAYTEX

submerging them in a water bath. This energy efficient process uses less water than traditional dyeing while maintaining uniform colours.

Dope dyeing is another environmentally friendly and efficient innovation in the dyeing process. In traditional piece dyeing the fabric is knitted or woven first then dyed as a whole whereas with dope dyeing the yarn itself is dyed. This process also increases the colourfastness of the knitted product. Other products in the Dri-lex Eco range can contain materials such as recycled coffee grounds, wool, undyed cotton and linens, biodegradable fibre, fibre from waste pineapple leaves, recycled foams as well as Made in USA Berry Compliant recycled stories.

As to the future, Katie Stangl sees Faytex as a global company where investment in these areas of sustainability and other environmental technologies will continue to be of great importance. For instance, any standard product being ordered will be a recycled polyester and/or other sustainable fibre using water saving practices for dyeing rather than this having to be specified by the brand customer. "We hope that in the next few years we will be able to make this transition the norm and offer it to all. We see our industry trending in this direction, hope it continues and are proud that we can be even a small part of this initiative. Social media, politics and other technologies will drive this progression at a faster pace than before and we will be constantly evolving to keep up. We hope to see manufacturing close to home continue to grow so we can still contribute our domestic business and investment to Made in USA stories." ■

*Cambrelle® is a registered trademark of Camtex Ltd.
Cleansport NXT™ is a registered trademark of Evoco Ltd.



The Evolve IM shoe from Assa Ashuach with gel particles clearly visible in the midsole.

ALLCREDITS: ASSA ASHUACH



Data-driven design

Assa Ashuach is a most interesting man. Born in Israel in 1969, he studied for a BA in product design at the Betzalel Academy of Art and Design in Jerusalem. After graduating, he opened a design studio that dealt mainly with design in cooperation with architects. He moved to London in 2001, where he continued to work on various projects while also completing a MA at the Royal College of Art and Design. Today, his studio focuses on product design, collaboration with architects and self-production of limited edition studio pieces. He also teaches 3D design using digital tools and machinery. He is clearly also a man of many talents.

A recent activity with which he has been involved has been a collaborative footwear project that he has led. It forms part of a wider European Union-funded research programme called Re-FREAM, in which artists, scientists and designers have worked together with the aim of rethinking manufacturing processes for the whole of the fashion industry, including footwear. His contribution has been to explore new materials and fabrication methods, resulting in what he calls a more sustainable approach and a wearable, user-centred design. A new 'biometric evolutionary shoe', the Evolve IM, is the end result.

This shoe uses embedded, 3D-printed sensor technology which is able to collect the biometric data of its wearer. Other technology involved includes thousands of gel particles of different densities, produced by polymer 3D printing solutions specialist Stratasys. These are also able to capture information, in this instance, details of how the shoe works when it is worn. The value of all this according to Assa Ashuach, is

that data from each wearer can go directly into the Cloud to help footwear designers and manufacturers make improvements when the time comes to produce new versions of their shoes.

He says that this is essentially what he means when he refers to the footwear as being 'evolutionary'. He goes on to talk of a new evolutionary approach to design in general, "The basic proposition is that the first generation of a product will learn so as to improve the second generation. Objects have sensors built in and they, the sensors, learn. They study usage over a period of time so that products can improve themselves."

Optimised by nature

In this scenario, objects such as shoes, will no longer be 'living in isolation', as he puts it, but will instead be part of an ecosystem. It is adaptability to change that enables survival, he says, in an acknowledgement to Charles Darwin. Bamboo apparently learns as it grows and possesses a certain form of bio-intelligence. It would appear that the same is also true of leather, which he describes as being a fascinating, probably unbeatable material that has been growing on animals for thousands of years and is therefore optimised by nature. Looking at kangaroo leather through a microscope is, he claims, like looking at cashmere.

Working on Evolve IM has also led to Assa Ashuach studying footwear and feet more closely. "It's not my natural habitat," he admits. "I worked with Nike for many years, but more in research and innovation." Something that has fascinated him is the discovery that we cannot just virtualise everything. Looking at lasts also helped him to see the importance of human

wisdom and to produce a shoe that is 'a dialogue between the physical and virtual'. The gel particles provide a good example of this because, as well as providing data to help improve new versions of the shoe, they have an immediate physical role in the here and now as well. They are there to provide cushioning in the shoe and because they have fluidity, they can also provide bespoke cushioning for each foot.

Health concerns

Seeing this work provided Assa Asuach with what he calls 'a moment of joy'. His first thought had been to create air bubbles, but this proved too difficult due to machine constraints. He then began to think about filling the midsole of the shoe with liquid, but decided this would also be too difficult. "We started to play with the chemistry and found a material that could do what we wanted in gel form. We used it to create this new midsole that reads pressure distribution under your foot." He has visions of this leading to a new system for podiatrists to use as it would be possible to integrate the Evolve IM or a future shoe using similar technology into a system to alert medical professionals if a vulnerable person's weight changes or if pressure points on the foot or excess humidity there look likely to become health concerns.

Colourful celebration

For his next innovation, he turned to 3D printing on fabric, designing colour-changing particles with different shapes integrated into the fabric of the shoe's upper. He created scripts to run through hundreds of different colour combinations randomly, based on 'certain trigger points' before choosing the one he liked best. For instance, the white skeleton on the upper, which looks rather like piped icing on a birthday cake, is conductive. "I was trying to celebrate the new technologies we have," so the sensors are visible and you can even see the gel particles underneath.

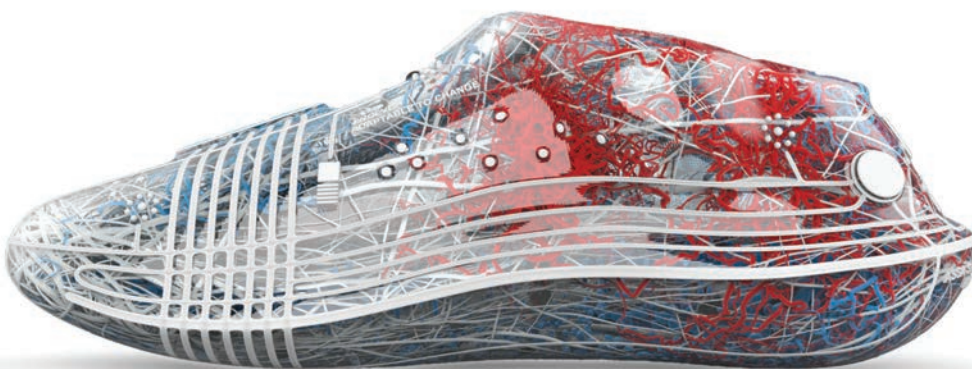
The Evolve IM consists of only two parts, a support-free bottom and a flat upper that moves into place and takes shape during an assembly process that Assa Asuach says could be carried out in any location by a small team of people. This ties in with the Re-FREAM project, which has the stated aim of making fashion manufacturing something that can again take place in towns and cities across Europe or anywhere else in the most advanced economies of the world. Specifically, the wider project has supported research in three European



New, advanced methodologies for footwear design and manufacturing have come out of a concept called Evolve IM, run by London-based designer Assa Asuach.

hubs and focused on ideas to support the main objectives. These are Linz, Berlin and Valencia. According to the Re-FREAM team, urban production of fashion using additive manufacturing, electronics and innovative materials can 'create a new value chain for the fashion industry'.

Prototype shoes are ready to be part of this and, perhaps unsurprisingly, work is also under way in Assa Asuach's studio to develop follow-up versions that he will produce in the near future. The studio's connection to the Linz hub in particular has already borne considerable fruit. This may all sound somewhat far fetched to many people and just how much impact these ideas will have on mainstream footwear production remains to be seen. Having said that, no one can accuse him of being anything other than broad in the scope of his experiments and thoughtful and creative in what he has managed to produce so far. It is also a fact that it has been from the work of visionaries such as Assa Asuach in the past that many important developments we take for granted today have emerged. ■



The shoe sends data to the Cloud showing how the product works on the wearer's foot, enabling designers and manufacturers to capture information that will help them make improvements in future versions of the shoe.



Despite the pandemic, adidas recorded solid growth between January and September 2021.

CREDIT: SHUTTERSTOCK / 2P2PLAY

Coping with the pandemic

Stuart Cleaver

The world had hoped that the pandemic would have been beaten before the summer of 2021. Gradually the realisation came that we were in a longer game and that we would have to live with it, certainly in the short to medium term. Furthermore, the 'tab' has not yet been submitted and picked up so doubt exists as to investment potentials, availability of disposable income, ways of working and other factors. As regards production, the footwear industry in 2020 saw a 15.1% decrease in output which, of course, was not good, but was nevertheless better than imagined at one time. In 2021, whilst significant disappointment has existed as covid-19 has dragged on with new variants, a general opening up of markets has seen some bright spots and some not so bright. Countries, such as Peru, USA and India for example, were still recording high levels of new cases and deaths per thousands of population.

USA

One of the leading drivers of global footwear trade and development is the US market. In the first nine months, January to September 2021 shoe imports into the US showed a marked improvement on the

corresponding period in 2020. Total imports rose by 30.0% (380.1 million pairs) due in significant part to imports from China contributing an extra 221.1 million pairs (up 29.8%). As to be expected, Vietnam was the next contributor with an extra 88.5 million pairs (up 26.8%). The third major country was Indonesia which landed an extra 25.6 million pairs (up 35.3%).

Early signs from these results suggested that, although the US market was recovering from the depths of 2020, it was still not likely to have reached the levels of other pre-covid years. Taken in that context, there is some way still to go, but it is nevertheless moving in the right direction. China was again outstripping its closest challengers Vietnam and Indonesia, both in absolute volume and percentage growth. Whilst new suppliers such as Cambodia (up 13.4%) and Bangladesh (up 72.9%) were positive, they are still way down the list of major suppliers. Brazil sought to re-stake its claim with an increase of 53.6% albeit this represented only 3.3 million pairs. Shoe exports from the US itself in the same period also showed growth on 2020, although more modestly with an extra 2.2 million pairs being shipped out, an increase of 8.0%.

Vietnam

Vietnam was doing well during the early stages of the pandemic with relatively few cases and deaths. In 2020 footwear exports had dropped to \$16.6 billion from \$18.3 billion in 2019 due to decreased overseas orders. However, this was still more than in 2018 (\$16.2 billion) and all previous years. 2021 therefore looked promising with predictions pointing at \$20 billion leather and footwear exports. However, raging outbreaks of the coronavirus in the second half of the year saw orders piling up, customers switching to China and Indonesia, Pou Chen closing its HCM plant and rumours suggesting that Nike might move away. In fact, factories were being reopened by November. At one point, however, 80% of factories in the south of the country were closed and 30% to 50% in the north.

China

As already remarked, China had strengthened its exports to its main market the USA in the first eight months of 2021, both in percentage terms and absolute pairage compared to its main challengers Vietnam and Indonesia. Its exports in this period were 962.5 million pairs which represented a rise of 221.1 million or 29.8% over the corresponding period in 2020. However, the 2021 level is still far below that of 2019 and was in fact 155 million pairs or 15.5% below the equivalent level in that year. Going further back, the 2021 level of 845 million pairs is dwarfed by 2015's 1.9 billion pairs. Pou Chen reported a 5% increase in shoes produced in the first half of 2021 (136.4 million pairs) but then the Vietnamese situation in the second half put the brakes on.

Global supply chain

The importance of the global supply chain came once more into focus in 2021 with, for example, panic buying in UK petrol stations, empty shelves in supermarkets and concerns about the availability and rocketing price of energy supplies. All this followed concerns about supply chain working conditions. Although disruptions in the UK in particular were partly caused by Brexit, the working conditions of truck drivers as well as factory workers was instanced as a deterrent to the recruitment of people to fill job vacancies. The pandemic only further highlighted these concerns. Retailers such as Boohoo, Zara and H&M subsequently signed up to the new International Accord for Health and Safety (replacing the Bangladesh Accord which had been introduced in 2013 following the loss of 1,100 lives in one of the country's garment factories). Under this accord, retailers are deemed responsible for labour conditions in their supplier factories.

Free trade

Another factor in 2021 was the 'free trade bloc'. After President Trump's cancelling of US involvement in the proposed TTP group in 2017 and talks of protectionism by nationalists in various countries, 2021 saw the UK seemingly looking to join any bloc including the Comprehensive and Progressive Agreement for Trans Pacific Partnership (CPTPP) and also NAFTA. The latter has been established for some years but the CPTPP was

agreed only in 2018 by the 11 countries of the original TTP (Trans Pacific Partnership). The countries still covered are Australia, Brunei, Canada, Chile, Japan, Malaysia, Mexico, New Zealand, Peru, Singapore and Vietnam. It covers countries responsible for 13.5% of the global economy but does not include China, India or Indonesia.

Winners and losers

Who has gained in the shoe industry in 2021? With the pandemic still not defeated in 2021, although (hopefully) on a slow retreat, the situation was still not back to normal and even in the same country there were still ups and downs. Vietnam, for example, had suffered less in the period up to 2021. However in July 2021 the so called Delta Variant had caused lockdowns and slowdowns in shoe production leading to companies facing fines for delayed deliveries. Sectors in the shoe industry which fared well included supermarkets and hypermarkets, which tended to remain open as they sold food, indoor footwear because people were working or staying at home, on-line retailers and companies which were more reliant on on-line sales, athleisure and sports footwear. The need to be 'outside' encouraged high uptake of individual sportswear in particular and even safety footwear as construction work continued. With a generally greater opening up during 2021, there was also an upturn in business for all retailers, although there were less of them after the effects of the pandemic in 2019/2020.

Adidas achieved net sales of €10.3 billion (up 33.8% from €7.7b) in the period January to September 2021. This increase was partly due to the holding of more events in 2021, more stores open and a continued surge in health and wellness product buying as well as athleisure. On the other hand, there were still supply chain problems and autumn concerns about gas prices and deliveries. Adidas also completed the sale of Reebok to the Authentic Brands Group. Nike's financial year runs to end of May 2021 so to look at the year 2021 (to date) means looking at the third quarter 2020 (December 2020 to February 2021 and so on. The third quarter 2020 registered \$10.4 billion (+3% or -1% currency neutral), the fourth quarter reached \$12.3 billion (+96% or +21% currency neutral), followed by the first quarter 2021 (June to August) that achieved \$12.26 billion (+16% or +12% currency neutral). A little complicated but so far so good, with the company stating that the "market opportunity is as large as it's ever been."

Of course these two examples are leading sports shoe companies but if they were struggling then probably most other companies would be too. The 'losers' in 2021 have tended to be those companies in sectors not covered by the above. Fashion shoe producers and retailers may well have found the going more difficult as there were few events to go to and less retail outlets to visit at least until some way into the year. 2021 at the time of writing is therefore balanced on a knife edge with events likely to change situations quite suddenly. However, there has been a move to some normality and it has been a better year in general for the footwear industry than was 2020. So far, though, it is still not quite at the level of 2019 and certainly not at that of previous years. ■



Twine Solution's TS-1800 digital thread dyeing system is an illustration of clever technology.

CREDIT: TWINE SOLUTIONS



Digital thread dyeing

Twine Solutions, founded by Alon and Erez Moshe, both veterans of Israel's digital print industry, says that it is on a mission to transform the textile fabric industry one thread at a time. One might say that this is a bold claim but, then again, it has developed what it says is a unique concept, an eco-friendly, on-demand digital thread dyeing system for all sewing, knitting and embroidery applications. Called Twine DST (digital selective treatment), it is a highly innovative system that the company says revolutionises the way thread is dyed through increased production efficiency achieved by enabling threads to be custom dyed in short runs and producing samples on-demand. While its primary market lies in apparel, it does however have real attractions for sections of the footwear industry.

The concept is quite revolutionary compared to the traditional system whereby it was a case of finding the closest match a supplier had to offer. For men's shoes that has never been a problem as the colour range tends to be limited to black and a few shade of brown. Trainers are also easy as the vast majority use white

thread. Ladies shoes, however, have a wider colour palette and this is where problems can arise. If large production runs are involved, thread can be dyed to match as the quantity involved may justify it. However, as production runs have become shorter due to accelerating changes in fashion, this has become increasingly uneconomic. Twine's digital dyeing system would therefore appear to be a welcome solution.

Digital Selective System

The company has developed what it says is a unique process called Digital Selective Treatment (DST) that refers to how the dyeing ink is digitally and selectively applied to the ink thread in a five stage process using the company's TS-1800 dyeing unit. Firstly, Twine Digital Inks (TDIs) are mixed to match the colour required. This is done automatically based on the company's advanced algorithms. The thread then passes through a treatment chamber to ensure that the mixed ink is applied evenly and penetrates right into the thread after which it moves on to a drying chamber to allow fixation of the dye to take place.

“Twine Solutions has developed what it says is a unique concept, an eco-friendly, on-demand digital thread dyeing system for all sewing, knitting and embroidery applications.”

No additional curing is necessary. The thread is then lubricated if required with the amount of lubricant fine-tuned according to the type of thread and the end product. The finished thread is then wound on to bobbins ready for use.

TS-1800

The TS-1800 digital thread dyeing unit itself measures 1.45m high by 2m wide and 0.75m in depth, so it is relatively compact and, at that size, can be installed in almost any type of production environment. It is apparently also simple to operate as it has been designed for operators of all levels and with no prior knowledge of ink dyeing. Its software system, industrial-grade touch screen and control panel are again said to be extremely easy to use so that the unit can be ready for a dye run with just a few clicks. The system can in fact dye even when the operator is defining new jobs, each one of which is automatically saved in the system's archive and can be loaded at any time. With an output of up to 1,800m of thread per hour, Twine says it is ideal for short runs as, for example, during product development and testing. The system is Industry 4.0 and Textile 4.0 compliant, and TS-1800 dyed threads and yarns are certified by both OEKO-TEX (Standard 100, class I) and Intertek.

Colour selection

The TS-1800's digital interface gives a choice of literally thousands of colours simply by selecting from the systems display. It is also possible to create one's own unique colours using digital colour measurement tools such as colorimeters or spectrophotometers and load them directly to the TS-1800 simply by connecting the system to one's network. The TS-1800 accepts both RGB and L*a*b* colour values and converts them to dyeing parameters using Twine's proprietary colour algorithm. A third-party SW such as textile design SW, Textile MIS and even an Embroidery design SW which all hold the colour parameters, can also send it to the TS-1800, reducing user involvement and making it even simpler to select a colour. On top of these options, the company has also developed a colour capturing technology named True Color Capture (TCC) for apps installed on a smart phone and allows the colour of an object to be captured. Unfortunately, Twine's SnapMatch app using TCC technology is currently only available in Beta format, but this may well change going forward.

No water

The ink used has been especially developed to meet the unique requirements of the digital dyeing process while maintaining the high quality standards that are demanded today. Ink cartridges are said to be easy to replace once empty while the fact that the entire process is water-free speeds up the whole operation. From an environmental point of view, this is a further plus as textile dyeing is the second largest pollutant of water globally. Twine says that an average-sized textile mill consumes 256,000 litres of water per day or the equivalent of 26,000 people's annual consumption of drinking water. Twine, in common with so many companies today, has sustainability as one of its guiding principles and emphasises the fact that unlike other thread dyeing methods, its process uses no water at all.

It also stresses the fact that its digital system reduces the amount of chemicals used in the dyeing process as it uses only nanolitre amounts of dye compared with tens of litres in conventional dyeing, thereby creating negligible amounts of waste. "With our TS-1800 digital dyeing machine, we substantially reduce the amount of waste and pollution that is created and the by-products caused by the supply chain. By making smarter purchasing decisions, aligning expectations early in the process and complying with standards, it's easier to reuse waste in the first place," the company states.

Applications

There are major advantages to be had for producers of limited runs of high quality ladies high fashion shoes where a perfect colour match of thread to upper material is important. The potential savings in terms of excessive inventory and wastage let alone manufacturing time are clear. Only neutral or white thread needs to be stocked and the exact colour produced in-house. Twine's system also offers an opportunity for designers of knitted footwear to explore an unlimited range of colours as samples can be quickly produced in any colour at all and at minimum cost and material wastage as only a neutral or white thread needs to be kept in stock. Bulk production will then use thread dyed to match the chosen colour and purchased in the normal way. With casual footwear increasingly using this type of manufacture, this is clearly very useful. All in all, this is indeed extremely clever technology. ■



Covid-19 saw the international use of face masks soar. Health was clearly an issue, but parents ignore the permanent health benefits of properly made-and-fitted leather footwear.

CREDIT: SHUTTERSTOCK

The fallout from COP26 and covid-19

It is time to draw the strands together. Unless you were totally isolated from the news of the day, and were unaware that some 200 countries had sent delegations to COP26 in Glasgow, the realisation has dawned that the world has a very short period of time to get its act together. There is the realisation, too, that we need to decarbonise the world. The drivers of Industries 2 and 3 cannot be carried forward into Industry 4; the petrochemical and plastic world that has improved living standards across the world since the development of the internal combustion engine cannot afford to continue without disruption.

COP26, the 26th UN Climate Change Conference of the Parties, should have been held in 2020 but the covid-19 pandemic was a disrupter of gigantic proportions; it also made the world of commerce realise that the globalisation of the past 20 years was no longer that reliable or smart. Supply chains were broken and there was no handyman or engineer that could be flown across time zones to fix a production

problem. At the tip of Africa, the footwear industry — from manufacturing to retail — had always been able to rely on the back-to-school demand for shoes but the impact of the pandemic (both in health and the move to more sustainable practices) has caused a re-evaluation.

In South Africa, the overwhelming majority of those shoes are made using direct injection moulding on PVC soles. Most are made with synthetic uppers using PU or PVC on bonded leather fabrics (which cannot be considered as leather). Those made using split leather laminated with PU foil barely qualify as leather either. Nevertheless, volumes are large and their manufacture provides employment for thousands in the country's footwear sector. Bata South Africa claims to sell some four million pairs of its Toughies school footwear made from genuine leather. But they are splits, coated in PU foil.

School shoes might be considered in many countries as being high volume, low margin items, but they often

underpin the viability of local manufacture and retail. It is probably realistic to suggest that the materials used in many other countries would not be too dissimilar to the South African experience.

But, can this system survive, should not there be a rethink about the raw material used in so many footwear components, where the shoes should be made, and placing more emphasis on the health of children's feet and, at the same time, the planet?

Broken supply chains, increased prices

One of the main fallouts of the pandemic was the effect on raw material prices and the price of oil¹ rose from \$26.48 in April 2020 to \$94.73 in mid-February 2022. Another was the lack of available transport by sea, with a staggering rise in shipping costs, difficulties in finding containers in the right part of world, clogged ports and a lack of transport from dock to manufacturer. It has been an astonishing period, when so many varied negative factors have struck simultaneously to disrupt the perceived order of trade in a global calm. Added to this period of chaos, thousands of retail outlets were shuttered and forecasts for a post-pandemic period are gloomy when it comes to restoring the high street or the malls. Manufacturing facilities in China and south east Asia suffered closures, too.

It is now beginning to look as if any relief or return to normality might be some while in coming. There are already indications that the Chinese government will expect some manufacturers to limit their working week while the country struggles with energy output and at the same time attempts to reduce its carbon emissions. Forecasts also indicate the shipping crisis will not ease until 2023. Rates could further increase with continued bottlenecks at major ports and continuing shortages of

drivers to distribute product. Analysts at Deutsche Bank forecast that container prices could increase by 30% this year. During 2021, the cost of a forty-foot container coming from China to northern Europe had risen from \$2,000 to \$14,000².

From a footwear perspective, all of this coincided with the waste in the raw material of leather manufacture. In the last few years, millions of perfectly good hides have been burnt or sent to landfill as footwear manufacturers and those who source footwear pinned their futures on using synthetic materials, almost all reliant on the petrochemical and plastic sectors, and finding cheaper ways of producing footwear, such as athleisure, or utilising knitting techniques for creating uppers. It is interesting to note that just about all these advances aimed at reducing costs do not appear to have resulted in more affordable footwear for the masses. Would it be too cynical to suggest that public perceptions of quality lie more in the brand name rather than the quality of the material used?

While quality raw material has been dumped, the brands and marketers of the present day have been happy to boost their sales through the "twitterings of influencers", many of whom do not appear to have a productive career, other than being paid to put their personal thoughts online in the hope that thousands, if not millions, of the, generally, under-50 generations will be impressed and persuaded to purchase what the influencer has promoted. The only thing that appears to count is the influencer — usually an actor, singer, television personality, or someone who the media features in their gossip pages. If he or she says "I love this product", the follower excitedly follows.

By now, the Western world seems to be inured to seeing such influencers or celebrities wearing white



"Do as I say, not as I do." Protesters demonstrating in Milan pre-GOP26, wearing trainers that rely on the plastics and petrochemical industries. Greta "Blah,blah,blah" Thunberg among the group, happy to wear her trainers.

CREDIT: FEDERICO FERMEGLIA / SHUTTERSTOCK.COM

trainers to any red carpet function. The gossip columns revelled in the fact that a well-known British actress received her damehood at Buckingham Palace incongruously wearing a pair of Stella McCartney white vegan trainers that would have cost about £300. The cost was irrelevant when compared to the PR value it garnered for the designer. It beggars belief that Ms McCartney called for all governments to ban the use of leather at COP26 while displaying a new collection.

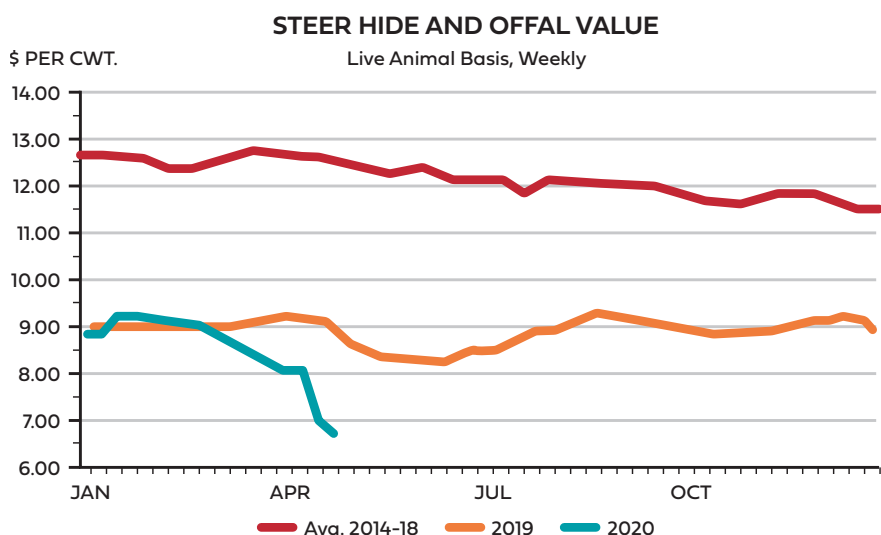
Ms McCartney might be considered a fashionable clothes designer but it appears that there are real flaws in her pronouncements when it comes to leather. One can only assume that she believes all bovine, ovine, caprine and porcine animals have no place in the global food chain or that the by-product of the food industry — that is sustainable, durable, recyclable — should be incinerated or put into landfill.

It is interesting to note that the sneaker or trainer market accounts for between 23-25 billion pairs being made every year and most of these from unrecycled plastic, rubber and petroleum, producing vast amounts of carbon dioxide. When thrown away, they can take centuries to degrade.

Eco-warriors ignore the genuinely recyclable and sustainable

It is reported that over 30,000 people were accredited to attend COP26 and demonstrators who took to the streets of Glasgow might have topped 100,000. One is left wondering how many of those were wearing leather shoes. Joined-up thinking on the part of the anti-leather and anti-meat lobbies seems to be in short supply.

The consequences of their collective actions are ignored. In recent years, there has been increased investment in trying to grow meat equivalents in laboratories. With ingenuity, some of the companies have produced lab-grown meat but the price of a single steak is prohibitive for the majority of the world's population. What value would it be to a subsistence farmer in some remote area who relies on his animals for their milk and their meat to provide something nutritious for



The price shown includes all the offal from an animal as well as the hide. The value of the hide represents slightly over 1% of the animal's value.

CREDIT: USDA-AMS

his family? Perhaps the farmer might still rely on an ox to help plough a field and plant a crop, too. The animal might eventually provide a hide or skin that would be a great deal more useful than waiting for a UN food aid delivery of some lab-grown protein or some dried milk. If figures are to be believed it appears that some 25% of the world's population are reliant on subsistence farming and climate change is no doubt causing more damage in their efforts to provide food for their families and scratch a living.

Time to put leather on the school agenda

The machinery required to produce footwear has become more sophisticated, with the increased use of computer programs and the ability to increase production and less reliance on "cheap labour". Not all of these developments would suit the production of leather footwear but very many do. With the covid-19 pandemic and COP26, there is a greater awareness that the developed world can no longer rely on China and south-east Asia to produce the goods. (As an aside, China, second only to the US in economic terms, is still designated a developing nation.)

It might take some while, but surely many countries around the world will need to rethink their strategies and

supply chains and redevelop their own manufacturing base. With an increased awareness of health issues, surely it is time to consider the basic health of children's feet and ensure that leather reclaims its place as the preferred material for that market. The price of hides is low. Footwear materials and components that rely on the plastic and petrochemical industries will no longer have an easy ride. It would also benefit the planet and stop the waste of a sustainable, natural, recyclable, biodegradable resource. Properly produced, with children in mind, the shoes would also be longer lasting, suited to walking to and from school, and even more suited to kicking a football along the way. It deserves to be back in fashion, on trend.

Those with a negative agenda continue to promote the lie that cattle, sheep, and goats are raised for their hides and skins. They choose to ignore the fact that the value of steer hides in November 2021 represented just slightly over 1% of the entire animal's value, possibly the lowest hide value as a proportion of total animal value on record³.

What the PETAs, vegan lobbyists and fashionistas of the world think is true and trendy is another matter. ■

- 1 Brent Crude price
- 2 www.freightos.com
- 3 USDA

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“As a fourth-generation bootmaker, I absolutely insist that there is a different way to do things because there needs to be a different way to do things.”

NOAH SWARTZ, EREM

Erem's biocircular ambitions

Eric Swartz thought he was finished with the footwear industry when he sold Timberland – a company founded by his grandfather, Nathan – to VF Corp in 2011 but his son Noah had other ideas. An avid adventurer, the youngest Swartz had spotted a gap in the market for hardwearing desert boots that would support wearers in the toughest terrain but that would also be made with exacting environmental standards. He convinced his father to partner him for Erem, a brand that officially launched at the end of 2021 and which hopes to demonstrate a new way of working.

“As a fourth-generation bootmaker, I absolutely insist that there is a different way to do things because there needs to be a different way to do things,” Noah Swartz tells *World Footwear*. “The scale of the issues facing us requires a new paradigm and a new model; Erem believes that Biocircular, which we’ve already achieved, can be this model.”

‘Biocircular’, a trademarked term, refers to bio – made only from materials and constructions that have a proven path back to nature – and circular, where there is a responsible next life for each component. Noah Swartz believes this way of working is crucial because the climate crisis requires fundamentally different approaches to how we do things, including how we manufacture and enjoy products that seem as

The CEO of a new brand, and great-grandson of the Timberland founder, tells us how leather and sustainable materials are central to his desire to demonstrate a new way of working.

innocuous as hiking boots. “Most people don’t realise their favourite pair of performance footwear is likely just plastic layers or natural materials so processed with things like heavy metals that they are basically unrecognisable, glued together with toxic chemicals.”

Food-grade tannins

To counter this, Erem focuses on leather. It is sourced from a Leather Working Group gold-rated tannery and tanned with plant-based, food-grade formulations that are grown and processed sustainably. He says this delivers the incredible performance of a conventionally tanned material but also breathes better, which is critical for the desert,





Erem is targeting a way of working that is in tune with the environment. "Leather fits in extremely well into this standard," says Noah Swartz.

ALL CREDITS: EREM

while eliminating the heavy metals involved with chrome tanning and thus can be restreamed at the end of its life into organic fertiliser.

The Xerocole collection uses reverse grain leather which might include marks such as tick bites or scratches that, while functionally perfect, would normally be discarded. On its website, it explains that the boots might seem hairy, but this nap is also a natural part of the leather, and these materials have been selected to reduce the leather waste, contrary to most leathers. "The 2mm thick, reverse full-grain hide is incredibly durable and protective, both of which are critical for performance in extreme desert terrain," adds Mr Swartz. "So, unbelievable performance, yet the

ability to return to the earth as organic fertiliser. A very rare combination."

Erem has also partnered US-based non-governmental organisation Savory Institute to source leather from regenerative farms that improve soil health and sequester carbon through rotational techniques and restore grasslands through "holistic planned grazing". Timberland, Ugg and Burberry are also among investors in the programme, funding research into the benefits the system has for the soil and ecosystem, and how this affects the animals' lives and reflects in the leather.

The circularity of leather will be evident through the Reboot repair programme. While Noah is not expecting

the boots to wear down any time soon, if they do eventually, customers will be able to send them back to be fixed. "Fundamentally, Erem believes that businesses should take responsibility for the entire life cycles of their products; collectively, we need to stop thinking just to the point of sale."

Component strategy

While many brands tout a more sustainable way of working, the answers, according to Mr Swartz, are "at our fingertips": replace nylon with linen, polyester with Tencel and EVA with cork.

Erem's one-piece outsole is made of 70% recycled rubber with a proprietary biodegradability accelerator that enables biodegradation in seven years or less. Erem works with a partner that can devulcanise the rubber soles, allowing them to be turned into new biodegradable rubber products, including new Erem gear.

The Tencel lyocell fibres for the lining come from sustainably managed forests, supplied by Lenzing in Austria. Erem shuns plastic and uses brass for the eyelets because of its durability and its ability to be recycled without losing its performance. The raw material used in Erem's insoles comes from the production waste of cork stoppers and other products. The supplier transforms the cork "waste" into granules that can be used for shoe components.

Erem's launch was delayed by three months as they tested using linen instead of nylon for the outsole thread. "For a start-up like ours, three months is quite substantial. But three months of innovation to prove that we can take a source of bad plastics out of the

supply chain? That is a trade I would make over and over again," explains Noah Swartz.

Prickly pears

Part of its ethos is investing back into ecosystems and the desert environment, and the company has committed to planting one million prickly pears. Valued by indigenous cultures, they are fast-growing, water-efficient plants that capture carbon dioxide, produce fruit and restore dehydrated rivers. Erem has planted 250 already and will use sales proceeds to plant more. The brand is also working with Natural Capital Partners to achieve CarbonNeutral certification.

Longer-term, it outlines goals for product expansion, performance innovation and sustainability. This includes building on the work it is doing with the Arizona Trail Association, making access to the outdoors more equitable, and increasing its work with software company Toxnot around environmental transparency in the supply chain.

With investors including his grandfather, Noah Swartz is confident in Erem's future. "We are a start-up, but have well over 150 years of footwear experience around our table. Nimble, expert and a bit audacious – we think this positions us very well to succeed as a challenger brand."

His father, co-founder Jeff, agrees: "My grandfather, Nathan, taught me responsibility and modelled resilience and courage. My dad, Sidney, taught me how to dream and what determination is. But it's my son, Noah, who is teaching me how to stretch imagination and deliver on our ideals. It took four generations, but we are getting somewhere with the launch of Erem." ■



The Xerocole boot collection will be joined by a sandal range this spring and two more designs later in the year.



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Footwear group Tecnica says a new approach to product lifecycle is essential for future generations to have a chance to enjoy the snow.

ALL CREDITS: TECNICA



New life for old ski boots

Ski boot brand Tecnica has said it hopes to collect at least 7,000 pairs of used boots this coming winter as part of an initiative called Recycle Your Boots (RYB). Winter sports enthusiasts in Italy, France, Switzerland, Austria, Germany, Spain, Norway and Sweden have the opportunity, when buying a new pair of Tecnica ski boots at any of 150 retail partners that Tecnica works with, to hand over an old pair for recycling. The used boots can be from any brand.

Using funding from the European Commission's LIFE programme (an environment and climate action fund), and working closely with partners that specialise in logistics, materials recycling and academia, Tecnica will break the old ski boots down into their component parts. It will then use the materials to make new boots and ski equipment.

The Montebelluna-based company has said it believes the idea of preventing used boots from going into landfill and, instead, becoming part of a process to make new products, will appeal to ski enthusiasts around the world. It aims to continue the programme in forthcoming seasons, extending it to other European countries and to North America.

With funding from the European Commission's LIFE programme, footwear group Tecnica has launched an ambitious ski boot recycling project that it believes could help it change its business model.

Roles to play

Marketing manager, Maurizio Priano, says there is a large cast of characters with different roles to play in this project. Ski enthusiasts have to be willing to hand over an old pair of boots when buying new ones. The old ones then have to be shipped to Italy for specialist partners to carry out the exercise of separating the different materials for recycling. Then there is the production of new materials and the assembly of new ski boots for new customers to buy.

Bolzano-based logistics service provider Fercam is in

charge of transporting the used footwear from retail partners back to Tecnica. Sales director, Francesco Comerlati, says the transportation company has worked on the basis of minimising the number of collections and optimising the routes between pick-up points. Nevertheless, he has calculated that this initial phase of Recycle Your Boots will involve a combined journey of roughly 52,000 kilometres. This will generate carbon emissions, of course; Mr Comerlati puts the figure at 42.5 tonnes of CO₂-equivalent. An integral part of the project is to try to compensate for this through an offsetting programme, which specialist consultancy Carbonsink has helped it identify.

Ski boots in a new light

Head of innovation for the Tecnica group, Giorgio Grandin, says ski boots break down into 120 components, most of which, across the short history of the modern ski boot, have ended up in landfill at the end of the product's life. Mr Grandin describes what is left after recycling an old ski boot as "small grains of plastic and a pile of aluminium". But he views this in a new light, saying it is material that is "just waiting to be recast and reused" by means of an in-house process that he describes as an innovative mix of craftsmanship and state-of-the-art manufacturing. He says Recycle Your Boots is the beginning of "a new way of conceiving ski boots" and a new way of mapping out the lifecycle of these expensive footwear products.

His marketing colleague, Maurizio Priano, agrees. All of this constitutes more than just a recycling project, he claims, calling it instead a whole new business model for the group. He insists: "The different materials that the ski boots are made of can be regenerated into new products. This offers great savings in energy consumption and CO₂ emissions."

Technical expertise

Laprima Plastics is one of the technical partners for Recycle Your Boots. Its founder, Filippo Dall'Amico, says the plastic problem that the world has in the twenty-first century is not the plastic in itself. "It's the attitude and behaviour of people



The Recycle Your Boots project aims to collect 7,000 pairs of used ski boots during this first winter, regenerating all of the material for use in new products.

that have turned plastic into a problem," he explains. He set up Laprima in 2005 and, since then, has processed more than 4 million tonnes of scrap material, with 98% of that going back into the production cycle to make new products. The problem that people have turned plastic into may be complicated, but Mr Dall'Amico refuses to move his focus from one simple point: if you make products out of "second-generation materials", it enables you to consume fewer natural resources.

The University of Padua completes the line-up of partners for Recycle Your Boots. A researcher at the university's centre for research on quality and the environment, Dr Alessandro Manzardo, is a specialist in lifecycle assessment and sustainable development. He has

worked with the other organisations involved in the project to work out the impact of making ski boots from virgin materials and dumping them when their usefulness seems to have come to an end. "We wanted to understand that impact," he says, "and then work to reduce it." For any sustainability project to be what Dr Manzardo calls "efficient and effective" it has to involve all phases of the lifecycle, from raw material to end-of-life disposal.

In Maurizio Priano's estimation, the *raison d'être* of the group and its brands is to enable winter sports lovers to enjoy to the fullest every moment they spend in the snow. "If we want this to be possible in the future," he says, "we have no choice other than to do our part to defend our playground." ■



The Spike GT Roller offers a lining that combines fleece and a Gore-Tex Sportive membrane for comfort, the Boa lacing system for easy tightening and the patented Sievi Spike system for protection against slips and falls in difficult work conditions.

ALL CREDITS: SIEVI

Spikes at the flick of a switch

Non-slip soling developments to help workers stay safe in snow and ice keep coming to light. Vibram describes Arctic Grip as the most advanced cold-weather gripping system it has ever created. The system is metal-free, relying entirely on rubber material to provide good grip on icy surfaces (especially, Vibram says, on wet ice). The design of Arctic Grip soles features wide contact areas between the ice-covered ground as the rubber lugs have a wider support area. Footwear brands that have already incorporated Arctic Grip include Tecnica, Lowa, Salewa, Asolo, Dachstein and Merrell.

Other Vibram outsoles do use metal; Megagrip, for example, has 20 carbide-tipped steel spikes added into the soleplate. Similarly, Swedish brand Icebug integrates steel studs into the special rubber compound in its proprietary grip technology. It claims its knowledge of and commitment to innovation surrounding anti-slip soles is helping it grow quickly.

More than 70 years after its launch, Sievi of Finland remains devoted to helping workers stay safe in difficult conditions. One recent innovation is a patented system that lets wearers gain extra stability on ice just by turning a small lever at the heel of their boots.

On-off spikes and chains

In difficult conditions, the older idea of attaching sets of spikes when required is still popular. Attachable traction devices fit over shoes of all shapes and sizes, including safety and work shoes, with stretch-enabled bands typically fitting onto the upper to hold in place

a plate combining spikes and chains on the sole. Arizona-based Kahtoola developed its detachable spikes after owner and founder, Danny Giovale, slipped on a frozen surface while climbing in the Dolomites and fell 200 metres. He survived, but research he carried out immediately afterwards showed that slips on icy, snowy terrain were the leading cause of fatalities and injuries among climbers. This was his inspiration for developing packable crampons for use with any outdoor footwear.

Kahtoola's design includes a raised heel-tab, which it says makes it easy to put the spikes on and take them off. Nevertheless, some in the world of trail-running have said they do not like interrupting a run or a race to avail themselves of a removable traction device when they hit ice or the snow line on a hillside. There are running shoes with spikes, of course, but there are likely to be parts of even a 10-kilometre course, where the extra traction is required and other parts where it is not. There are runners who have taken a do-it-yourself approach and have put into the sole of a pair of running shoes a set of metal screws, long enough to help in slippery conditions and short enough not to penetrate the footbed or to be uncomfortable on ice-free sections of the course. Their main motivation seems to be not to have to change shoes or take the time to put removable spikes on or take them off.

Variable terrain

This can be equally important for emergency responders and other professionals who have to be able to negotiate variable terrain, including stretches made particularly tricky by snow or ice. Finnish safety footwear brand Sievi feels it has found a solution, and one that does not require the wearer to have a screwdriver to hand. Instead, it has redesigned the soles of some of its work boots to allow wearers to make the footwear anti-slip at the turn of a small lever.



Safety footwear, particularly for markets with harsh winters, has long been a focus for Sievi.



A twist of this lever makes metal studs emerge from the heel to give good grip in icy conditions.

It has patented this mechanism, which it calls its Spike System. It is in products such as the Sievi Spike 3, an iteration of the Sievi Spike work boot that features a completely redesigned sole incorporating the patented system. When wearers come to a patch of terrain that is covered in ice or snow, they can reach down and turn the lever, even with gloved hands. At this, two metal studs protrude from the heel to give good grip. Other features include a steel toecap and a steel plate in the midsole to prevent sharp objects from reaching the foot. Sievi still describes this version as lighter, more flexible and easier to use than its predecessors, making it a suitable safety shoe for slippery conditions. Other models that incorporate the Spike System include the Spike GT Roller, which, in addition, offers a lining that combines fleece and a Gore-Tex Sportive membrane for comfort. This boot also uses the Boa lacing system for easy tightening.

Cold comfort

Throughout its 70-plus years of making footwear, Sievi's focus has been on work and safety footwear, with a particular specialism in products for countries with cold winters. It started out in 1951 when founder, Lauri Jokinen, employed four shoemakers to produce boots with rubber soles and leather uppers. That first boot, known in Finland as the Everyman, continued in production until 2003. The company started life in a cottage in the village that gives it its name, which is 500 kilometres north of Helsinki, but now has up-to-date factories in Sievi and in Oulainen, a further 50 kilometres north.

Now Sievi lays claim to being the largest producer of safety footwear in northern Europe, employing 500 people. It makes 1.1 million pairs of shoes and boots per year, exporting many to Sweden, Norway, Denmark, Canada, the UK and a number of central European countries. Now in its eighth decade, it remains committed to investing in innovations that it believes will make workers' lives healthier and safer. This includes reducing accidents, including from slips and falls in wintry conditions. ■



An economist's message of hope

Italy's footwear sector reported a 16% rise in revenues during the first nine months of 2021 compared with the same period the year before. This was still between 10% and 15% less than the figure for the same months in 2019. Export revenues for the nine-month period in 2021 were in excess of €7.5 billion and Italy's shoe manufacturers shipped just under 150 million pairs over that time. Leather footwear accounted for 61.7% of total export value, while leather shoes' share of the total export volume was 44%.

In terms of the domestic Italian market, including imported shoes, consumers spent almost €3.7 billion on footwear in January-September 2021, buying just over 100 million pairs. These figures show an increase of 10.5% in value and of 8.8% in volume compared to the same months in 2020. But in making these comparisons, Assocalzaturifici refers to some distortion owing to "the shock of 2020" and the devastating impact of the first waves of covid-19. Compared to 2019 figures, last year's show decreases in domestic footwear consumption of 14.8% in value and of 10.6% in volume.

Optimism returns

Speaking about the market situation in general rather than about these figures specifically, Enrica Baccini, an economist who works for Fondazione Fiera Milano, the company that runs the Rho exhibition venue in Milan, says optimism is growing in Italy and has already returned to pre-covid levels. Consumer sentiment aside, she says that something else that gives her hope is the enduring ability of manufacturers in Italy to create products that satisfy the desires of consumers.

She believes domestic consumers pay too little attention to the importance that manufacturers still have in the Italian economy, focusing more on fashion and luxury trends, for example. "But we know that manufacturing matters," she says. "Luckily, that ability to realise products that consumers want still exists in Italy. Despite the crisis of the pandemic and other crises, such as the terrorist attacks in the US in 2001, the global financial crisis in 2008, we still have more than 4,000 companies producing beautiful shoes."

Some of Italy's 4,000-plus footwear manufacturers are small and, at times, a little fragile, but Milan-based economist Enrica Baccini insists that the Italian shoe industry as a whole is "anti-fragile".

Regional picture

Exact figures she goes on to give show that there are 4,151 companies in Italy making footwear at the moment, employing a total of more 72,000 workers, people Ms Baccini describes as having "extraordinary know-how that we have to continue to value highly". Famous shoe-producing region Le Marche has the most, with 1,315 manufacturers and 17,500 employees, followed by Tuscany with 952 companies and 14,000 workers, Veneto with 655 companies and 15,400 employees, Campania with 371 manufacturers employing 6,115 people and Lombardy with 343 manufacturers and 6,687 workers.

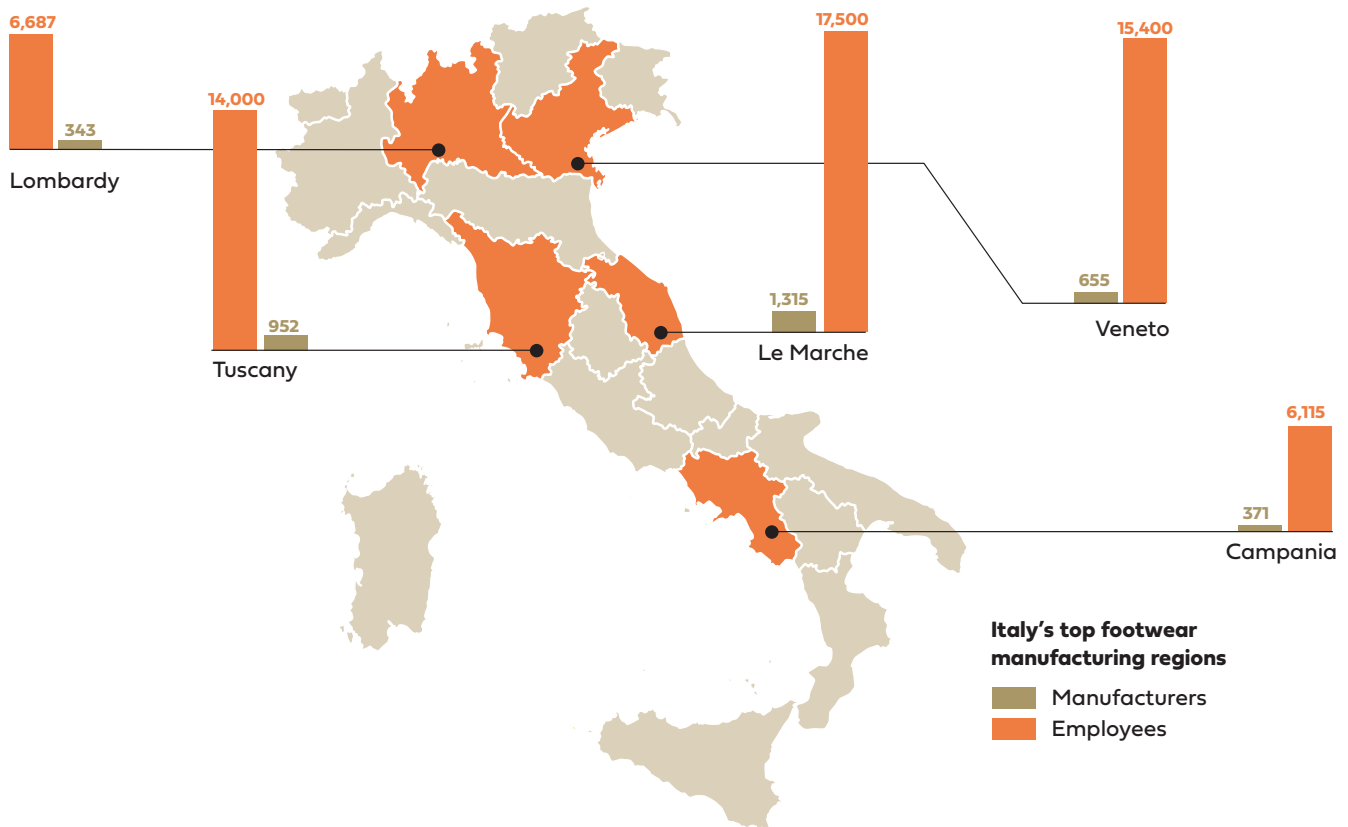
No monopoly for big luxury

To confirm the importance to the wider luxury sector of at least the top performers in this group, the Fondazione Fiera Milano economist cites a 2021 study by financial services group Intesa Sanpaolo. It found that the 11 biggest French and Italian luxury groups use a total of 1,867 manufacturers in Italy as suppliers, across the whole of their product ranges. Within that, 246 suppliers were footwear manufacturers with a combined annual turnover of €5.4 billion. Only ten of those manufacturers are companies owned by the luxury groups themselves, Ms Baccini explains, while 53 are strategic enough to be classified as tier-one suppliers and 42 are tier-two. This leaves 141 footwear companies that, while they enjoy enough prominence to be part of the value chains of these important luxury groups, are still non-strategic.

A small number of Italian shoe manufacturers are now in the ownership of the major luxury groups. Most of them remain in control of their own destinies.

CREDIT: MICAM





"This means that the luxury groups are snapping up some footwear manufacturers," Enrica Baccini says, "but they are not monopolising the footwear market." This is not what she terms "a worrying phenomenon" and there is still plenty of shoe manufacturing expertise to go round. She quotes a separate source, Italy's national statistics institute, ISTAT, to suggest that of 1,700 footwear manufacturers in Italy, more than 40% of the total, bring their own shoes to market under their own brand names. "They are independent companies, expressing their creativity and entrepreneurship," she insists. "We still have a great number of companies that want to be in charge of their own destinies. This is positive."

More than just resilient

Surveys of its own that Fondazione Fiera Milano carries out among exhibitors at Micam and other industry events suggest that 40% of the Italian companies that take part make shoes only for their own brands. A further 53% make own-brand footwear at the same time as producing for third parties.

Clearly, some of these companies in the shoe manufacturing sector in Italy are quite small and some are fragile, but, according to Ms Baccini, more and more analysts of the wider economy are coming to see the shoe sector as "anti-fragile". She explains that this means the industry is "more than resilient", because companies that are resilient will withstand a shock or a crisis, surviving them but staying the same. Anti-fragile companies, on the other hand, do not just survive the shocks, but emerge from them in better shape than before.

The concept is one that Lebanese-born writer Nassim Nicholas Taleb came up with in a 2012 book called

“Anti-fragile companies do not just survive shocks, but emerge from them in better shape than before.”

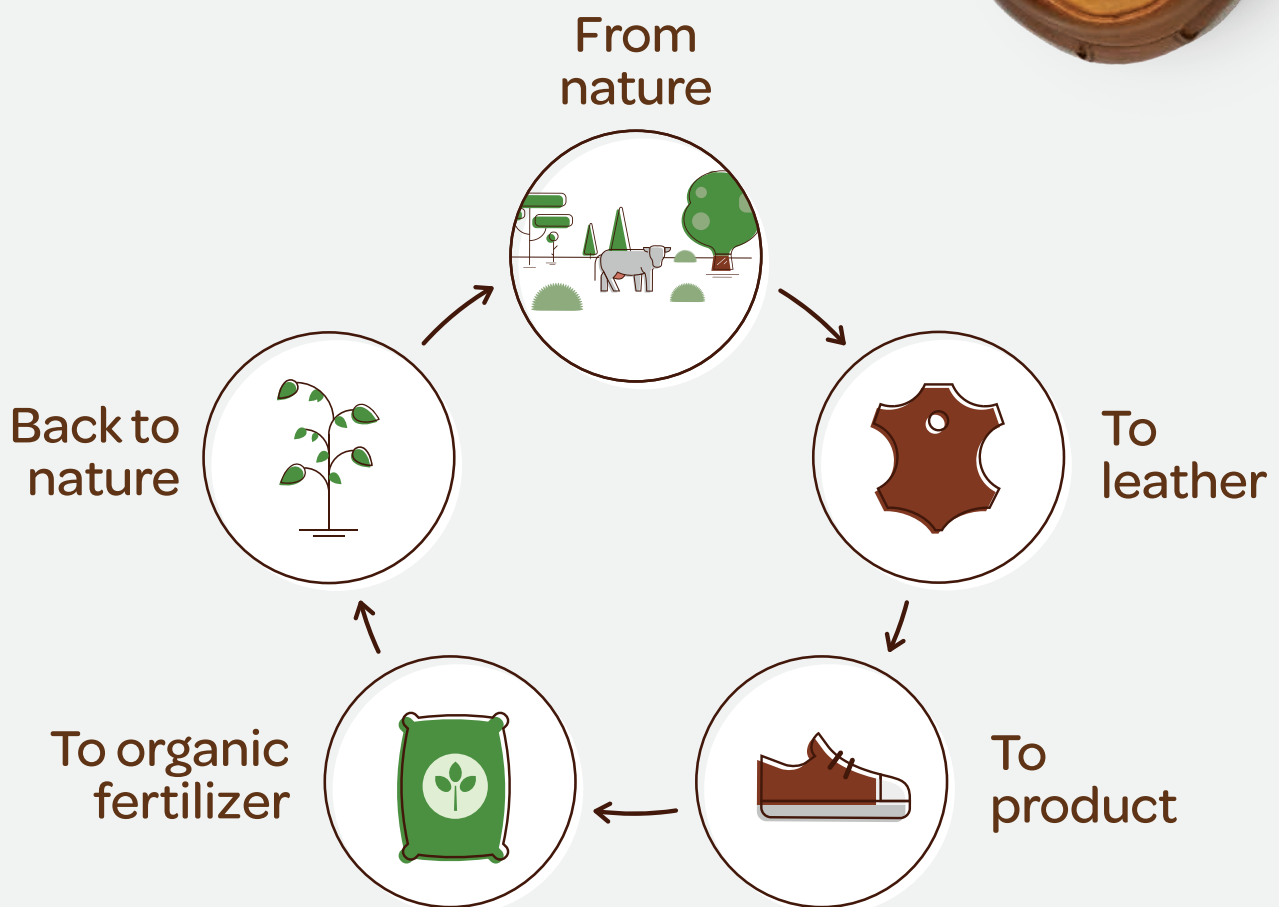
ENRICA BACCINI, FONDAZIONE FIERA MILANO

'Antifragile'. A part of the basic idea that Enrica Baccini particularly likes is that having some fragile companies in the eco-system makes the eco-system itself anti-fragile. She explains this by saying that exposure to fragility, not least during the lockdowns imposed by the first waves of covid-19 in 2020 and early 2021, helped inspire innovation among Italian footwear manufacturers.

In Fondazione Fiera Milano surveys, it is in times of trouble that the highest numbers of footwear companies claim to be investing in innovation. Only 27% claimed to be innovating in the stable years around 2005, for example. This rose to 67% following the government-imposed austerity and double-dip recession years of 2012 and 2013. "This is exactly what is happening again in our footwear sector now," Ms Baccini points out. "The level of innovation among our exhibitors is always high, but it grows in periods of crisis. This is what we really can call anti-fragility, even if it is not the mainstream view of what is happening in the economy." ■



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Longevity, not levity. Brands that care about the circular economy want their products to remain in use for as long as possible.

CREDIT: MANOLO BLAHNIK/THE RESTORY



In safe hands

Five years after launching its expert repair and aftercare service for high-end shoes and bags, 2021 was something of a breakthrough year for London-based The Restory. Two famous brands, Manolo Blahnik and Nicholas Kirkwood, announced The Restory as their specialist aftercare partner in 2021.

The message from these brands is clear: they want their products to remain in use for as long as possible. They want their customers to repair rather than replace accessories and footwear that show signs of having been loved and used, of having served the purpose they were designed to serve. They want wear, not waste; longevity, not levity. They could have tried to set up their own aftercare operations, but The Restory had already covered much of the ground and is happy to share the know-how it has built up.

Its customers use an online delivery form to arrange the collection of the items they want restoring. Once these arrive at The Restory's workshop, a team of in-house artisans assesses each job and sends a formal quote for it. If the customer gives the go-ahead, work begins right away. Cleaning and standard repairs

Footwear and leathersgoods brands, keen to offer restoration services to their customers, have found a specialist partner they can rely on in The Restory.

usually take two or three weeks; it can take longer to restore the colour of an item or repair or replace pieces of leather.

London and beyond

The service has expanded beyond London to the rest of the UK, where customers also have the option of dropping items off at a number of luxury retailers including Harvey Nichols, Selfridges and Harrods. Further expansion means customers in many parts of Europe, North America and the Middle East can now book a repair at The Restory; global courier services will collect

items from homes or offices and ship them to London for repair and back again when the work is complete.

Chief executive of The Restory, Vanessa Jacobs, says her idea for the business sparked into life thanks to high-end footwear, although it germinated in her mind for around eight years while she pursued a consulting career at global services company Accenture.

After moving to London from New York, where she worked in the finance sector, an opportunity at Accenture came up and she picked out a pair of favourite shoes to wear with her power suit to the interview. She took the shoes to a local cobbler so that they would look their best on the big day and was dismayed by the poor quality of the service and, especially, by the fact that the people in the shoe repair shop had not even polished them. This came as a shock because, she insists, no self-respecting shoe repair outfit in New York would dream of neglecting to clean a customer's shoes before returning them. It had to be possible to improve what was on offer in London, she thought.

Gap in the market

In spite of this shoe set-back (she wore others on the day), the interview went well and eight successful years at Accenture followed. In the course of that time, Ms Jacobs built up extensive knowledge of the dry-cleaners and footwear artisans across London whom she felt she could trust with expensive shoes, luxury bags and delicate fabrics. Artisans with the required levels of expertise and attention to detail were around, even if they were often far away from Ms Jacobs' home and kept (from the point of view of a busy business woman) inconvenient customer hours. Mulling this over during a period of maternity leave in 2015, she recalled her original idea. Her certainty grew that there was a gap in the market for a London-based business that cared about helping consumers prolong the beauty and usefulness of high-end products and could provide New York levels of customer service. This led to the launch of The Restory with co-founder, Emily Rea, who is the company's head of marketing.



Once an item arrives at The Restory's workshop, a team of in-house artisans assesses the job and sends a formal quote for it. If the customer gives the go-ahead, work begins right away.

CREDIT: MANOLO BLAHNIK/THE RESTORY

Online luxury retail platform Farfetch was an early admirer, naming The Restory as one of 11 start-ups to feature in the inaugural edition of its 'Dream Academy' mentoring and funding programme in 2018. Farfetch still works with The Restory to offer repairs to its own customers and said that the aftercare service provider was one of the partners it relied on to make its business more circular.

Responsible approach

This was part of the appeal for Manolo Blahnik when it became The Restory's first monobrand partner last September. It told its customers that having access to the care and repair services Ms Rea and Ms Jacobs have established would help them "extend the longevity of [their] most beloved Manolos". The footwear brand said it saw this programme for repairing shoes and extending their usefulness as part of wider efforts to take a responsible approach to business and support "a greener future". And when customers buy new Manolos, they can now do so with the confidence that their investment will be more longer-lasting than ever. When the time comes to reheel, apply protective soles, replace toe pieces, dye the shoes or carry out any other restoration work, the service required will be straightforward to arrange. The partnership with The Restory, which it has called 'Mend My

Manolos', covers Manolo Blahnik handbags too.

Later last autumn, Nicholas Kirkwood followed a similar path and announced that The Restory would also "power" its aftercare service. The Central St Martin's and Cordwainers' College-trained designer, who launched his eponymous brand in 2005, says the partnership will help "give new life to our shoes" and will be part of the company's commitment to sustainability. He says the Nicholas Kirkwood brand will continue to choose "best-quality, durable materials", but The Restory's skill in restoring leather surfaces and colour will help make its products even more durable.

Falling in love again

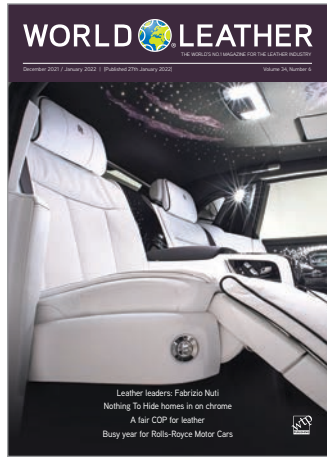
The Restory's founders are positive about their new brand partners. And if other leathersgoods and footwear brands feel any reluctance to place their aftercare offering in the hands of a partner, they point out that it is Manolo Blahnik, Nicholas Kirkwood and the other finished product manufacturers who will retain "the nice bit". It is they who take worn and damaged items from the public and pass them right away to The Restory. It is their team that will then do "all the hard work" before sending the items back for the brands to present restored versions that will allow customers "to fall in love with them all over again". ■

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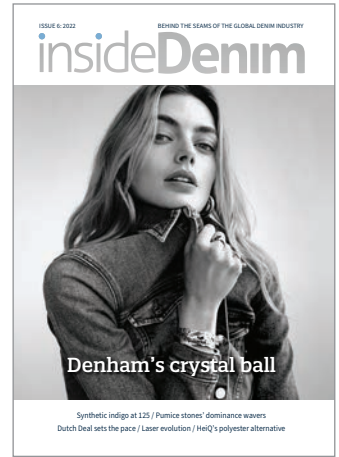
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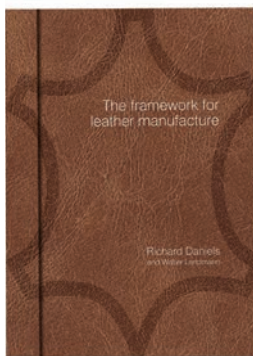
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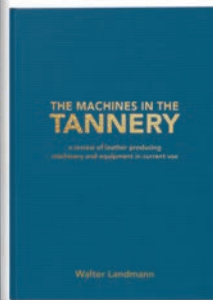
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