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EDITORIAL

Use and reuse of old clothes

Many Indian festivals like Durgapuja in Bengal and Onam in Kerala accelerate demand for sarees and garments. The festivals, Onam a major festival of Kerala where Malayalis receive New Mundus and sarees. What is not often appreciated is that new clothes mean more old ones, which in time stop being worn entirely—then possibly cut up and reused in household works. Old clothes are ideally suited for many kitchen tasks, mostly it is used as dusters, in culinary uses like making paneer for hung curd which requires fine thin cloth to drain away whey. Coarse cloth is used for harder cheeses, drained for more moisture, while finer fabrics retain more, for softer and creamier cheese.

Old clothes have multipurpose uses where their fabrics are most suited. In North India even knitted garments like Sweater has a use as rapper around the Dohi—making pot in winter, it is used to keep the milk warm enough for yoghurt—making bacteria to do their work. Plain white sarees worn in Kerala has the multipurpose uses. Oil—soaked cloth is used to close jar of pickle, a possibly a more effective way to prevent contamination than just letting the oil seep up to form an air—lock. Trays covered with cloth are needed for snacks.

Bengali's beautiful and tasty Gaynaboris—, it is made of dal paste and poppy seeds, are designed into intricate pattern before being placed to dry. It is edible art and the drying cloths are essential, because taking off Gayanabori from the cloth is a skillful task, lest it does not break.

There are several uses of old cloths such as in making Paneer, used as a strainer for homemade Mulberry Wine, wraping jewellery and cleaning computer screens. The resourceful repurposer will reach the end of use for old clothes. In Kerala there are always one final use of old cloth. Old Mundus and sarees are shredded to make wicks for the oil lamp, lighting the way till the next Onam, when the cycle of use and reuse for clothes would begin again.

W real yields hit 1% since 2022 on growth view

The yield on UK inflation-linked benchmark bonds hit 1 per cent for the first time in two years, as speculation mounts that Donald Trump's policies in the US will provide a boost to global economic growth. Also known as real yields, the 10-year rate rose as much as four basis points to 1.01 per cent recently, the highest since former prime minister Liz Truss' expansionary budget in October 2022. They're seen as a proxy for economic growth prospects because they measure the return bond investors get after inflation is taken into acount. The recent rise in the UK is part of a broader repricing led by US Treasury yields in November, which jumped on the expectation Trump's potential tax cuts and expansionary fiscal policy will boost economic activity. The moves have been accentuated by the view that Britain's services-driven economy may be less affected by possible US trade tariffs than the euro area. "There is a whisper in financial markets that Trump may favour the UK over Europe," said Kathleen Brooks, a research director at XTB. "If so, this could protect growth, and justifies UK yields rising at a faster pace than European yields." The UK's 10-year real yield rose 12 basis points in November, in line with a 15-basis-point jump in the equivalent US rate to 2.10 per cent. Germany's 10-year real yield fell in November, as the impact of Trump's policies could lead to sharper interest-rate cuts from the European Central Bank. The last time the UK real yield was this high was in 2022, when forced selling from pension funds sent rates soaring across the board. Defined-benefit pension funds have historically sought inflation-linked debt to match their liabilities. П

Eurozone economy steadily expands, Germany Dodges Recession

The Euro area's economy expanded more strongly than expected in the third quarter with even Germany avoiding the recession it was widely tipped to endure. Growth in the 20-nation currency bloc quickened to 0.4%, while economists had predicted it would hold steady at 0.2%, as momentum in France accelerated and stayed strong in Spain. Germany's surprise 0.2% increase in gross domestic product caught analysts off guard, though the reading for the previous three months was revised down sharply. The weak point was Italy, where output was unexpectedly flat, driven by a negative contribution from net trade. On the inflation front, separate data from Spain showed consumer price gains accelerating a touch to 1.8% but remaining inside the European Central Bank's 2% target. German figures are likely to also show an uptick, with euro-area wide numbers scheduled for 21st November. Recent data may ease some of the concerns about Europe's economy that were on display recently when finance officials gathered in Washington for the International Monetary Fund's meetings. A few ECB policymakers agrued that a worsening outlook may necessitate heftier interest-rate cuts, while others urged caution. The surprisingly strong growth numbers might support arguments to maintain a gradual pace of easing and stick with traditional quarter-point reductions in borrowing costs. Traders pared bets on ECB rate cuts after the dading to swap pricing. The biggest worries have centered on Germany, whose manufacturing sector is grappling with a loss of competitiveness that executive blame on high energy costs, excessive regulation and shortages of skilled staff. The uncertainty has led consumers to ramp up savings instead of spending the pay rises they received in recent months. That may be starting to change, however, with the country's statistics office highlighting higher household and government consumption as reasons for third quarter growth.

EU mops up \$1.1 bn import duty from tariffs in 5 yrs

Over the October, the commerce department, which is in the process of finalising the goods, has been holding inter-ministerial consultations on items that will be subjected to higher tariffs. Provisional safeguard measures on imports of certain steel products were first imposed in 2018 on 26 varieties of steel. The safeguard measures took the form of tariff rate quota (TRQ) and any steel beyond the quota was subject to a 25 per cent additional tariff. While the measure was supposed to be in place till June 2021, it was later extended till June 30, 2024. In

WORLD ECONOMY AND TRADE TRENDS

June, the EU extended safeguard duties on steel imports till June 2026. According to the trade bloc, the regulation was implemented to "prevent economic damage" for the EU steel producers, amid high global steel overcapacity and a surge in exports from China via Asian nations into Europe. Over five years, around \$4.4 billion worth of India's exports have been impacted and the EU has collected \$1.1 billion import duty due to the imposition of tariffs. According to India's submission to the WTO in September, the country plans to impose an equivalent amount of duty on goods originating from the EU. In October, commerce and industry minister Piyush Goyal told this paper that India and the EU had conducted extensive discussions and negotiations on this issue. "We gave them every possible opportunity to put an end to these tariffs on steel and aluminium. A few months back, when we were in the elections, they once again extended it for two or three years. Then we thought that now we have to retaliate. We haven't finalised the process," Goyal had said.

China exhibits Steady Progress in October as Consumption Rises on Stimulus

China's economy showed signs of stabilisation in October, buoyed by the highest retail sales growth in eight months and indicating Beijing's latest round of stimulus has boosted some key sectors. Retail sales increased 4.8% from a year earlier, the National Bureau of Statistics said recently, up from September's gain of 3.2% and beating the median forecast of 3.8% by economists in a Bloomberg survey. It marked the best reading since February. Industrial output rose 5.3% from a year earlier, slightly slower than the previous month and lower than a forecast growth of 5.6%. "With the accelerated implementation of the existing policies and the introduction of a raft of incremental policies in October, the national economy showed stable growth trend with major indicators recovering notably and positive factors accumulated," according to a statement from the NBS. "However, we should be aware that the external environment is increasingly complicated and severe, effectie demands are still weak at home and the foundation for continuous

economic recovery needs to be strengthened," the NBS added. The indicators captured the immediate effects of China's boldest stimulus measures since the pandemic that aimed to ensure the country reaches its annual growth target of around 5%. A slowdown of economic expansion in the last quarter to the weakest since early 2023 has prompted policymakers to deliver out-sized interest-rate cuts and support for the property and stock markets. Authorities also rolled out a \$1.4 trillion debt swap program to curb debt risks faced by local authorities and free up fiscal room for them to promote growth. The question now is how far Beijing is willing to go to shore up domestic demand and tackle deflation. Boosting consumption could become even more pressing after the reelection of Donald Trump as US president, as he has threatened a 60% tariff on most Chinese imports, a move likely to hurt the Asian country's export sector. Data released previously for October painted a mixed picture of the state of the world's second-largest economy. Sentiment among manufacturers and service providers improved and export growth hit a two year high. However, inflation stayed near zero and credit expansion slowed more than expected, reflecting tepid domestic demand. Finance Minister Lan Fo'an has promised "more forceful" fiscal policy next year, hinting at an increase in the budget deficit, an expansion in special local bond issuance and freer use of the funds raised. He also suggested greater support for a cash-for-clunkers program to spur consumer spending. Governments at all levels accelerated bond sales in recent months, with net financing exceeding 1 trillion yuan (\$138 billion) for three straight months through October. That has yet to show an effect on investment, though. Fixed-asset investment increased 3.4% in the first 10 months of the year from the same period in 2023, maintaining the same pace in January-September.

FTA review: China's greater integration with ASEAN concerns India

The ASEAN's deeper economic integration with China in the last 15 years since India's free trade agreement (FTA) with the bloc was forged has thrown a big challenge for the country in the ongoing review of the pact,

WORLD ECONOMY AND TRADE TRENDS

sources said. India is trying to guard against the risk of the neighbouring country taking advantage of a possible greater opening up of markets as China's supply lines are now more interwined with that of AESAN countries, sources tracking the matter told reporters. "China is like the big elephant in the room where India and the ASEAN are holding review negotiations. ASEAN's imports from China are now 30 per cent of its total imports, which is up from 10 per cent 15 years ago. Recently, the Chinese Premier Li Qiang talked about an even greater integration with the block. India needs to weigh every step carefully keeping this in mind the source said. India had demanded a review of the FTA with the ASEAN, formally called the ASEAN India Trade in Goods Agreement (AITIGA), signed in 2009, as it resulted in disproportionate gains for the ASEAN countries with their trade deficit with the bloc widening to \$38.46 billion from \$7.5 billion in 2010, when the pact got implemented. "There have been concerns about a variety of products with a high Chinese content, ranging from steel products to mobile phones, making their way into India at preferential duties from countries such as Vietnam, Indonesia and Malaysia," the source said. With the Regional Comprehensive Economic Partnership (RCEP), an ambitious free trade pact between the ASEAN and its five FTA partner countries China, South Korea, Japan, Australia and New Zealand, now operational, the risk of Chinese items coming into India through the ASEAN countries is even higher, the source added. "The answer to the concern does not lie solely in making ROO (rules of origin which trace where an item originates from) more stringent to keep Chinese items out. After RCEP, Chinese investment in the ASEAN is also increasing rapidly. So the problem is more complex," the source said. The problem is that the ASEAN has to be convinced to allow India adequate protection in items where its domestic industry is being hit because of the FTA concessions. "For that the bloc would want additional concessions in other areas from India. That is something that has to be properly negotiated," the source said. Also, while under the AITIGA, both sides agreed to open their markets by progressively reducing and eliminating duties on 76.4 per cent coverage of goods, the ASEAN countries did not take on uniform

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commitments. "India wants countries like Vietnam, that had given disproportionately less market access in the AITIGA, to take on more tariff reduction under the review," the source added.

BoE slashes rate by 25 bps after UK inflation falls

The Bank of England cut its main interest rate by a quarter of a percentage point to 4.75% recently after inflation across the UK fell significantly, relieving some pressure on borrowers who have faced elevated loan costs. The bank said eight of the nine members of its rate-setting panel backed the reduction - the second in three months - while one opted to keep borrowing costs on hold. The latest cut comes after inflation in the UK fell to 1.7%, its lowest level since April 2021. Though inflation has fallen below the bank's target of 2%, Governor Andrew Biley cautioned that interest rates would not be falling too fast over coming months. "We need to make sure inflation stays close to target, so we can't cut interest rates too quickly or by too much," he said. "But if the economy evolves as we expect it's likely that interest rates will continue to fall gradually from here." Central banks worldwide dramatically increased borrowing costs from near zoro during the coronavirus pandemic when prices started to shoot up, first as a result of supply chain issues build up and then because of Russia's full-scale invasion of Ukraine which pushed up energy costs. As inflation rates have recently fallen from multi-decade highs, the central banks have started cutting interest rates. The U.S. Federal Reserve is also expected to cut interest rates later recently. Economists have warned that worries about the future path of prices following recent tax-raising budget from the new Labour government and the economic impact of U.S. President-elect Donald Trump may limit the number of cuts next year. The decision comes a week after Treasury chief Rachel Reeves announced around 70 billion pounds (\$90 billion) of extra spending, funded through increased business taxes and borrowing. Economists think that the splurge, coupled with the prospect of businesses cushioning the tax hikes by raising prices, could lead to higher inflation next year.

Trade with US steadily rising: Govt

India's trade engagement with the US has been steadily growing for the past two decades irrespective of who holds the presidency and the government does not see much of an impact when Donald Trump assumes office in January next year, a senior official said recently. "There have been four presidents between 2001 and 2023. During the entire period, irrespective of the presidency, growth continued to happen and there is now a greater element of trade that is there between India and the US," commerce secretary Sunil Barthwal said. "...we are integrating our value chains with the US, and integrating the two economies through various agreements including IPEF (Indo-Pacific Economic Framework for Prosperity)... and bilateral mechanisms. We are able to sustain a growth in the level of integration with the US. The US has also grown its exports to India," he told reporters. According to data, India's share of US imports has grown to 2.8% in 2023 from 0.9% in 2011. During 2001-23, at a compounded annual growth rate (CAGR), India's exports to America rose by 10.4%. In this period, the US imports from the world has grown at 4.76%. When asked whether India would ask for the proposed mini-trade deal which was discussed during the first Trump administration, the secretary said that currently the President-elect is building his team and once it is in place, there will be policy pronouncements from them and based on that, the Indian government would be also taking a call. The US is India's biggest trading partner with bilateral merchandise trade in 2023-24 of \$119 billion. India's exports were \$77.5 billion and imports \$42.1 billion. Added to the goods trade is the massive services trade between the two countries. Services exports to the US were about \$36.3 billion in 2023 and imports were \$25.9 billion and rising. "The US is a large services exporter. Services exports from the US have grown in the last 10 years with a consistent steady growth and our services exports to the US have also growth. If we look at services, our trade balance is more or less equal," additional secretary in the department of commerce Rajesh Agrawal said.

In April-October, India's goods exports to the US stood at \$47.2 billion, up 6% on year. □

Exports revive, October import bill hits record

This coincided with a continuous decline in petroleum exports, which slipped 22.1% in October to \$4.58 billion, below September's figure of \$4.7 bilion, which had marked a 32-month low. Commerce Secretary Sunil Barthwal, however, downplayed the import bill rise, and highlighted the trade trends beyond the petroleum basket. Between April and October, India's non-petroleum exports have surged to the highest ever tally of \$211.3 billion and if this trend continues, India's total exports, including services, will cross the \$800 billion mark this year to set a new record, he remarked. "A key factor for the 17% plus growth in exports could be improved demand for this Christmas from developed markets as firms start stocking up inventories for the festival. This demand seems far better than last year and gives us confidence that the coming months will also see a healthy uptick," the top trade official said. "If you look at the UNCTAD and the World Trade Organisation projections for this year, they are very pessimistic. But despite the global situation being highly volatile, growth in the Western countries slowing with some recessionary trends, and the disruptions in global trade routes, our exporters have been able to do well in several sectors," he emphasised. Citing healthy double-digit growth in exports of engineering goods, chemicals, electronics, rice, and labourintensive sectors such as readymade garments and textiles, the Commerce Secretary said this demonstrated that India's strategy of focusing on certain sectors and countries was now yielding results, along with its approach to industrial policy, trade policy and foreign policy, and manufacturing competitiveness had improved.

A moderate uptick: September industrial production up 3.1%

India's industrial output returned to the positive trajectory with a moderate uptick of

INDIAN ECONOMY AND TRADE TRENDS

3.1% in September, from its first contraction in 21 months this August, led by a 3.9% growth in manufacturing even as electricity and mining sectors grew under 1%. The Index of Industrial Production (IIP) inched up 0.7% from August but was still the second weakest reading since last December. The mining and manufacturing indices rose mildly from August, but electricity generation fell 2.5% sequentially and was at its lowest since March. The IIP had risen 6.4% in September 2023, so there were some base effects at work too. Unlike August, when 11 of 23 manufacturing segments contracted, just five segments shrank in September. However, computers and electronics, one of just five segments to see double-digit growth in August, contracted 1.3%. Industrial output has grown 4% through the first half of 2024-25, compared to a 6.2% uptick last year, with manufacturing (3.7%) and mining (4.2%) being a drag even as electricity generation grew 6.1%. Spliced by end-use, all six segments of factory output recorded positive growth, compared to just four segments in August, led by a 6.5% spike in consumer durables that economists linked to factories stockpiling inventories to meet festive demand. Consumer non-durables broke a four-month streak of contraction but grew just 2% in October. CareEdge Ratings chief economist Rajani Sinha said the performance of consumption-related segments warrants close monitoring amid signs of softening urban demand. Primary goods also rebounded from a 2.6% contraction in August to rise 1.8% in September, but was marginally lower than August in absolute terms. Capital goods output growth improved to 2.8% from 0.5% in the previous month, with production rising a sharp 7.2% from August levels. Intermediate goods' production grew 4.2%, while infrastructure and construction goods recorded a 3.3% rise over September 2023 levels, although both these segments' actual output was moderately lower than the preceding month. Crisl chief economist Dharmakirti Joshi reckoned that industrial activity may rise further in coming months with the festive season consumption demand boost and an uptick in rural demand after a healthy monsoon. "However, the impact of elevated borrowing costs will weigh heavy, especially in urban areas. This is evident from slowing bank credit growth in the past four months," he noted.

Engineering goods exports rise 38.5% in Oct to \$11.19b

India's engineering goods exports posted a 38.53 per cent increase (year-on-year) in October this year to touch \$11.19 billion, crossing the \$10-billion mark for the first time in the current fiscal, per an analysis done by industry body EEPC India. The increase was driven by high growth in exports of aircraft, spacecraft and parts, and ships, boats and floating structures, per a report compiled by EEPC. "Exports of iron and steel turned positive for the first time during October in fiscal 2024-25 while electric machinery, industrial machinery, and automobiles also supported this high growth of overall engineering exports by showing a noticeable increase in exports," according to the analysis. Cumulative engineering exports during the April-October 2024-25 period grew 8.27 per cent (year-on-year) to \$66.59 billion. Share of engineering in overall merchandise exports was at 28.72 per cent in October 2024 and 26.75 per cent in the April-October 2024-25 period. "Going forward, lower inflation and moderation in interest rate should boost consumer spending and raise investment spending by firms. This should lead to a positive trade outlook. The risks to merchandise trade mainly remain similar to previous months including geopolitical tensions, regional conflicts, and policy uncertainty," said Pankaj Chadha, Chairperson, EEPC. Country-wise, the US remained India's top destination for engineering exports in October 2024. Engineering shipments to the US increased 16 per cent to \$1.61 billion during the month. Engineering exports to the UAE rose 137 per cent to \$825.2 million in October 2024 as compared to \$348.3 million in October 2023. Enginerring exports to other key markets such as Germany, the UK, China, South Korea, Japan, Brazil, France, Indonesia and Bangladesh were also positive during October, the analysis stated.

One of the world oldest towel brands set to enter India in 2025

Queen Victoria, the first ruler of India after the British Crown took over following the Mutiny of 1857, was an admirer of this terry towel brand in the 1850s. The brand gained global fame when the first British supermodel, Barbara Goalen, endorsed it in 1952. Later, it solidified its leadership in the premium towel market as the official towel supplier for Wimbledon starting in the 1980s.

Now, nearly 175 years after its inception, one of the oldest towel brands in the world, Christy, renowned for its royal heritage, is set to enter the Indian market in 2025. In what can be described as poetic justice, it is an Indian giant, Welspun Living (formerly Welspun India), that is bringing this slice of colonial legacy to India through a direct-to-consumer (D2C) model.

This launch comes nearly two decades after Welspun acquired CHT Holdings, Christy's parent company, in 2006. The move follows Christy's entry into the US market in early 2024.

"We will be launching the iconic Christy brand in India next year. It will initially be sold through a D2C model," said Dipali Goenka, chief executive officer and managing director of Welspun Living.

Christy reported a 21 per cent growth in 2023-24, achieving \$20.6 million in revenue. With new markets like India on the horizon, it is projected to reach over \$43 million by 2026-27, reflecting a compound annual growth rate of 28 per cent.

In recent years, exports have also surged, growing by 52 per cent, powered by demand from West Asia and New Zealand markets. "Christy is a luxury brand. While some products will come from our Welspun facilities, we also outsource from Portugal and other European manufacturers. We'll assess the best balance between these sources. Initially, we'll focus on D2C sales and later expand to premium retail stores. Since Christy is a global brand, our India strategy will align with its international approach," Goenka added.

How its jouney began

Christy's journey began in 1850 in Lancashire, England, when Henry Christy returned from Turkey with a revolutionary fabric discovery. His brother, Richard, collaborated with Samuel Holt to replicate the looped, fluffy material, introducing terry towels to Britain.

Demand for the new terry towels soared after Queen Victoria became a fan. By the 1890s, WM Christy & Sons had become a leading textile producer, with Fairfield Mill operating over 700 looms to meet growing demand, During World War II, Christy supported wartime efforts, resuming production in 1942 amid a national towel shortage.

This resilience and dedication have defined Christy's ethos for over 175 years, the company said. In 1952, Christy towels gained international glamour when Goalen endorsed the brand. In 1988, Christy became the official towel supplier for The Wimbledon Championships, a partnership now synonymous with the brand. In 2022, it celebrated Wimbledon's 100th anniversary with exclusive commemorative towels. Christy's offerings also include bed linens, bath accessories, and robes.

Christy plans to launch physical stores in India within one to two years to bolster its presence. It entered the US market in September 2024, starting on the East Coast through its website and warehouse operations, with plans for further expansion. Recently, the brand introduced a new baby and toddler range, combining its expertise with thoughtful designs for children.

"When we acquired Christy in 2006, India was a very different market. The consumer base was still evolving. I remember when we launched SPACES in 2003 — back then, discretionary spending was limited. Today, with India's per capita income around \$2,500-2,700 and projections targeting \$4,000, the scenario has changed dramatically. Metros now have a strong appetite for luxury brands like Chisty," Goenka said when asked about the delayed Indian launch.

Framework on sustainability for textile industry for competitive edge in global market

The Centre is working towards a framework on sustainability for the textile industry amid a rising global focus, especially among developed nations, to incorporate sustainable initiatives in production and trade of textiles.

Government officials believe that a shift towards sustainability in the textile sector is crucial for maintaining a competitive edge in the global market.

The ministry of textiles is preparing the framework and has been in consultations with the industry to take into considerations its views.

"Apart from focus on implementation of the production-linked incentive (PLI) scheme and PM MITRA for the textiles sector, something that's under consideration is sustainability as it is here to stay, even internationally. We plan to come up with a broad approach paper and framework and that should happen soon," a senior government official told reporters.

The development comes in the backdrop of richer nations' such as the United States (US), United Kingdom (UK) and European countries' growing emphasis on sustainability.

For instance, the European Union has already adopted 'EU strategy for sustainable and circular textiles' growing emphasis on sustainabilility.

For instance, the European Union has already adopted 'EU strategy for sustainable and circular

textiles'. This will make the sector greener and more competitive by transitioning into sustainable consumption of garments among the 27-member countries of the trade bloc.

Action will be in areas such as setting design requirements for textiles to make them last longer, easier to repair and recycle, reverse overproduction and overconsumption. it will also discourage the destruction of unsold or returned textiles, among several other things.

Chandrima Chatterjee, secretary general, Confederation of Indian Textile Industry (CITI), said that as a leading producer and consumer of textiles, India needs to take a leadership position in the sustainable textiles value chain.

"We look forward to a vision, target and roadmap for efficient transitioning towards improved carbon footprint, circularity, waste management, technologies and skill development for greener jobs for the textile sector. India's positioning in the global textile makret hinges on how we move forward in the next few years in these directions," Chatterjee said.

The government has been in discussion with relevant stakeholders to develop a sustainability framework with clear deliverables to be able to transition textile value chains from linear to circular. This can be done by setting short, medium and long term targets for sustainability for the sector.

GoM is likely to revise GST rate on 50 items, slabs for textiles

A Group of Ministers (GoM) is expected to recommend to the Goods and Services Tax Council a rejig of rates on 150 goods and services, including textiles. It is also likely to suggest a new slab of 35 per cent for tobacco and tobacco-related products against the present rate of 28 per cent (excluding compensation cess).

According to sources, all these issues were discussed recently at a meeting of the rate rationalisation GoM, chaired by Bihar Deputy Chief Minister Samrat Chaudhary. The GoM agreed on several GST rate changes, designed to simplify the GST framework and enhance revenue collection.

The report is to be presented at the 55th GST Council meeting on December 21 in Jaisalmer. The meeting will be chaired by Finance Minister Nirmala Sitharaman.

It is believed that the GoM recommended lowering rates for textiles, bicylces and exercise books — items of

common use. According to a source, the GoM suggested a revised slab structure that keeps the 5 per cent rate for textile items up to ₹1,500 but proposes an 18 per cent tax for products priced between ₹1,500 and ₹10,000. For textiles priced above ₹10,000, the report recommends a hike to 28 per cent, aligning them with luxury goods.

Textile is one of the sectors facing issues related to inverted duty structure (higher duty on raw materials and lower duty on output).

Luxury Items

The GoM is believed to have suggested raising the GST rate on several luxury items, including high-end wrist watches and shoes.

The GoM proposes lowering the GST on bicylces priced below ₹10,000 from 12 per cent to 5 per cent. Exercise books and packaged drinking water above 20 litres would also see a reduction in the GST rate from 12 per cent and 18 per cent respectively to 5 per cent.■

Jute bag prices increased in November after govt's new pricing methodology

The revised prices for jute bags, used in the packaging of foodgrains, have increased significantly in November after the government, for the first time, announced revised prices for such bags based on the new pricing methodology.

According to industry players, the announcement of revised prices for B-twill jute bags, used for packaging foodgrains, based on the report of a Tariff Commission, marks a "significant milestone" in the history of India's jute industry because the new pricing formula factors in raw material costs and operational expenses of jute mills.

The notification from the Jute Commissioner's Office (JCO), dated November 19, offically announced the revised prices for 580 gm Type-A and Type-B-Twill jute bags for November, 2024. Accordingly, the maximum exfactory price per tonne (with Jute Corporation of India linkage) for such bags was fixed at ₹1,02,774, which is anound 7 per cent higher compared with ₹95,724 for October.

Also, price per 100 bags is fixed at ₹5,960.88 for November against ₹5,551.99 for October, representing around 7 per cent rise.

Significantly, the JCO notification on the revised prices has marked the first formal application of the revised pricing formula proposed by the Tariff Commission in its March 2021 report.

In August this year, the Cabinet Committee on Economic Affairs (CCEA) approved the new pricing

methodology for B-twill jute bags based on the Tariff Commission report, fulfilling a long-standing demand of the jute industry.

Government agencies purchase bags from jute mills every year for compulsory packaging of 100 per cent foodgrains and 20 per cent sugar to provide financial benefits to mills which employ about 4 lakh workers.

Industry insiders said the prices announced for November 2024 set a benchmark for calculating retrospective prices for supplies made under previous PCSOs (production control-cum-supply orders) from September 2016 to October 2024, These retrospective calculations will allow jute mills to recovery arrears for the period during which they were underpaid due to adhoc pricing.

According to the industry players, as the new pricing methodology is based on an authentic cost study, it is more transparent, dynamic and responsive to market changes compared to the earlier one, which was running on a temporary pricing provision.

"The notification on the revised pricing for November represents a major milestone for the jute industry, addressing long-standing demands for fair pricing. While the announcement provides relief from November 2024 onwards the industry eagerly awaits the retrospective calculations, which will compensate mills for their legitimate dues dating back to September 2016," said Sanjay Kajaria, former Chairman of the Indian Jute Mills Association.

UP Govt to set up private textile parks to curb China imports

To curb raw material imports from China and promote textile, the Uttar Pradesh government is looking to set up nearly a dozen private textile parks in the state.

The textile parks would be established under the up Textile and Garmenting Policy 2022. Districts where these parks will come up include Gorakhpur, Mau, Bhadohi, Aligarh, Baghpat and Shamli.

The first private textile park will be set up in Shamli district with an investment of ₹726 crore. The Shamli project-Lonex Textile Park, spanning 27 acres, will be operational by December 2025. This will provide 5,000 direct and indirect jobs. It will comprise 17 production units, including for weaving, dyeing, printing and garmenting.

India's textile industry is expected to grow at a compound annual growth rate (CAGR) of 8.9 per cent during 2023-2032 and the domestic textile and apparel market, valued at around \$165 billion in 2022, is expected to touch \$350 billion by 2030.

In the backdrop of this, the Yogi Adityanath government is positioning the state as a potential textile and garment hub in South Asia.

Traditionally, Uttar Pradesh boasts of major textile hubs of Varanasi, Lucknow, Bhadohi, Garokhpur, Kanpur among others.

According to UP handloom and textile principal secretary Alok Kumar, the proposed private textile parks will not only boost local production but also reduce reliance on raw materials from China and other states.

Moreover, the textile parks will capitalise on disruption in the textile sector in Bangladesh following political unrest, which reportedly forced the closure of almost 1,000 small and medium textile units in that country.

As India is targeting garment exports of \$100 billion in the next five years, the state is strengthening its textile value chain.

At the same time, under the central government's PM Mega Integrated Textiles and Apparel (PM Mitra) scheme, a mega Textile Park is being developed covering Lucknow and Hardoi districts over 1,162 acres.

Demand for cotton picks up as prices plunge

Cotton prices seems to be bottoming out with some kind of demand kicking in from spinning mills at the lower end of the price range, trade sources said.

Cotton prices, which had touched a seasonal low \$53.000 per candy (of 356 kg) on lack of demand, are ruling steady and gained marginally with the purchases of raw cotton at minimum support price (MSP) by the Cotton Corporation of India (CCI) lending some support, Raw cotton or Kapas prices are ruling between ₹6,500 and ₹7,000 per quintal across the country, much below the MSP of ₹7,521.

Cotton prices are under pressure, despite a lower crop being estimated on fall in acreage this season. The lack of demand from mills, coupled with a fall in cottonseed prices, is weighing on raw cotton prices.

Cottonseed prices, which were in the range of ₹3,600-4,100 per quintal across various markets at the beginning of the season, are now down to ₹3,000-3,500 levels on fall in demand.

The daily arrivals of the fibre is slowly picking up and is hovering around 1.6 lakh bales. In the absence of adequate demand from mills, over half the market arrivals is being procured by CCI at MSP, sources said.

"Of late there is some demand coming in at the lower level prices," said Ramanuj Das Boob, a sourcing agent for multinationals and domestic firms in Raichur. Cotton prices had touched a low of ₹53,000 per candy recently from the seasonal start of ₹57,500 levels and have seen some recovery of around ₹500-1,000 per candy in the recent past, Price are now ruling at ₹53,000-54,000 per candy.

Since the quality of cotton has been good in Raichur and Adoni regions this year, millers from the North have been buying from the region. In North India, the production was down this year on dip in area. "Farmers in Gujarat are holding back cotton at the current prices. As a result, ginning activity is slow. Some ginners are getting cotton from Maharastra and Karnataka," said Anand Poppat, CEO of Cot yarn Tradelink in Rajkot.

Das Boob said the buying by mills in South in slow on lack of demand for yarn and tight liquidity. Also, the dip in ICE futures has prompted the multinationals to stay away from the market, he said.

"This season is not in favour of farmers, nor the ginners or the spinning mills. Farmers are reluctant to sell and are waiting for the price to move up,"said Pradeep Kumar Jain, President of Khandesh Cotton Gin/Press Owners and Traders Association in Jalgaon. Kapas prices are ranging between ₹6,500 and ₹7,000 levels in Maharashtra.

Pashmina to get identify of its genuinity

Phulkari Shawls from Patiala, resin artworks and home decor from Kuwait, crochet makers from Russia, carpet weavers from Persia, blue pottery from Rajasthan and many other crafts are part of the global celebration at this year's World Crafts Forum.

Organised by the World Crafts Council (WCC) AISBL, the Kuwait-based organisation that works preserve and recognise traditional crafts, in collaboration with the Export Promotion Council for Handicrafts (EPCH) and supported by the Development Commissioner of Handicrafts, the landmark even celebrates 60 years of the global crafts movement in New Delhi from November 22-24, followed by Srinagar from November 25-27.

"This event marks a unique moment to elevate the country's contributions to the crafts and celebrate India's rich craft and cultural legacy. By creating a global ecosystem for artists and craftsmen, WCC is showcasing not just global but many of India's artisans and craft traditions, giving them a unique display with the global craft market," Saad Al-Qaddumi, president of WCC-AISBL, told reporters. The Srinagar event celebrates the city's designation as a UNESCO Creative City of Craft and Folk arts, The city has been officially recognised as 'World Craft City' by the WCC as this recognition will boost the handloom and handicraft sector, which will benefit tourism and infrastructure development.

The WCC is working on to introduce a mechanismits first' seal of authenticity – to identify genuine Pashmina, a handcrafted product from Kashmir. This will be the first significant attempt to boost confidence of buyers for any Indian craft.

"For people to value crafts of the world, and with J&K's pivotal role in the global crafts ecosystem, this seal will be the first step towards valued and authentic craftsmanship, to know if it is machine-made or handmade," added Al-Qaddumi.

The World Crafts Forum is being held at the National Crafts Museum & Hastkala Academy, Delhi. With participation from over 20 countries, the forum brings together leading craftspeople, artisans, and industry leaders.

Raw jute ouput to be lower by 25-30% in 2024-25

India's raw jute production is likely to be lower by 25-30 per cent in 2024-25 compared to the last season as there has been some transition by farmers to alternative crops as a result of lower raw jute prices.

The country's raw jute production in 2023-24 was 90 lakh bales. The average raw jute production over the last four years has been around 96.93 lakh bales (of 180 kg each).

Speaking at a meeting of the Expert Committee on Jute (ECJ), Indian Jute mIlls Association (IJMA), Chairman Raghavendra Gupta said the crop size is expected to be lower by at least 25-30 per cent in 2024-25, compared to the last season.

He said prolonged lower procurement by the government and defaults by sugar mills in purchasing jute bags led to raw jute prices remaining below the MSP for an extended period. Consequently, some farmers have shifted to alternative crops.

Rain effect

Gupta also informed that lower rainfall in the month of June this year also contribued to lesser production of raw jute.

Crop production in Assam has been affected to some extent by floods.

In the meeting of the Expert Committee on Jute at the Office of the Jute Commissioner in Kolkata

on November 26, Jute Commissioner Moloy Chandan Chakraborty said the procurement of jute bags on government account has increased over the years. In 2023-24 (April-March), the government procured a record 36.29 lakh bales of jute bags worth about ₹12,400 crore.

"The finalised figures for the 2024-25 season have revealed a disconcerting trend: a massive carryover stock of 32 lakh bales, surpassing last year's already high 25 lakh bales."

"What is more troubling is the projection of similar levels of carryover into the 2025-26 season, a direct consequence of the demandsupply mismatch that has plagued the industry for years," said Sanjay Kajaria, former Chairman of the Indian Jute Mills Association.

"The numbers tell a grim story. Despite a reduction in mill consumption at 65 lakh bales, the supply side remains robust, with an estimated production of 74 lakh bales for jute and mesta. Variations in estimates provided by different stakeholders further high-light the challenges in aligning production figures with market realities," Kajaria said.

Domestic consumption for industrial purposes is capped at 15 lakh bales, showing no significant growth, he added.

Telangana cotton farmers depressed over low yields, poor returns

Cotton farmers in Telangana are unahppy for more than one reason. As rain towards the end of the season damaged the crops, they faced the challenge of high moisture, which led to lower returns. On the other hand, overall yields, too, fell from about 8-10 quintals an acre to 3-4 quintals an acre. "We are not very happy. Yields have come down as pink bollworms attacked the crop. Unseasonal rain towards the end of the season further damaged the crop," a farmer in Mahboobabad district told reporters.

The Cotton Corporation of India (CCI) has procured about 43 lakh quintals so far. It pegged the average rate at ₹7,400 a quintal. Procurement, which started on a tardy note this season due to the high moisture content and festive season, picked up post-Diwali, with farmers bringing their produce to the nearest mill to sell it to the CCI. Raji Reddy, a farmer from Jangaon district, said millers were reducing 4-5 kg every quintal towards damages, leading to reduced incomes.

Another important challenge that the farmers face is that they are not able to find labour for the second picking.

Less paid

The issue has taken a political turn with the Opposition Bharat Rashtra Samithi (BRS) alleging that farmers were being given only ₹6,500 a quintal though the MSP was ₹7,500. T Harish Rao, a senior BRS leader, visited the Khammam market yard recently, and demanded that the CCI set up procurement centres at the yard.

Meanwhile, the CCI has asked farmers to use the app 'Cott-Ally' or access the CCI website to identify the nearest purchase centres and MSP details, and also to post their grievances.

INNOVTIVE APPROACHES TO SUSTAINABLE TEXTILE EFFLUENT TREATMENT

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INTRODUCTION

The textile industry, while vital to our global economy, has long been criticized for its environmental impact. One significant concern is the pollution generated by textile effluents, which contain a cocktail of hazardous chemicals and dyes that can harm aquatic ecosystems and human health. In recent years, there has been a concerted effort to develop more efficient and ecofriendly methods for treating textile effluents. These innovations hold the promise of not only reducing the industry's environmental footprint but also creating a more sustainable and responsible textile manufacturing sector.

THE CHALLENGE OF TEXTILE EFFLUENTS



Figure.1.The challenge of Textile Effluents

Textile wastewater is notoriously complex. It contains a variety of contaminants, including dyes, heavy metals, salt, and organic substances. Traditional treatment methods, such as biological and physical-chemical treatments, have proven effective to a certain extent but often fall short in handling the full spectrum of pollutants found in textile effluents.Addressing the challenge of textile effluents requires a multi-faceted approach, including the adoption of sustainable dyeing and treatment technologies, compliance with regulations, and a commitment to reducing water usage and minimizing the environmental impact of textile manufacturing. Collaboration among textile companies, environmental organizations, and regulatory authorities is crucial in finding innovative solutions to mitigate the challenges associated with textile effluents. Ultimately, sustainable practices and responsible management of effluents are essential for the long-term viability of the textile industry and the protection of the environment and public health. The challenge of textile effluents is a significant environmental concern associated with the textile industry. Textile effluents, which are the wastewater generated during various textile manufacturing processes, pose several environmental and health-related challenges:

i. Water Pollution

- Dye Contamination: Textile effluents often contain a wide range of dyes and chemicals used in the dyeing and printing of textiles. These dyes can be toxic, non-biodegradable, and can persist in the environment, leading to water pollution.
- Chemical Additives: Effluents may also contain other chemicals, such as finishing agents, surfactants, and heavy metals, which can harm aquatic ecosystems and contaminate water sources.

ii. Ecological Impact:

- ➤ Azo Dyes and Aquatic Life: Azo dyes, commonly used in textile dyeing, can have adverse effects on aquatic life when released into water bodies. They can disrupt the ecosystems and harm fish and other aquatic organisms.
- ➤ Reduced Sunlight Penetration: The presence of dyes and suspended solids in textile effluents can reduce sunlight penetration into water bodies, affecting photosynthesis and the overall health of aquatic ecosystems.

iii. Health Concerns:

▶ Human Exposure: If not properly treated, textile effluents can contaminate local water supplies, potentially exposing nearby communities to harmful chemicals and dyes. This can have long-term health implications.

iv. Impact on Textile Industry Reputation:

Sustainability Concerns: The environmental impact of textile effluents can tarnish the reputation of textile companies, particularly in an era where sustainability is a growing consumer concern.

v. Regulatory Compliance:

Stringent Regulations: Governments and environmental agencies have implemented strict regulations regarding the discharge of

INNOVATIVE APPROACHES TO SUSTAINABLE TEXTILE EFFLUENT TREATMENT

industrial effluents, including textile effluents. Non-compliance can result in fines and legal actions.

vi. Resource Consumption:

 High Water Usage: The textile industry is known for its high water consumption. Treating effluents and reducing water usage are essential for sustainable operations.

vii. Treatment Challenges:

Complex Composition: Textile effluents are complex in composition, containing various dyes, chemicals, and solids. Effectively treating such effluents can be technically challenging.

viii. Economic Implications:

➤ Treatment Costs: Implementing advanced treatment technologies to address textile effluents can be costly, potentially impacting the profitability of textile companies.

EMERGING SOLUTIONS

To tackle the challenges posed by textile effluents, several emerging solutions and innovative approaches are being explored in the textile industry. These solutions aim to improve the treatment of textile effluents, reduce environmental impact, and promote sustainability.

1. Advanced Oxidation Processes (AOPs)



Figure.2. Advanced Oxidation Processes (AOPs)

One of the most promising recent developments is the application of Advanced Oxidation Processes (AOPs). AOPs use powerful oxidants to break down organic compounds into harmless byproducts. These processes can effectively remove a wide range of contaminants, including dyes and toxic chemicals. Methods like ozonation, photocatalysis, and Fenton's reagent have gained traction in the textile industry due to their high efficiency and versatility.

- ▶ Photocatalysis: This process involves the use of photocatalysts, such as titanium dioxide (TiO2), that are activated by ultraviolet (UV) light or other light sources. When exposed to light, photocatalysts generate hydroxyl radicals, which can rapidly oxidize and decompose organic pollutants.
- Ozonation: Ozone (O3) is a powerful oxidizing agent that can be used to treat wastewater. Ozone can directly react with contaminants or indirectly produce hydroxyl radicals, leading to the degradation of various pollutants. It's especially effective in breaking down organic compounds.
- ➢ Fenton and Photo-Fenton Processes: Fenton's reagent involves the use of iron salts (Fe2+) and hydrogen peroxide (H2O2) to create hydroxyl radicals. Photo-Fenton processes combine this with UV or visible light irradiation to enhance the generation of hydroxyl radicals.
- ➢ Sono chemical Processes: These processes use high-intensity ultrasound waves to create cavitation bubbles in the wastewater. The collapse of these bubbles generates localized high temperatures and pressures, leading to the formation of hydroxyl radicals, which can oxidize contaminants.
- ➢ Electrochemical Oxidation: Electrochemical AOPs use electrodes to generate oxidizing species like hydroxyl radicals within the wastewater. These processes are effective in breaking down various pollutants, including persistent organic compounds.
- Combination of AOPs: In many cases, a combination of AOPs or hybrid processes is used to maximize the removal efficiency of contaminants. For instance, combining ozonation with photocatalysis or electrochemical methods can provide enhanced treatment results.

2. Biological Treatment with Microbes

Biological treatment, particularly using microorganisms, is a widely employed and sustainable method for treating various types of wastewater, including industrial effluents. This approach harnesses the metabolic capabilities of microorganisms to break down organic and

INNOVATIVE APPROACHES TO SUSTAINABLE TEXTILE EFFLUENT TREATMENT

inorganic pollutants, transforming them into less harmful or non-toxic substances.

- Microbial Diversity: Microbial communities are incredibly diverse and include bacteria, fungi, archaea, algae, and protozoa. Each type of microorganism has unique metabolic pathways, making them suitable for degrading specific types of contaminants.
- Aerobic Biological Treatment: In aerobic systems, microorganisms require oxygen to metabolize organic compounds. Common aerobic processes include activated sludge systems and aerobic biofilters. These systems are effective at degrading organic matter, including carbonaceous pollutants, but may not be as efficient for certain recalcitrant compounds.



Figure.3. Biological Treatment with Microbes

- Anaerobic Biological Treatment: Anaerobic processes occur in the absence of oxygen and are used for the degradation of complex organic compounds, such as high-strength organic wastewaters. Anaerobic digesters and upflow anaerobic sludge blanket (UASB) reactors are examples of anaerobic treatment systems.
- ➢ Nutrient Removal: Microbes in biological treatment systems require essential nutrients like nitrogen and phosphorus for growth and metabolism. Nutrient removal processes, such as the addition of chemicals or biological nutrient removal (BNR) systems, help control nutrient levels in wastewater.

- Specific Microbial Consortia: Some industrial effluents contain unique pollutants, such as certain dyes, pharmaceuticals, or chemicals. In these cases, specialized microbial consortia or genetically engineered microorganisms may be employed to enhance the biodegradation of specific contaminants.
- Biodegradability: The biodegradability of pollutants is a critical factor in biological treatment. While many organic compounds can be efficiently degraded, some persistent or toxic substances may require pre-treatment or posttreatment steps to improve biodegradability.
- Sludge Production: Biological treatment processes often produce sludge as a byproduct. This sludge can be further treated or processed for disposal or beneficial use, such as in agriculture or as a source of renewable energy through anaerobic digestion.
- ➢ Environmental Sustainability: Biological treatment methods are environmentally sustainable because they do not rely on the addition of chemicals or the generation of hazardous by-products. They contribute to reducing the carbon footprint of wastewater treatment.
- 3. Membrane Filtration Technologies



Figure. 4. Membrane filtration

Membrane filtration technologies have revolutionized wastewater treatment processes by providing efficient and versatile methods for separating contaminants from water. These technologies rely on semi-permeable membranes that allow the passage of water molecules while blocking or concentrating suspended solids, dissolved substances, and even microorganisms.

INNOVATIVE APPROACHES TO SUSTAINABLE TEXTILE EFFLUENT TREATMENT

Here, we explore various membrane filtration technologies and their applications in wastewater treatment:

- ➤ Microfiltration (MF): Microfiltration employs membranes with pore sizes typically ranging from 0.1 to 10 micrometers. It is commonly used for the removal of suspended solids, bacteria, and some viruses. MF is often applied as a pretreatment step before more advanced filtration or disinfection processes.
- Ultrafiltration (UF): Ultrafiltration membranes have smaller pores, typically ranging from 0.001 to 0.1 micrometers. UF is highly effective in removing colloidal particles, bacteria, viruses, and macromolecules. It finds applications in producing high-quality drinking water and treating industrial effluents.
- Nanofiltration (NF): Nanofiltration membranes feature even smaller pores than UF, typically ranging from 0.001 to 0.01 micrometers. NF is capable of removing divalent ions, such as calcium and magnesium, as well as certain organic compounds. It is often used for water softening, desalination, and the treatment of brackish water.
- ➢ Reverse Osmosis (RO): Reverse osmosis is the most restrictive membrane filtration technology, with pore sizes typically below 0.001 micrometers. RO can effectively remove salts, ions, organic compounds, and nearly all microorganisms. It is widely employed in desalination, producing high-purity water for industrial processes, and treating wastewater from various sources.
- Membrane Bioreactors (MBR): MBR combines membrane filtration with biological treatment processes, such as activated sludge systems. It offers enhanced solid-liquid separation, producing high-quality effluent with low turbidity and suspended solids. MBRs are commonly used in municipal wastewater treatment and industrial applications.
- ➢ Forward Osmosis (FO): Forward osmosis is an emerging technology that utilizes osmotic pressure to draw water through a semipermeable membrane while rejecting solutes. FO has potential applications in wastewater concentration and the recovery of valuable substances from industrial effluents.

4. Green Chemicals and Sustainable Dyeing Techniques

Green chemicals, also known as eco-friendly or sustainable chemicals, are substances designed to minimize environmental impact while maintaining or improving performance. In the textile industry, the development and adoption of green chemicals offer several benefits:

Green Chemicals

- Biodegradability: Green chemicals are formulated to break down naturally in the environment, reducing the persistence of harmful substances.
- ➤ Low Toxicity: They have reduced toxicity compared to traditional chemicals, making them safer for both workers and the environment.
- Reduced Water and Energy Usage: Some green chemicals enable dyeing at lower temperatures and with less water, helping to reduce energy consumption and water usage.
- Waste Reduction: Green chemicals can result in less chemical waste and lower levels of pollutants in wastewater.

Sustainable Dyeing Techniques

- ➤ Digital Printing: Digital textile printing allows for precise, on-demand color application, reducing water and dye usage compared to traditional dyeing methods. It also eliminates the need for screens and plates, reducing waste.
- Supercritical Fluid Dyeing: This technique uses supercritical carbon dioxide (CO2) as a dyeing medium instead of water. It offers significant reductions in water consumption and shorter processing times.
- Biological Dyeing: Biological dyeing relies on microorganisms, such as bacteria or fungi, to produce pigments and dyes. This approach eliminates the need for synthetic dyes and the associated chemical processes.
- ➢ Recycling and Upcycling: Some sustainable dyeing methods focus on using recycled textiles or upcycling old garments, reducing the need for new materials and dyeing processes.

CONCLUSION

The textile industry is at a crossroads, facing both growing global demand and increasing pressure to address its environmental footprint.

INNOVATIVE APPROACHES TO SUSTAINABLE TEXTILE EFFLUENT TREATMENT

Effluent treatment methods are a critical aspect of this sustainability journey. Recent developments in advanced oxidation processes, biological treatments, membrane filtration, and sustainable dyeing techniques represent a significant step forward in reducing the environmental impact of textile manufacturing. To achieve a more sustainable future, it is essential for textile companies to not only embrace these emerging technologies but also commit to responsible practices, transparent reporting, and a collective effort to reduce the environmental burden of the industry. By doing so, the textile sector can transform itself into a symbol of innovation and sustainability in the world of manufacturing.

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Share of cotton in fibre offtake contracts in India

The decline in cotton's share in global fibre consumption is catching up in India too, with the production and consumption of synthetic and cellulosic fibres increasing, traders and industry experts have said.

"The Indian fashion industry has also started adopting the global trend of using-multi-fibres in a majorit of textile products. Blends, particularly Tri-Blends, are making inroads in the fashion space at high end as well as value retail due to better functional aspects," said Prabhy Dhamodharan, Convenor, Indian Texpreneurs Federation (ITF).

"No doubt, global consumption of manmade fibres has gone up. However, imports of manmade fibres have been curtailed due to the quality control order (QCO). As a result, imports of fibres have been curtailed," said K Selvaraju, Secretary-General, The Southern India Mills Association (SIMA).

"Consumption of cotton has already been impacted by man-made fibres. Now, the use of recycled yarn is improving. It is also eating into cotton consumption," said Raichur-based Ramanuj Das Boob of the All India Cotton Brokers Association and a sourcing agent for multinationals and domestic textile companies.

"This has been taking place from around Covid time," said Rajkot-based Anand Popat, a cotton, yarn and cotton waste trader.

The USDA said in its "Cotton: World Market and Trade" report that 2024-25 global cotton consumption

is forecast at 115.2 million bales (226.8 kg each), near the 10-year average. It is over 9 million bales below the record level witnessed 4 years ago. "This is despite record global fibre consumption in the calendar year 2023 as synthetic fibres are meeting the world's growing demand," it said.

ITF's Dhamodharan said cellulosic and polyester fibre usage is going up pin the basic products which are used by the mass population due to cost dynamics.

"The usage of man-made fibres has increased over the past three years while that of cotton has dropped in comparison in the overall fibre consumption. I would say the usage of cotton has not dropped but it has not witnessed growth like man-made fibres. That's why its share in the overall fibre consumption is dropping," said Popat.

"Yarn and fabric manufacturers have started adopting the use of cotton and cellulosic blends as a combination to improve operational efficiency and better finish," said the ITF convenor. These changes on the ground are keeping a check on the consumption and prices of cotton in India, he said.

"Recycled yarn and cloth movement are moving fast as they are competitively priced. However, it seems to affect the quality of yarn and cloth," said Das Boob. "Cotton consumption continues to hover around 150 million bales, give or take 25-50 lakh bales. It has remained so over the past few years while synthetics usage has increased," said Popat.

INTEGRATION OF BLOCKCHAINED-ENABLED AI SYSTEMS INTO CLO3D

Faryal Munawar, Syeda Maham Jafri

Abstract

While digital forms of transformation across the fashion industry have been pervasive, authenticity of design and intellectual property protection have been the challenges that come along with them. With the hope of modeling such authentications, this paper studies how blockchain-enabled Artificial Intelligence (AI) systems can be integrated into CLO3D, an industry-leading 3D garment design tool. By using the blockchain as our secure, decentralized, and transparent platform, we can track garment ownership, prevent counterfeiting, and maintain design integrity. Building on this framework, artificial intelligence is implemented to move from simple pattern recognition to the more advanced, unauthorized replica pattern recognition. As the problem of digital plagiarism in fashion continues to rise, combining blockchain's immutable ledger with AI's ability to track, monitor, and verify digital assets can solve the problem of digital plagiarism in fashion. Through this thesis, we create the basis for blockchain-enabled digital fashion authentication innovation and intellectual property protection in the fashion industry.

Keywords: IP Protection, Blockchain, AI, CLO3D, Digital Garment Authentication, Counterfeit Detection, NFT, Intelligent Lending, Smart Contract, Digital Fashion.

1. Introduction

The fashion industry is currently a market of scale embarking on a profound digital transformation and is reconfiguring or rather deconstructing and reconfiguring the processes of design, production, and interaction with consumers. CLO3D digital tools have completely changed the entire game of how designers can create and interpret garments, as well as the entire process of getting garments from designer to consumer, saving time and resources with more efficient workflows and fewer physical samples. But as digital garments become more pervasive, most particularly among virtual fashion and non-fungible tokens (NFTs) (Malik et al. 2023), the authenticity of the design has become even more vital now. Intellectual property is something crucial that digital fashion can protect and something that designers and the industry as a whole are threatened by; namely counterfeiting and unauthorized reproduction of designs.

CLO3D, according to Dai and Hong (2023), is a very detailed powerful software tool to

generate garment designs with representation of fabric properties and fabric movement in a virtual environment that is very detailed and exact. On the plus side, this technology has untapped potential but there are also some hurdles regarding the protection of the originality of digital design. As the industry moves towards digital garment production, we need systems for authentication.

This is where blockchain technology has a promising solution. The blockchain is embracing the fact that it is a decentralized and immutable ledger by creating a secure platform where the ownership creation and transfer of digital assets can be documented and also protect designers' intellectual property (Chan et al., 2023). This framework incorporates AI systems so that the automated detection of unauthorized replicas becomes possible and also adds another layer of security to the digital fashion ecosystem (Patel et al., 2024).

This research aims to investigate the possibility of a blockchain-powered AI system to ensure the authenticity of digital garment designs stored in CLO3D. In this study, we provide an analysis of how these technologies can aid in protecting intellectual property and counterfeiting that also fits within the broader discourse around the future of digital fashion and how technology can help to avoid losing the creative integrity of the works.

1.1 Objectives of the Study

1. Examine the Role of CLO3D in Digital Garment Creation:

This study aims to identify how CLO3D is used in this industry to create the three-dimensional garment design. This research helps analyze its role in streamlining the design process, reducing the residency of physical prototyping, and creating a more sustainable fashion production.

2. Investigate Blockchain-Powered AI Systems for Design Authentication:

This research purpose and main scope is the study of how to integrate blockchain with artificial intelligence (AI) to secure digital fashion designs digitally. This work aims to assess whether blockchain can track the creation and ownership of a garment, as well as AI that can detect these unauthorized replicas to protect intellectual property rights digitally.

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3. Analyze the Impact of Blockchain and AI on Intellectual Property Protection:

This is to see if combining blockchain and AI could potentially provide a safe framework for fashion designers to protect their creative work. The paper aims to ascertain how much these technologies can stop plagiarism, counterfeit designs, and the use of digital garments without authorization.

4. Evaluate the Effectiveness of Blockchain in Ensuring Design Ownership and Transparency:

In this research, the application of blockchain becomes a tool to create a transparent, immutable record of digital garment ownership and transfer. Our goal is to understand how blockchain can be used to ensure the authenticity (or provenance) of digital fashion design which is verifiable and tamper-proof.

5. Assess the Potential of Blockchain and AI Systems to Improve Design Integrity and Efficiency:

Through this study, we will present how the integration of blockchain and AI systems can help enhance the integrity of digital fashion design as well as the efficiencies of the design and production process. The goal is to evaluate if these technologies can simplify workflows and simultaneously enhance the security of digital assets.

6. Provide Insights into the Future of Digital Fashion Technologies:

The last goal is to predict future applications of blockchain and AI technologies for the digital fashion industry. Part of it is about identifying emerging trends and opportunities for advancing design and production, as well as the wider digital fashion ecosystem through advanced technological integration.

2. Background

2.1 Blockchain in Digital Design

Blockchain is a very simple and clever development in technology based around the idea that you can easily and responsibly record data on a network of computers ensuring that nobody can claim ownership over the use of that data. Also, the combined ability to be transparent and secure of Blockchain gives it the capability to track how and where digital assets (digital assets in this case meaning owner and provenance) are authored and verified (Narayanan et al., 2016). Blockchain has found its place in the art and music industry to bring about authenticity and ownership. For instance, looking at the contemporary art market, there have been platforms for Artory (Aste et al., 2017) that have materialized to utilize blockchain for an immutable history of an artwork. In the same way as currencies, platforms like Audius use the blockchain to record transactions and all rights including ownership with the use of a transparent ledger (Liew & Hewlett 2017).

When it comes to the fashion-related part, the existence of blockchain in the digital creation of the garment will prevent it from being fake and assure its authenticity. By registering each digital garment on a blockchain, designers can attach each item to a tamper-proof certificate of authenticity tied to their work. Beyond ensuring that designers don't lose out to unscrupulous copycats, once in place this also provides consumers a way to verify the purchase of derivative work (Wang et al. 2019).

2.2 AI in Design Authentication

Artificial intelligence (AI) has proverbially invaded every corner of life including craft, design authentication, and monitoring. Pattern Recognition abilities of AI allow the AI to detect unauthorized replica garments to protect intellectual property (Saleh et al., 2022).

Using specific components of the AI algorithmic toolkit, such as convolutional neural networks (CNNs), there is a lot of success in being able to find/make sure deviations are found and apparel fits the specifications. These algorithms can evaluate runs of images of garments and check them against registered designs, and possess the ability to inform the first time there is a discrepancy (Kim et al, 2022).

While authentication using AI applications in fashion is common, beyond authentication there are visual recognition systems to support inventory management and design automation tools to support designers for pattern generation and garment creation (Dou et al., 2023). An example is machine learning algorithms seen in AI-enabled tools like Stitch Fix, which consider a consumer's browsing history and make a personal styling recommendation (Schinner et al., 2017).

2.3 CLO3D in Fashion Design

CLO3D is a 3D garment visualization tool powerful enough for designers to upload their brand or the latest designs from production and create, simulate, and present garments digitally.

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Kim et al. (2022) evaluate its functions, such as accurate fit modeling, realistic fabric simulation, and a user-friendly interface for design teams to collaborate. This limits design waste as designers do not have to create a physical prototype, moreover, after seeing a physical prototype, designers can eliminate their waste in the design process as compared to a heavy physical prototype (Dai & Hong, 2023).

CLO3D is a bridge between designers and manufacturers in the digital fashion ecosystem, resulting in continuous insertion into the loop between the designers, the retailers, and the manufacturers. Such digital tools as CLO3D provide integration with other technology reduce workflows and fast provide innovative products to market (Xiao & Kan, 2022).

3. Methodology

3.1. Blockchain and AI System Design

In this work, we have built a system that utilizes blockchain in conjunction with AI to verify the ownership of digital garment creations in CLO3D. In this section, we have a detailed breakdown of each component and the interaction between them to make it a secure, traceable, and efficient way to verify digital fashion designs.

3.1.1 Blockchain-Powered Al Framework for Garment Authentication

The framework integrates several cuttingedge technologies to ensure the authenticity and ownership of digital garments:

1. Blockchain Ledger:

Every transaction regarding the garment is recorded in a Blockchain – this is an immutable and decentralized ledger. It guarantees that the birth of the garment and all its subsequent steps, from production to transfer or sale, is a keepsake.

▶ Application in Fashion:

If the design is made in CLO3D, the designer puts the design data (fabric type, pattern, etc.) into the blockchain, and obtains a unique identifier (like a serial number) for it. So this design identifier can't be changed to be the one to confirm the authenticity of the design.

2. AI-Powered Verification System:

Using digital garments and their design features (e.g. textures, stitching patterns, and shapes) AI algorithms analyze digital garments. The AI then compares the features with those stored on the blockchain original design.

▶ Application in Fashion:

For example, AI could detect subtle differences in case of a counterfeit design when crossreferenced against stored data. It stops such a garment from being distributed through unauthorized copies or fake versions.

3. Smart Contracts:

Self-executing contracts are smart contracts. It is when the terms written in the code are selfexecuted. They are used to automate tasks such as royalty payments, resale permission, licensing of the garment design, or anything for that matter.

▶ Application in Fashion:

When a garment is sold, the smart contract takes care of compensating the original designer. No need for intermediaries or manual intervention.

4. NFT Integration:

Non-fungible tokens (NFTs) are unique digital assets. But they represent who owns a digital garment, how is it authentic and how do you track it?

▶ Application in Fashion:

NFT is assigned to each garment once it is created. By selling or buying the digital garment the NFT passes ownership, providing proof that this is the original form of it.

3.1.2 Real-Time Tracking of Digital Garment steps for AI with Blockchain integration

It also integrates in a way that ensures each transaction or modification of a garment is kept track of and verified in real-time, ensuring further security and transparency.

1. Garment Creation in CLO3D:

In CLO3D, designers specify patterns, materials, and texture to create the garments. It then uploads this design to the blockchain.

Example: With silk fabric and unique embroidery patterns a designer makes a virtual dress.

This info is recorded on the blockchain, tied to a unique identifier.

2. AI-Driven Feature Analysis:

They then let AI analyze the garment's physical characteristics (like the fabric's flow, texture, and stitches). Then, it creates a digital fingerprint, an individual profile that shows this piece of clothing apart from other ones.

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Example: The AI algorithm flags a counterfeit if someone tries to create a knockoff dress since the algorithm sees differences in stitching or pattern details.



Figure 1. Al in Fashion

3. Blockchain Record and Smart Contract Execution:

After the garment is uploaded, the blockchain starts executing a smart contract. This contract automatically defines who owns the garment, rights of usage, and who owns the royalty. It also ensures that all the stakeholders get paid accordingly.

- Example: If the sale of the dress ever happens, a smart contract is programmed to take a predefined portion of the sale and send it to the designer's wallet where it's stored permanently on Blockchain.
- 4. Verification and Tracking:

Whenever the garment is sold or otherwise transferred the blockchain updates its ownership record. Continuous transaction monitoring by the AI system determines whether a new owner's new garment is similar to the original design.

Example: The system then catches a new owner's attempt to edit the dress digitally, and stops the distribution of the altered design unless that person agrees to share it with the world.



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3.1.3 Using AI and Blockchain, embedding verified data flows from the creation of the garment to verification.

- 1. Garment Design and Data Input:
 - **Step 1:** CLO3D is used for designers to design garments and to input design data (e.g. fabric, texture, pattern, designer info) to the blockchain.
 - **Example:** With CLO3D, a fashion brand designs a coat. On the blockchain, it records the material, pattern details, and the designer's credentials.
- 2. Blockchain Registration:
 - **Step 2:** A unique identifier (NFT) is given to the garment so that the design and its metadata cannot be changed or falsified.
 - **Example:** The product is an NFT of its unique coat design.
- 3. AI Data Processing and Feature Analysis:
 - **Step 3:** When AI receives a garment's features (texture, design elements) it creates a digital fingerprint that can be used for comparing against the garment in the case of resale or transfer.
- 4. Real-Time Tracking and Ownership Transfer:
 - Step 4: Morelos, also known as the cashier of the city, logs all ownership transfers on the blockchain and takes their cut. In every step, AI monitors each transaction and verifies the authenticity of the garment.
 - **Example:** The AI uses verifies if the coat is resold and it checks whether it's the seal design it had earlier.



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Figure 3. Creating 3D Fashion Clothing with Clo3D



Figure 4. CLO3D down jacket fitting process.

3.1.4 Counterfeit Detection and Protection Mechanism

The system is designed to detect and protect against counterfeits:

- 1. **AI Cross-Verification:** The attention of AI is centered on constantly comparing any new or modified piece of fashion with the original, blockchain-stored design. If there are discrepancies (e.g., different patterns, different textures), then the system will sound an alert.
- Example: The system detects a counterfeit coat with slight stitching differences, and confirms it as unauthorized.
- 2. **Blockchain Proof of Authenticity:** The blockchain proof ensures that the garment cannot be forged, and that design theft does not exist.

4. Results and Analysis

4.1 Blockchain-Al System Performance

a. AI for automated auditing of unauthorized replicas

We also rigorously tested the AI component of the blockchain-based system that we developed to check how it would perform in spotting off-therecord replicas of digital garments. AI algorithms were used to give a digital 'fingerprint' to each design by analyzing and comparing different unique garment attributes such as fabric types, pattern intricacies, and texture simulation. However, a system was able to tell the difference between original and counterfeit garments based on digital fingerprints provided by these materials. In testing, the AI successfully reached 95 percent accuracy in spotting counterfeit replicas that could traumatize digital fashion ecosystems (Narayanan et al., 2016).

To eventually detect and take action against counterfeited digital garments from the moment of creation and before they spread, real-time crossdomain analysis was imperative and was helped by the AI. If designs were detected to be unauthorized, the system would flag them immediately to prevent counterfeit items from remaining on digital platforms for a prolonged period. The ability also reduced the need for the system to be able to differentiate between appropriate design modifications by authorized users versus illegal alterations (Saleh et al., 2022). a feature that also increased the effectiveness of the system in preventing clothes theft.

The blockchain side of the library did the work of tracking and verifying garment ownership and making sure there was a full public and immutable record of transactions. Each digital garment received a unique digital identifier, just like all other contactless objects, recorded as a 'non-fungible token' (NFT) on the blockchain. As a result of this, it was easy to verify ownership and see the full transaction history for the garment.

A proof of concept was demonstrated of the blockchain component of the system with the presence of a verification time of less than 5 seconds for ownership transfers in real-time. A developer of this feature was very much collaborating fast at a pace where the digital fashion environment needed it to happen in the quickest turnaround. This immutability in the blockchain helped keep ownership records permanent and unchangeable (Wang et al., 2019), as they were nearly immutable.

In addition, the blockchain's decentralized nature allowed for the coordination of multiple users to trade with each other endlessly with the system load. The designers and consumers could transfer ownership quickly while maintaining the authenticity of the digital garments (Aste et al., 2017), by designing this efficiency.

b. Preventing Counterfeiting with Security Analysis of Blockchain

Blockchain technology made it possible to prevent the counterfeit or unauthorized tampering

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of garment ownership records. Several of its inherent security features were analyzed during this study:

- Immutability: Once you assign a garment to a new owner or use the correct design, you can no longer enhance or erase a garment in that assignment. The immutable nature of the digital garments prevented malicious actors from modifying ownership records, or changing design data to compromise the authenticity of the digital garments (Narayanan et al., 2016).
- Decentralization: The decentralized nature of Blockchain considerably depletes the possibility of data spoofing or counterfeiting. This malicious actor would not only have to compromise a majority if not all of the network's nodes, but it would also be quite difficult to counterfeit garments or change an owner's record (Liew & Hewlett 2017).
- Smart Contracts: Smart contracts, in the form of the blockchain itself, enforce ownership and royalty agreements automatically. It then employed these contracts against some common exploitable vulnerabilities such as reentrancy attacks and transaction front running, and demonstrated that they are secure and reliable. Transaction automation was obtained via smart contracts, ensuring that once ownership was transferred and royalty paid, it was fair and transparent (Aste et al., 2017).

This enabled the system to seamlessly integrate AI-powered garment verification into the secure, completely transparent digital ownership records offered by the blockchain to result in a reliable way to verify digital garments. This particular combination of AI and blockchain was very effective in tackling counterfeiting, and making sure that counterfeited digital garments can't be sold fraudulently on this marketplace.

4.2 Comparison with Traditional Authentication Systems

a. Improved Design Integrity and Efficiency

Compared with prior systems of digital garment authentication utilizing laborious processes or representation by static previews, the blockchain-AI system offered several advantages. It was new to AI, automated, real-time detection. By allowing AI to continuously analyze garment attributes and figure out illegal replicas without human intervention, the time and resources needed to design integrity checking (Kim, 2024) were significantly reduced.

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Moreover, the ownership verification was further enhanced by the blockchain aspect, not just in terms of additional lines of security, but also in terms of efficiency of verification. Like in traditional systems, owners' verification was often the responsibility of central authorities or intermediaries which can be prone to delay and error. On the other hand, blockchain as a decentralized and immutable architecture promptly facilitates the rental of assets through instant verification of ownership while effectively circumventing the problems of traditional methods used in proving ownership (Wang et al., 2019).

b. Trust and Confidence in Designer

The blockchain endowed designers and other stakeholders of the digital fashion ecosystem to trust each other more and to be more transparent. This made it so the designers wouldn't have to worry about counterfeiters and the consumers could verify and know what they were purchasing was authentic. In traditional authentication systems this level of transparency would have had to rely on opaque (Saleh et al., 2022) third-party verification processes for consumers to trust and rely on.

In addition, having the blockchain-AI system provided real-time updates of the ownership and design records in the digital fashion market added to the confidence in the digital fashion market. This freed designers to spend their productive time coming up with new designs without having to worry about ownership of intellectual property, which encouraged people to purchase digital garments because they could trust they were buying an authentic, tamper-proof garment. (Narayanan et al., 2016).

4.3 Potential Impact on the Digital Fashion Industry

AI and blockchain-based digital fashion can offer the industry a digital fashion system to solve the problem recently existing in the industry design and intellectual property authentication. This system addresses the digital fashion space critically from the perspective of quick and counterfeit garment detection, ownership, and transparent records.

This technology allows design to reduce the risk of intellectual property theft while still keeping the ability to control one's ideas. By providing consumers with a felt sense of safety in spending money to make a digital garment purchase, the system transcends customers' perceptions that they
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are making a purchase they need to worry about getting a fake (Wang et al., 2019).

In this regard, the blockchain-based AI system is a new paradigm for the authentication of digital garments, allowing for a secure, open, and fast solution to guard intellectual property in an everchanging digital fashion market.

5. Discussion

Through this research, we demonstrate how blockchain-enabled AI systems can completely change how work is performed in the digital fashion authentication, ownership protection, and counterfeiting prevention activities in the CLO3D context. This integration aims to tackle the slow, difficult challenges within the fashion industry, real with intellectual property theft and unauthorized replications in physical and digital space (Yaqub & Alsabban, 2023). Blockchain and AI technology have solutions for all designers and consumers to provide secure, verifiable digital garment ownership, and identification of counterfeit.

5.1 Blockchain and AI Solutions for Design Integrity

We use blockchain to maintain the digital fashion design integrity. Because blockchain is immutable (Tapscott & Tapscott, 2016), once a design is placed on the blockchain, it cannot be changed or deleted without authorization. However, because this is an immutable system, designers can rely on it for filing their designs and taking special care in protecting their intellectual property — a concern rampant in the digital fashion industry.

Blockchain also features an additional level of security since it is decentralized and no single entity can take control of the system, thus reducing the potential for data tampering. By decentralizing ownership, the former method can keep ownership records transparent and open. So the trust in remaining on the procession of a digital garment from creation to resale (Wang et al., 2019). Through blockchain, we allow for owners to own and verify ownership instantly, this is crucial for both creators and consumers in the digital fashion space.

However, here AI improves this system through a dynamic layer of real-time counterfeit detection. In this study, the AI algorithms identifying unauthorized garment replicas used for the analysis of certain garment features such as fabric texture, stitching pattern, and design elements were done effectively (Dou et al., 2023). Especially in a digital fashion environment, this capability is extremely important, because designs are easily copied and redistributed. The pattern recognition and design verification capabilities of AI give designers a powerful tool with which to protect their designs against counterfeiting to strengthen the integrity of the fashion design process as a whole.

Additionally, the integration of smart contracts to the blockchain system allows for the automatic transfer of transactions related to the transfer of ownership of garments along with payment of royalty to the concerned person. Smart contracts work through to ensure that designers are fairly compensated every time their designs are sold or transferred, escrowing a piece of the revenue pie for them. The automated piece takes the administrative load off and creates trust between the creator and the consumers as all transactions occur transparently and fairly (Wang et al., 2019).

5.2 Challenges in Real-World Application

Despite the benefits of blockchain-based AI systems, there are many challenges to their adoption in real-world fashion scenarios as preferred in this paper. One great challenge is to implement this technology. To deliver garment tracking and verification, blockchain infrastructure has to be created and maintained, which can be an expensive process, especially for smaller fashion brands or independent designers (Saleh et al., 2022). However, the high upfront costs and these additional costs such as the maintenance and scaling costs can limit the public utilization of these systems.

Also, blockchain and AI integration is a barrier to entry that most fashion businesses will face technically. However many fashion brands don't have the technical expertise to properly control these systems, and waste the bulk of time, money, and resources relying on external vendors or platforms for fulfilling essential needs, turning pricey and operation-dependent (Aste et al., 2017). This means that those in the fashion industry who are very small players may wait and adopt blockchain and AI technology with reluctance.

Another problem is that it doesn't scale well. Currently, blockchain stands as a secure and transparent method to track ownership but can struggle to do the same at large volumes of transactions. For instance, in the future, as the number of designers and consumers using blockchain-based systems increases, the network will get congested and it will take longer for

transactions to be processed due to slow transaction speed processing cost (Puthal et al., 2018). This issue has to be addressed to keep blockchain as a viable option in the booming digital fashion market.

However, adoption barriers and standardization are daunting problems. With the pervasive development of blockchain-powered AI systems in the fashion sector, successful implementation in the fashion industry requires the cooperation of the industry and the development of a standard framework for design authentication and ownership verification (Swan, 2015). This would not have a major impact on digital fashion until all these technologies are adopted globally and standardized.

5.3 Long-Term Implications for the Fashion Industry

However, the integration of blockchain and AI in digital fashion does not come without its challenges but has long-term implications. Due to more and more fashion designs existing in the virtual world, blockchain technology will become increasingly important for ensuring authenticity and ownership verification (Tapscott & Tapscott, 2016). Blockchain can facilitate a secure and immutable system to register their creations, reducing the incidence of design theft and counterfeiting recognized as problems in the fashion industry.

In addition, AI will continue to reshape design processes by providing further real-time fabric simulation and pattern recognition design verification tools as well as design tools and methods. These capabilities enable designers to play with their designs, furthering their design while preserving the original value. Continued innovation and creativity (Dou et al., 2023) will equip the realm of the role of AI technology in digital fashion with future innovation.

Blockchain and AI technologies in the future may make the fashion industry more transparent, more sustainable, and more customer-driven. These technologies will empower designers, consumers, and manufacturers to build trust between themselves by decreasing the likelihood of counterfeiting and raising ownership transparency. Smart contracts might help to automate royalty payments and licensing agreements that are better in terms of processing and less burden for the administrative part of the fashion supply chain (Wang et al., 2019).

6. Conclusion

Combining blockchain-enabled systems with the CLO3D digital garment design platform

allows for the elimination of the endemic problems of intellectual property theft and counterfeit digital garments, and this study presents its transformative potential. Blockchain technology can be applied as a way to deliver a secure and transparent method of proving ownership and authenticity of a digital garment design. By allowing the design to exist on a blockchain, the Blockchain prevents the unauthorized replication of the design and counterfeiting, while making sure that all ownership and modification of the design is recorded tamperproof to an immutable ledger. Indeed, similar to traditional pattern recognition algorithms, AI technologies coupled with blockchain serve to detect counterfeit designs in real-time through advanced pattern recognition algorithms. This combination not only secures digital assets but enables superior performance of the authentication process, giving feelers of security and integrity to the designs of digital assets. By combining blockchain and AI, we end up with a system to safely authenticate digital fashion designs while protecting the designers' intellectual property.

In the end, this is one of the principal conclusions of the study, namely that these technologies are important in building trust and providing transparency for digital fashion. What this means is that designers can feel safe to create and share their digital garments, and their work can be protected. Smart contracts on the blockchain work to integrate royalty payment integrations and licensing agreements, therefore automating fair compensation of designers while removing administrative overhead. Following this, future research could use blockchain technology in the form of a deeper application across all areas of the fashion supply chain. Blockchain would bring transparency and security to areas, such as inventory management, sustainability tracking, and ethical sourcing. Furthermore, the further refinement of AI algorithms for counterfeit detection and fabric simulation would further improve the precision and functionality of digital garment design tools, improving the around process for designers and manufacturers. Continuing fashion's digital evolution, blockchain and AI technologies can become an increasingly integral part of the fashion industry to become more secure, transparent, and efficient. And these innovations could reshape the way fashion is invented, authenticated, and consumed in the digital age.

INTEGRATION OF BLOCKCHAINED-ENABLED AI SYSTEMS INTO CLO3D

Appendix

Appendix A: Blockchain and Al System Design for CLO3D

- 1. Blockchain Architecture:
 - **Platform:** If you use Ethereum or something similar with smart contracts for ownership and royalty automation.
 - **Tokenization:** Each garment is represented as an NFT, securing ownership and metadata.
 - **Security:** Immutable ledger and decentralized system prevent tampering.

2. AI Algorithms for Authentication:

- Machine Learning: Fabric textures and design pattern recognition at 95% accuracy to identify counterfeits.
- **Feature Recognition:** It then identifies the key design elements of stitching and textures.

Appendix B: Designer and User Feedback

- 1. Designer Survey Questions:
 - Satisfaction with blockchain's design protection?
 - Suggestions for system improvements?
- 2. User Survey Questions:
 - Confidence in authenticity?
 - Ease of understanding the ownership process?

Appendix C: Performance Metrics

Blockchain:

- **1. Transaction Time:** Less than 5 seconds for ownership verification.
- **2. Gas Fees:** Manageable but varied with network congestion.

AI System:

- 1. Accuracy: 95% counterfeit detection rate.
- **2. Processing Time:** 2.5 seconds per design comparison.

Appendix D: Implementation Challenges

- 1. Scalability Issues:
 - Layer-2 solutions that mitigate network congestion can be layer-2 scaling (side chains).
- 2. High Gas Fees:
 - Use other blockchains or (for example) Binance Smart Chain to reduce costs

Appendix E: Ethical Considerations

1. Data Privacy: Secure storage of design data, with no personal data exposure.

2. Informed Consent: Participants' data was anonymized in surveys and interviews.

Appendix F: Future Enhancements

- 1. Advanced AI Algorithms: Improve recognition of intricate designs and fabric simulations.
- 2. Sustainability Tracking: Extend blockchain to track environmental impact in fashion production

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GDP growth shows sharp decline to 5.4% in Q2, lowest in 7 quarters

Barring the Agriculture and Services sectors, all segments of the economy reported a sharp deceleration from a year ago in Q2, with Mining and Quarrying GVA slipping into the red with 0.1% contraction, from an 11.1% uptick in Q2 last year. Agriculture, Livestock, Forestry and Fishing GVA grew 3.5%, more than double the 1.7% uptick recorded a year ago.

"The sharply lower-than-expected GDP figures reflect the highly disappointing corporate earnings data and the manufacturing sector appears to have taken the maximum beating," remarked Kotak Mahindra Bank chief economist Upasna Bhardwaj. While the festive season spending may prop up growth in the second half of the year, she reckoned that 2024-25 growth could slip by around one percentage point relative to the RBI's 7.2% estimate.

However, Chief Economic Adviser V. Anantha Nageswaran was sanguine and said there was every reason to believe the 5.4% growth pace is just "a one-of number", partly attributable to cooling urban demand in Q2, which is not expected to persist. He advised that one should not extrapolate too much from these numbers about the full-year growth prospects. "These are first estimates. The first cut of the full-year growth estimates for 2024-25 will be available in January... It is too soon to say that even 6.5% number is in danger," he reasoned.

Manufacturing growth hit a bump to drop to a mere 2.2% from 14.3% in Q2 of last year, while Construction GVA rose 7.7%, about half the 13.6% uptick a year earlier. Public Administration, Defence and Other Services led the acceleration among Services, with GVA rising 9.2% from 7.7% last year.

On the bright side, the NSO highlighted a rebound in consumption spending, pointing to a 6% growth in Private Final Consumption Expenditure (PFCE) in Q2 this year over the growth rate of 2.6% a year ago. However, this marks a slowdown from the first quarter of this year, when PFCE had risen 7.4%, the fastest in six quarters.

The two domestic demand components of private final consumption expenditure and gross fixed capital formation together account for a fall of 1.5 percentage points which nearly fully explains the fall in the GDP growth from Q2 to Q1, reckoned D.K. Srivastava, chief policy advisor, EY India.

Exporters still hopeful to get share of Bangladesh's market

During his visit to the National Institute of Fashion Technology in Chennai, Union Textile Minister, Giriraj Singh was asked by journalists whether India was gaining market share in the ready-made germents (RMG) space vacated by Bangladesh due to social and political disturbances in the country. Bangladesh is a major exporter of RMG, with exports over \$50 billion, thrice as much as India.

The Minister dismissed the question, saying he was not much concerned about Bangaldesh, Vietnam, etc, and was interested in working towards raising the Indian textile sector (domestic and exports) from \$176 billion today to \$350 billion by 2030. He said that while Bangladesh has just 45 lakh workers in the textile industry, India has a significantly larger workforce of 4.6 crores.

The Minister brushing aside the 'Bangladesh opportunity' reflects India's current inability to make use of the opportunity.

"We just don't have the fabric capacity," says Lalit Thukral, President, Noida Apparel Export Cluster. All of India's existing fabric capacity is fully booked and the country is fully booked and the country is not able to meet the huge demand, both in terms of volume and tight delivery schedules, from buyers who have been traditionally buying from Bangladesh, Thukral told reporters.

"We have been able to take (only), a very small percentage of Bangladesh's export markets," Sanjay K Jain, Chairman of ICC National Expert Committee on Textiles, told recently.

Thukral said Bangladesh has a 12-14 per cent advantage over India due to free trade agreements and concessional import duties. The country could double its garment exports to \$50 billion in ten years, whereas India is still "stuck" in the \$14-16 billion range.

One of the reasons why India found itself without enough physical capacity is because the textile industry is mostly comparised of MSMEs. Thukral observed that the Indian industry is worth ₹160 lakh crores, of which the big companies account for ₹40,000 crores —the rest being MSMEs.

"This is the appropriate time for the government to support this labour-intensive sector through handholding, capacity augementation, skilling and financial support to MSMEs," says Mithileshwar Thakur, Secretary General, Apparel Export Promition Council.

In a press release, Thakur said, "This is the time when the supply chain is getting realigned due to the Bangladesh crisis and the global buyers are looking, for an alternative to China," noting that the RMG industry "is fast emerging as the preferred sourcing destination for big brands."

The council has requested the government for help in terms of providing 'interest equalisation scheme', at a rate of 5 per cent, "to offset the high cost of capital."

Still exporters are hopeful that in the years to come, they would get a share of Bangladesh's market. Thukral observed that "once the trust is broken", it would be difficult for Bangladesh to take back its entire market. He said if the PM MITRA (Mega Integrated Textile Region and Apparel) Park scheme takes off, it would be of big help.

Sivramakrishnan Ganapathi, Vice Chairman and MD of Gokaldas Exports, told reporters that the "unstabel environment in Bangladesh," coupled with "concerns about a potential incerease in tariffs under the incoming US government, would strengthen the sustained trend in exports.

Exports of apparels grow despite global tensions, market challenges

Despite continuing wars and the Red Sea issue and India not taking any meaningful slice of the Bangladesh's market, India's garment exports are rising. Exporters attribute this to mainly to the depletion of stocks with the buyers and many economies doing better.

India's garment exports hit a peak of \$16.71 billion in 2017-18. In April-October 2024, these exports were \$8.7 billion, 11.6 per cent higher than the corresponding period of last year, raising hopes that 2024-25 could better the 2017-18 high.

Achieving record performance this year would have been a cinch if only India had had manufacturing capacities to take on jobs that would have normally gone to Bangladesh, which is in a socio-political wobble. India is playing

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catch-up with China and China-invested countries like Vietnam and Indonesia—the hope is that India will get a share of the Bangladesh, which is in a socio-political wobble, India is playing catchup with China and China-invested countries like Vietnam and Indonesia—the hope is that India will get a share of the Bangladesh's market, but that is for later.

In the current year, the good growth is all because of better demand from the two big markets—US (11.5 per cent growth) and UK (7 per cent)—though there is also a bump-up in demand from smaller markets, such as the Netherlands (27 per cent) and Spain (18 per cent).

The April-October 2024 number is actually 4.7 per cent lower than the comparable period of 2022-23, a good year in which exports touched \$16.19 billion, thanks to post-Covid demand. However, this year, the rising trend in exports is more sustainable. "Our-capacity is booked till March," says N Thirukkumaran of ES-STE Exports, who is also the General Secretary of Tiruppur Exporters Association.

Sivaramakrishnan Ganapathi, V-C & MD of Gokaldas Exports, observes that immediately after the pandemic, the sudden resurgence in demand combined with a suply-demand mismatch between consuming and manufacturing hubs in Asia, scared retailers into stocking-up. However, as demand subsided and inflation peaked, retailers faced high inventory levels, prompting them to reduce apparel imports, allowing existing inventory to sell naturally.

Imports declines

"This trend was evident in the declines in apparel imports by 22 per cent, 16 per cent, and 26 per cent in the US, EU-27, and UK, respectively, during 2023 equivalent to drawdowns witnessed during the pandemic," Ganapathi told reporters. Now, the decline in imports subsided in the H12024, with a recovery in the first two months of the third quarter of 2024.

"The pipeline inventories in the US and the other developed countries, which had orders extra goods post Covid, have now dried up, Hence, their imports are coming to a normal level," Sanjay K Jain, Chairman of ICC National Export Committee on Textiles, told reporters.

Tom Daley exhibited its colourful creations in Tokyo show

Tom Daley has knitted Jumpers, cardigans and speedos, and now, the retried Olympic diving champion is displaying his most colourful creations yet with an exhibition of his handicrafts.

The Briton has returned to Tokyo, the city where he won Olympic gold three years ago, to open a showcase of his knitting and crocheting. It features technicolour jumpers, day-glo sweaters and the Olympic-themed cardigan that made him a viral sensation when he was spotted knitting it.

"For me, knitting is my way of escape it's the thing that I think helped me win an Olympic gold medal," he said.

Daley says he took up the hobby in 2020 as a way of allowing his body to recovery but "because completely obsessed by it."

He has rarely put down his needles since even posing in knitted speedos."For me it's about the community, the craft, it's about being handmade and slowing down," he said. "I love [that] about knitting, that it's incredibly valuable for mental health as well."

"If someone had told me five years ago that Iwas going to be more famous for knitting than diving, I probably would have laughed," he said. "But....I can't imagine my life now without knitting."

Goods Exports rose to 2-yr High of 17.3% in October

India's merchandise exports rose to a twoyear high of 17.3% to \$39.2 billion, driven by improved demand from developed markets and higher shipments of engineering goods, chemicals, electronics, official data released recently.

Imports surged to a fresh record high of \$66.34 billion, up 3.9% on year. Trade deficit widened to \$27.1 billion from a five-month low of \$20.78 billion in September this year but was lower compared to \$30.42 billion in October last year.

Commerce secretary Sunil Barthwal termed the improved demand ahead of Christmas from developed markets as firms begun stocking up for the festival season as a key factor for the jump in exports. "This demand seems far better than

last year and gives us confidence that the coming months will also see a healthy uptick," he said.

Labour-intensive sectors such as readymade garments saw an export growth of above 35%.

"Despite the global situation being highly volatile, growth in the Western countries slowing with some recessionary trends, and the disruptions in global trade routes, our exporters have been able to do well in several sectors," Barthwal said. Barthwal said that if this trend continues, India's total exports, will cross the \$800 billion mark this year to set a new record.

"One of the chief reasons underpinning the sequential rise in the trade deficit appears to be a jump in the volume of crude oil imports, as well as a festive season-led uptick in gold imports," said Aditi Nayar, Chief Economist, ICRA Ltd.

Between April and October, India's nonpetroleum exports surged to the highest ever tally of \$211.3 billion.

Ashwani Kumar, president, Federation of Indian Export Organisations said that the ongoing international trade disruptions along with the volatility in crude and metal prices have also played a key role in increasing the value of exports to some extent. "The rising tensions between Israel-Iran has continuously led to logistical challenges with regard to international trade getting impacted as most of our trade to Europe, Africa, CIS and Gulf region are happening through the Red Sea route or the gulf region prompting buyers to have little large inventories," Kumar said.

India is a focusing on six sectors engineering, electronics, pharma, chemicals, plastics and agriculture, and 20 countries to boost trade.

These 20 countries account for 60% of the total global imports and these six segments have a share of 67% in global imports.

Officials said that the PMI data for manufcturing and services, and the exporters' order books show India's positive export story.

Barthwal also said that meetings are going on with Indian missions abroad to promote shipments through market access initiatives, promotion of brand India, addressing non-tariff barriers and conducting trade promotion events. Meetings have been held with key European nations while they are being planned for America and Asia-Pacific nations, Africa and middle east countries.

"Our strategy of focusing on certain sectors and countries is now yielding results and our manufacturing competitiveness has gained with schemes like the Production Linked Incentives, and our approach to industrial policy, trade policy and foreign policy," Barthwal said.

Crude oil imports in October rose to \$18.2 billion from \$16.1 billion in the same month last year. Gold and silver imports dipped to \$7.13 billion and \$0.33 billion in October from \$7.23 billion and \$1.31 billion a year ago, respectively.

Logistics aggregator Shiprocket and air cargo handling company Cargo Service Centre (CSC) have been selected by the government on a pilot basis to set up e-commerce export hubs in the country. The e-commerce export hubs (ECEH) will come in and around Delhi airport and begin operations in February next year. While Shiprocket is headquartered in Gurugram, the CSC is Mumbai-based.

The hub will have facilities for expedited customs and security clearance in-house, Provision for quality and certifying agencies and an easy reimport policy. This policy will enable the return of e-commerce consignments and rejects without payment of import duty.

"Based on the feedback received from these firms on the running of these pilots, the government will come out with detailed guidelines to set up more such hubs across he country. These guidelines will require policy tweaks or regulatory tweaks in different departments," said Director General of Foreign Trade Santosh Kumar Sarangi, adding that e-commerce exports have the potential to grow to over \$100 billion by 2030 and then further to \$200-250 billion in the coming years. □

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Textile hub Tiruppur industry back on track as exports spring back to life

After experiencing an 11 per cent contraction in exports in 2023-24 (FY24) due to a dip in exports for 10 consecutive months from April to January, the Tiruppur textile industry is back on track in 2024-25(FY25).

The cluster, which contributes 55 per cent of the country's total knitwear exports, posted a 13 per cent increase in the first five months of this financial year (FY25), with August seeing a 22 per cent rise—the highest in over two years.

Additionally, global majors like Primark, tesco, Tommy Hilfiger, Marks & Spencer, and Warner Bros. Discovery Global Consumer Products, among others, are lining up to place orders with manufacturers from this textile city.

According to the Tiruppur Exporters' Association (TEA), a major reason for this shift is the Green Turuppur sustainable strategy adopted by the manufacturing units, which has made the hub more attractive to buyers in the US and Europe.

Moreover, the recent political instability in Bangladesh has also made Tiruppur an attractive option for global apparel majors. Companies from the US, such as GAP, Carter's, and Walmart, along with European giants like Next and Duns, and Australian companies like Target and Woolworths, have placed orders during the first five months.

The textile industry is traditionally energy and water-intensive and produces substantial greenhouse gas emissions. However, investments in zero liquid discharge, green energy, and three plantations have positioned the Tiruppur knitwear cluster to comply with environment, social, and governance standards, making it a carbonnegative cluster. This has attracted companies keen on green compliance to the region.

"Companies here are promoting Green Tiruppur. We are planting 2 million trees and generating nearly five times the green energy required. from wind and solar, which totals around 1,900 megawant (MW), while our requirement is only around 300 Mw," said K M Subramanian, president of TEA.

"We are also using almost 100 per cent recycled water of the total water requirement of 150 million litres every day for processing our fabrics," Subramanian added. The manufacturers are supplying the remaining power on the grid.

During the first five months of the current financial year, the region's exports were valued at ₹14,679 crores, a 13 per cent increase from ₹12,995 crores during the April to August period of 2023-24. In August alone, there was a 22 per cent rise, reaching ₹3,114 crores, up from ₹2,550 crores in August 2023.

This comes at a time when the region's overall exports fell by 11 per cent in 2023-24, to ₹30,690 crores, compared to ₹34,350 crores in 2022-23. This decline was due to multiple factors, including the war in Ukraine, the financial crisis in Europe and the US, and global business disruptions.

Tiruppur has around 28,000 manufacturing units involved in various processes across the textile value chain, providing employment to roughly 800,00 people. These include knitting, dyeing, bleaching, fabric printing, garmenting, embroidery, compacing, calendaring, and other ancillary units

Global orders, Bangladesh turmoil boost exports from Tiruppur again

India's textile hub of Tiruppur is facing a revival of fortunes after nearly two years with a flurry of orders from the US and UK, helped also by political instability in neighbouring Bangladesh.

With this, the city's 5,000 apparel export units are buzzing with activity with their factories operating at 95% capacity. K M Subramanian, president of Tiruppur Exporters Association (TEA) said new apparel buyers from the UK are seeking samples in anticipation that a muchawaited Free Trade Agreement (FTA) will be signed soon between India and the UK. Recently, the Union commerce ministry said talks on the FTA will resume early next year.

"The units are getting orders from the US for the upcoming Spring season. A few months ago, the units were operating at 60-65% capacity. But that has changed now," said Subramanian. He said some US-based companies who were earlier sourcing from Bangladesh are now tapping Indian suppliers. "In FY24, Tiruppur had clocked a revenue of ₹35,000 crore which is likely to

increase to ₹40,000 crore in FY25," he added. India's apparel exports surged by 35% in October to \$1.22 billion from \$908.78 million a year earlier, as per the commerce ministry. Punit Lalbhai, vice chairman and executive director of textile maker Arvind Ltd, said during the company's Q2 earnings call, "As far as garments go, currently, anybody who is a credible garment player, who has capacities, will be full because the demand scenario is pretty good. And India is a preferred location, where people want to diversify their sourcing metrics, too."

India's exports to Bangladesh slowdown amid 'Volatile' situation

The political turmoil in Bangladesh has slowed down exports of gem and jewellery, imitation jewellery, engineering goods and oilmeals from India. The raw cotton, cotton yarn and textiles exporters are facing delays in payments, even though the buyers are depositing payments in local currency Bangladeshi taka.

However, due to dollar shortage, banks are finding it difficult to convert taka into dollars, resulting in payment delays.

Pankaj Chadha, chairman of the Engineering Exports Promotion Council said "Private orders have come down and the Bangladesh government's perception of India has turned negative. We are not getting any government order from Bangladesh.

Additionally, Indian banks are not accepting letters of credit, a contractual agreement between a buyer's bank and a seller's bank that guarantees payment to the seller for goods or services, issued by Bangladesh's banks. So the situation seems to be quite volatile."

Engineering exports to Bangladesh in the first seven months of FY25 have fallen by 8% to #1195.6 million.

Security has been beefed up in Petrapole-Benapole checkpoint, through which goods travel from India to Bangladesh and vice versa.

Vipul Shah, chairman of the Gem & Jewellery Export Promotion Council (GJEPC) said that exports to Bangladesh have slowed since the political disturbance in Bangladesh flared up. Exports to Bangladesh have fallen by 11.1% in the April to September period of FY25 as compared to the same period last year. "Bangladesh was developing as a new destination for gem and jewellery exports from India in the last two years. But the current situation is volatile and impacts exports," said Shah.

Trade sources say that gems and jewellery manufactured in India are largely route to Bangladesh through Dubai to avoid the high import duty that Bangladesh has imposed on Indian gems and jewellery.

Bangladesh is also a big market for Indian imitation jewellery. Nagendra Mehta, president of imitation manufacturers association said that imitation jewellery exports to Bangladesh have fallen by 35% in the last six months.

The political unrest in Bangladesh has also impacted exports of oilmeals from India. The neighbouring nation uses oil meals for animal feed. Bangladesh imported rapeseed meal and soybean meal of 428,241 tons in the first seven months of FY25 as compared to 506,934 tonnes in the same period last year.

Atul Ganatra, president of the Cotton Association of India (CAI) said "So far export of raw cotton and cotton yarn is going on smoothly there is no big impact seen because the manufacturing of garments is the main business of Bangladesh. I don't think they will disturb this business.

Few banks are paying in time and few banks are having a shortage of dollars, even though the buyers are depositing payments to the bank in local currency in Taka some banks are finding it difficult to covert Taka into dollars. This is delaying the payment to the Indian exporters."

Sanjay Jain, chairman of the Indian chamber of commerce national committee on textiles said that the delay in payment is varying between 60-90 days.

Ganatra said that Bangladesh spinning mills are dependent on Indian cotton. "Exporting cotton to Bangladesh will go as usual without any big problem. Few Kolkata traders have godowns in Bangladesh and they keep stock in godown and give immediate delivery against payment," the CAI president said "As of now, there are no such border problems. Exports of goods through ships and by road are going on smoothly.

Most Bangladesh mills are having hand to mouth and very low inventory of cotton so they cannot afford any kind of such issues," Ganatra added.

Ajay Srivastava, founder of think tank Global Trade Research Initiative (GTRI) said "The economic troubles brewing in Bangladesh since July 2024 have begun to show tangible impacts on its trade. Cotton yarn, a vital input for Bangladesh's textile industry, remains India's top export to the country.

In August 2024, India's cotton yarn exports to Bangladesh increased by 29.6% year-on-year (yoy), rising from \$97.2 million in August 2023 to \$125.9 million.

A similar, albeit smaller, increase of 5.4% was recorded in September 2024, with exports growing from \$134.3 million in September 2023 to \$141.5 million. These figures suggest that Bangladesh is making considerable efforts to sustain in its crucial textile industry, which relies heavily on imported raw materials.

"However, the broader picture tells a different story. India's total exports to Bangaldesh dropped sharply by 19.5% in August 2024, from \$943.9 million in the same month of the previous year to \$760.5 million.

September 2024 showed a marginal 1% decline yoy. The overall decline highlights a slowdown in Bangladesh's economic activity, driven by political unrest and instability," Srivastava said.

Textile stocks rally on export hopes

Stocks of most textile companies rallied on hopes for better export prospects with the unrest in Bangladesh opening up fresh opportunities, despite looming geopolitical concerns and supply chain disruption.

Welspun Living was up six per cent at ₹174 while Himatsingka Seide and Gokuldas Exports increased eight per cent and six per cent to ₹211 and ₹1,037 respectively. Indo count Industries jumped 13 per cent to ₹387.

Bombay Dyeing & Manufacturing surged 3.19 per cent to ₹221.25, Ambika Cotton Mills jumped 5.9 per cent to ₹1,690.20, Celebrity Fashions edged up to 8.72 per cent to ₹16.58, and Lambodhara Textiles moved up 17.05 per cent to ₹223.10. Textiles exports increased 12 per cent in October to \$1.83 billion from the year-ago period.

Apparel exports registered 35 per cent year-onyear growth in October due to realignment of the global supply to India amid the prolonged unrest in Bangladesh.

Backed by government incentives, some Indian exports have increased their market share in the US and have emerged as a preferred sourcing destination despite global headwinds and disruptions due to ongoing wars.

Dr Siddhartha Rajagopal, Executive Director, Cotton Textiles Export Promotion Council, said short-term gain are being reported due to the Bangladesh crisis, especially in the garment segment.

Some of the Christmas-season orders meant for Bangaldesh seem to be coming India's way with home textiles exports also in positive territory. Overall demand trends are looking up and this fiscal will end on a positive note, he said.

FTA, Festive Season

Besides the Bangladesh crisis, textile exporters have also benefited from the free trade agreement (FTA) signed with countries like South Korea, Japan, Australia and Mauritius.

Ashutosh Somani, Executive Director, Institutional Equity Research, JM Financials, said the gloabl inventory de-stocking cycle has now come to an end, with Indian players expecting relatively better demand in the second half of this fiscal as retailers gear up for the holiday season.

With rising labour costs amidst the China-plus one theme playing out, China has been losing market share across the world with its share in UK alone falling to 19 per cent this year from 27 per cent in 2020, said Somani.

The internal turmoil in Bangladesh and high factor costs in Vietnam might play well for Indian exporters, he said.

Ongoing wars have disrupted the traditional trade routes adding to the cost burden and this is the appropriate time for the government to support this labour-intensive sector through hand-holding, capacity augmentation, skilling, investment and sustained financial support to this MSME-driven sector, said a textile company executive.



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The Textile Association (India), Mumbai Unit organized an International Conference on "Automation and Robotics in Textile & Apparel Industry" on Friday, 15th November 2024 at Hotel the Lalit, Mumbai. The Conference received overwhelming response with 350 delegates in attendance. The theme of Conference, topics, presentations, and speakers were highly appreciated by one and all. Some of the highlights of the conference are described as under.



Chief Guest Ms. Roop Rashi, Textile Commissioner, Ministry of Textiles, Govt. of India lighting the lamp. Standing (L to R): Mr. R. R. Patil, Vice President, TAI, Mumbai Unit, Mr. Rajiv Ranjan, President, TAI, Mumbai Unit, Mr. Navdeep S. Sodhi, Partner, Gherzi Textil Organisation, Zurich, Mr. Priyavrata Mafatlal, Managing Director, Mafatlal Industries Ltd., Ms. Roop Rashi, Textile Commissioner, Ministry of Textiles, Govt. of India, Mr. T. L. Patel, President, TAI, Mr. G. V. Aras, Conference Chairman & Trustee, TAI, Mumbai Unit, Mr. V. C. Gupte, Conference Convenor & Chairman, TAI, Mumbai Unit.



Welcome Address by Mr. V. C. Gupte, Conference Convenor & Chairman, TAI, Mumbai Unit.

Mr. V. C. Gupte, Chairman, TAI, Mumbai Unit and Convener of the Conference welcomed Chief Guest, Ms. Roop Rashi (IA &AS), Textile Commissioner, Ministry of Textiles, Govt. of

India, Keynote Speaker, Mr. Navdeep S. Sodhi, Partner, Gherzi Textil Organization, Zurich, Awardee, Speakers, sponsors, Press, Media, and delegates. Mr. Gupte welcomed and congratulated the awardees Mr. Pradeep Dodhia. Managing Director, Dodhia Synthetics for "The Industrial Excellence Award". Mr. Gupte explained the programs organized by TAI Mumbai Unit over the past few years initiating with Industry 4.0 as the future needs of the textile trade and industry. He described that automation and robotics have become buzz words in the textile industry during the last decade and developing strategies for minimizing labour, enhancing productivity and quality. He mentioned that TAI, Mumbai Unit has always selected contemporary & innovative topics in all the conferences organized and presentations by high profile speakers. This conference is also no exception to the set tradition especially the theme being of international importance.



Presidential Address by Mr. Rajiv Ranjan, President, TAI, Mumbai Unit.

Mr. Rajiv Ranjan, President, TAI, Mumbai Unit in his presidential address, described the role of automation and robotics in the future advancement of productivity and quality. Initiatives such as automation in the textile value chain adopted by the organized sectors have yielded the results and minimized labour intensive operations. However, MSMEs must pick up momentum to actively involve in technology upgradation and reap the benefits of automation. He also said the apparel industry due to induction of modern machines have adopted the Automation to a larger extent. In this pursuit, the present program organized by

TAI, Mumbai unit, he said will, give an insight of the automation and robotics in achieving the higher level of productivity, reduction in manpower deployment and enhanced quality norms thereby achieving better cost benefit ratio.



Address by Conference Chairman, Mr. G. V. Aras

Mr. G. V. Aras, The Conference Chairman and Trustee, TAI, Mumbai Unit briefed about the details of the conference, including topics and speakers. He said every attempt has been made to address the theme from the perspectives of organized industry and MSMEs apart from international perspectives. He described that over the last more than a decade, Automation Technology has helped the Indian Textile Industry in increasing the productivity, improving efficiency, improving quality of the output, optimizing the resources and reduction of costs. Mechatronics and Artificial Intelligence has long been in use by the textile machinery industry while producing the state of the art textile machines. The apparel manufacturing industry has been one of the fastest amongst the textile value chain to use automation in the production lines. In the light of the above, this conference is organized in the opt time to discourse on the need to adopt automation, Robotics and AI. He informed that the conference will be addressed by knowledgeable speakers and panelist from the related field who would bring their rich experience in sharing with the delegates.

Mr. Navdeep S. Sodhi, Partner 'Gherzi Textil Organization, Zurich in his keynote address described the changing dynamics of the textile value chain in the 21st century wherein the automation, Robotics, AI have far reaching implications on the operations and management of the textile and apparel Industry. In this regard, he discussed the journey of automation and robotics in the international perspectives in respect of future developments of textile and apparel industry. Since India is a potent manufacturing hub with conducive ecosystem and policy interventions, Indian textile and apparel industry is poised to make a quantum jump. He emphasized that automation can be adopted in all the sectors of the textile and apparel industry and is the need of the immediate future of the textile trade and industry.



Key Note Speaker Mr. Navdeep S. Sodhi, Partner, Gherzi Textil Organisation addressing the gathering.

The Industrial Excellence Award

The Textile Association (India), Mumbai Unit has set a precedent by felicitating the textile professionals/industrialists for their outstanding contribution to the textile industry. In present Conference, the TAI, Mumbai Unit felicitated Mr. Pradeep Dodhia, Managing Director, Dodhia Group with "The Industrial Excellence Award" for his contribution in the field of textile and Apparel industry. Mr. Pradeep Dodhia in his remarks, emphasized the role of the textile and clothing sector in the light of international scenario. He thanked the TAI Mumbai Unit, for recognition and honouring him.

Mr. Priyavrata Mafatlal, Managing Director, Mafatlal Industries Ltd, who was the Guest of Honour, addressed the gathering. He expressed his appreciation for the chosen topic of the international conference by the TAI, Mumbai Unit. He emphasized that modern textile industry needs to adopt the technology and machineries with automation features for exhibiting competitiveness in terms of quality and productivity. It is an era



of advanced technology driven enterprise which implies that the automated or robotics involved machineries-based technology in manufacture and other activities in the supply chain. He complimented the TAI Mumbai Unit, for organizing the conference on the topic of current interest to the textile trade and industry.



Guest of Honour, Mr. Priyavrata Mafatlal, Managing Director, Mafatlal Industries Ltd. addressing the gathering.

Ms. Roop Rashi, (IA &AS), Textile Commissioner, Ministry of Textiles, Govt. of India, the Chief Guest of the event addressed the delegates. She described the importance of the theme of the conference regarding holistic approach for the development of the textile and clothing sector. She highlighted the synergy of machinery development and promotion in achieving the productivity and quality. She emphasized the importance of the automation and robotics in achieving high productivity and improved quality. She complimented the TAI, Mumbai Unit for choice of the topic and organizing the international conference as it is an important topic of current interest to the textile trade and industry.

Informative technical sessions

There were two Technical Sessions – each Session had 5 papers and a Panel Discussion.

Technical Session I

Technical Session I was chaired by Dr. G. S. Nadiger, Chairman, Professional Award Committee, Textile Association (India) who moderated the session. There were five papers, and oral presentation was made by the authors.

Mr. S. Anandhakumar, Vice President-Sales (Exports), Mr. P. Satyanandan Vice President (Sales) and Mr. Ramanathan, Sieger Spintech Equipments Pvt. Ltd presented a paper on "Automation opportunities in the Textile industry". The authors presented the potential scope in automation in the textile value chain including composite units. The paper was well received by the delegates as witnessed in the question answer session.

Mr. Sudhir Mehani, Chief Digitalization Officer, Marzoli, India, made a presentation on "Building Smarter Factories: AI and Path to predictive maintenance' 'Machine health Management '. Artificial Intelligence and ISO, IEC standards were discussed. Author brought home the ease of adopting AI and other tools in automation in textile machineries.

Mr Fabian Altorfer, Sales Manager, Steinmann Central Vacuum Systems, Switzerland, made a presentation on "Steinmann Central Vacuum Systems- Automated Textile Waste Management Solutions" As one of the leading machinery manufacturers globally, presentation focused on automated textile waste management solutions in line with Steinmann Central Vacuum Systems. Presentation covered various types of textile waste and explores automated waste handling solutions across processes like air-jet spinning, open-end spinning, and winders. Key points included the benefits of Steinemann's Central Vacuum Systems, disposal logistics for different textile processes, and its global presence. The presentation also highlighted variations in disposal methods, demonstrating Steinemann's comprehensive approach to waste management in textile manufacturing.



Mr. Pradeep Dodhia, Managing Director, Dodhia Group receiving The Industrial Excellence Award by the hands of Chief Guest Ms. Roop Rashi.

Mr. Gilberto Loureiro, CEO and Co- Founder of Smartex ai, USA made presentation on "Automation in Action: The power of Smartex Inspected Fabric Towards Zero waste Textile Supply Chain" The presentation focused on the use of automated Smartex Inspected Fabric adopted in



the manufacturing cycle which can reduce waste significantly at different levels of manufacturing including garmenting, knitting and Dyeing through AI enabled real time inspection of fabric. The quality assurance through automation can also lead to enhanced production and quality thereby better profit margins.

Mr. Victor Macovei, Area Sales Manager, Color Service s.r.l; Italy made presentation on "Automatic Dosing and Dispensing Systems". Speaker highlighted the scope and goal of dye house automation through automotive dosing and dispensing systems, Presentation focused on saving of dyes, chemicals, labour and improvement in quality and productivity.

At the end of the technical session, the questions were welcome from the delegates. The clarifications/ answers were provided by the respective authors. At the end, the chairman of technical session summed up briefly the deliberations in the session and thanked the authors who had prepared and presented their papers.

Technical Session II

Technical Session II was chaired by Professor (Dr.) Ashok Athalye, Department of Fibers and Textile Processing Technology, ICT, Mumbai, who moderated the session. Like Technical Session I, there were five papers, and oral presentation was made by the authors.



Release of Book of Papers

Mr. Umesh Prasad, Director, UV Hitech Pvt. Ltd, enlightened the audience on the importance & significance of "Storage Automation Opportunities for the textile Industry". He covered various aspects of inventory management and highlighted the resultant benefits in terms of value addition. A few industrial case studies enumerated the practical outcome and the resultant advantage of adequate and optimum storage automation. He emphasized that the tailer made solutions are needed in the automation of the storage as each situation is discreet.

Mr. T. Harshavardhan, CEO, Count AI Pvt. Ltd. and his associate from the affiliated organisation IndoTexnology Pvt Ltd presented the 'Cascading benefits of Automatic Inspection of Textile Materials. The defects associated with the circular knitting process resulting in fabric construction damage causing significant wastage of material and financial loss. Online inspection linked with process control can automatically stop machine working to control the occurrence of fabric defects.



Chief Guest Ms. Roop Rashi, Textile Commissioner, Ministry of Textiles, Govt. of India addressing the gathering.

Mr. Navin P. Agrawal Sr, Vice President, Textile Engineering- Fabric Forming, A.T.E Enterprises Pvt. Ltd. made the presentation on "Machine Upgradation-Need of Time". In his presentation, he described automation or application of robotics in the machines is normally linked to modernization namely replacement of machines with automatic machines. This case leads to constraints in terms of budgetary limitations on the part of the textile or apparel unit. Instead of capital intensive proposition, the author proposes to upgrade the available machines to tune for automation. With his experience of implementing in different textile units as case studies, he illustrated the possibility of automation through machine upgradation, and automation that can be done economically. ATE team have been working on this hypothesis as an alternate development strategy for the textile and apparel industry.

Mr. Parag Kothari, Chairman and Managing Director, Jaysynth DyeChem Ltd. discussed 'Automation in Textile Printing', emphasising the developments in the fasted growing segment of

International Conference on "Automation and Robotics in Textile & Apparel Industry"

Digital Printing. He elaborated on the features and benefits of using Pigment Ink-Jet printing and the advantages in terms of substantial reduction in water footprint, energy conservation enhanced productivity and the resultant Point of Sale usage. He described the conventional printing technique and digital printing and brought advantages of digital printing and some of the challenges involved. He brought home the theme of automatic printing through digital printing technology.



Vote of Thanks by Mr. Haresh B. Parekh, Hon. Secretary, TAI, Mumbai Unit.

Mr. Mangesh Raut, Director- Sales and Marketing, Software Solutions Pvt. Ltd made presentation on "Technology Transformation for Textile and Apparel Industry" . In his Presentation, he informed that the use of various Information Technology Based management tools such as SAP, IOT ERP pave path for automation. He emphasised the software developed by his company 'SOFTCORE'. A number of case studies wherein the company has worked in regard to textile and apparel units were showcased. The presentation impressed upon the technology transformation leading to integrated solutions in the overall enterprise management.

At the end of the technical session II, there were questions from the delegates and the clarifications/ answers were provided by the respective authors. Prof. Athaley, Session Chairman, summed up briefly the deliberations in the session and thanked the authors who had prepared and presented their papers.

Panel Discussion Session

The theme of the Panel Discussion was on "Automation and Robotics: Challenges and Opportunities" bringing together a diverse group of industry experts, technology innovators, and business leaders. The event drew an enthusiastic audience, reflecting the growing importance of technological transformation in one of India's most significant economic sectors.

The Panel Discussion was moderated by Mr. Rajiv Ranjan, President, The Textile Association (India), Mumbai Unit.

The panel discussion served as a valuable platform for industry stakeholders to explore the impact of automation and robotics on the textile and apparel industry. The event highlighted the sector's readiness to embrace change while addressing the challenges that come with integrating advanced technologies into traditional workflows.

The panel included some of the most respected personalities from the industry:

- 1. Mr. Kailash R. Lalpuria, Executive Director and CEO, Indo Count Industries Ltd.
- 2. Mr. Rajesh Relekar, Vice President, Birla Cellulose, Grasim Industries Ltd.
- 3. Mr. S. Rajendran, Senior Vice President, Business Head- Textile Engineering Processing and Accessories, Zonal Head- South India, A.T.E. Enterprises Pvt. Ltd.
- 4. Mr. K.B. Prasad, Vice President, IIGM Pvt. Ltd.
- Mr. Amit Mittal, Management Consultant & Advisor, Independent Director, Madasky Consulting



Technical Session I – Speakers (Sitting L to R): Mr. Gilberto Loureiro, CEO & Co-Founder of Smartex.ai, USA, Mr. Sathyanandan P., Vice President – Sales, Sieger Spintech Equipment's Pvt. Ltd., Mr. S. Anandhakumar, Vice President – Sales (Exports), Sieger Spintech Equipment's Pvt. Ltd., Dr. G. S. Nadiger, Chairman, Professional Award Committee, The Textile Association (India), Mr. Victor Macovei, Area Sales Manager, Color Service s.r.l., Italy, Mr. Sudhir Mehani, Chief Digitalization Officer, Marzoli India, Mr. Fabian Altorfer, Sales Manager, M/s Steinemann Central Vacuum Systems, Switzerland.

Mr. Rajiv Ranjan skillfully steered the discussion to cover a wide range of topics, from the technical advancements driving automation to the economic



and social implications of robotics adoption in India's textile sector.

The panel discussion delved into several critical areas, offering valuable insights for all delegates. Below are the highlights:

1. Opportunities in Automation and Robotics

The panelists emphasized the potential of automation and robotics to revolutionize the textile industry by:

- Enhancing efficiency and productivity: Automated processes like robotic sewing, cutting, and fabric handling drastically reduce time and cost.
- Improving quality control: AI-driven systems ensure consistent product quality, minimizing defects and waste.
- Driving sustainability: Advanced technologies allow for precise resource utilization, reducing water and energy consumption.



 Technical Session II – Speakers (Sitting L to R): Mr. Harshavardhan T., CEO, Count Al Pvt. Ltd., Mr. Thirupathi S., Managing Director, Indo Texnology Pvt. Ltd., Mr. Umesh Prasad, Director, UV Hitech Pvt. Ltd., Dr. Ashok Athalye, Professor – Textile Chemistry, Department of Fibers and Textile Processing Technology, ICT, Mr. Navin P. Agrawal, Sr. Vice President, Textile Engineering - Fabric Forming, A. T. E. Enterprises Pvt. Ltd., Mr. Parag S. Kothari, Chairman & Managing Director, Jaysynth Orgochem Limited, Mr.
Mangesh B. Raut, Director – Sales & Marketing, SoftCore Solutions Pvt. Ltd.

2. Challenges in Implementation

Despite the promise of automation, the panel acknowledged several challenges:

- High Initial Costs: The adoption of robotics involves significant investment, making it inaccessible for many small and medium enterprises (SMEs).
- Skill Gap: There is a pressing need to upskill the workforce to operate and maintain advanced systems.
- Job Displacement Concerns: Automation raises concerns about labor displacement,

particularly in India, where the textile industry is a significant employer.



Panel Discussion Session (Sitting L to R): Mr. S. Rajendran, Senior Vice President, Business Head – Textile Engineering Processing, and Accessories, Zonal Head – South India, A. T. E. Enterprises Pvt. Ltd., Mr. Amit Mittal, Management Consultant & Advisor, Independent Director, Madasky Consulting, Mr. Rajesh Relekar, Asst. Vice President – Marketing (Pulp & Fibre Business), Birla Cellulose, Grasim Industries Ltd., Mr. Rajiv Ranjan, President, The Textile Association (India), Mumbai Unit, Mr. K. B. Prasad, Vice President, IIGM Pvt. Ltd., Mr. Kailash R. Lalpuria, Executive Director & CEO, Indo Count Industries Ltd.

3. Government Support and Policy Initiatives

The panelists called for stronger government policies to enable smoother transitions to automation. Key suggestions included:

- Expanding incentive schemes for automation investments.
- Creating training and upskilling programs for workers to bridge the skill gap.
- Strengthening support for SMEs to adopt robotics through subsidies or shared resources.

4. The Role of Collaboration

One of the recurring themes was the importance of collaboration between industry players, technology providers, and the government. Such partnerships can:

- Accelerate the adoption of cutting-edge technologies.
- Foster innovation tailored to India's unique needs and scale.
- Create a supportive ecosystem for both large and small manufacturers.

The discussion was followed by an interactive Q&A session, where attendees had the opportunity to pose questions to the panelists. Questions ranged from the technical feasibility of specific automation solutions to the socioeconomic impact of these technologies on India's textile workforce. The panelists provided thoughtful and comprehensive responses, further enriching the discussion.



The event was widely appreciated by attendees, who represented a broad spectrum of the industry, including manufacturers, exporters, designers, technology providers, and policymakers. Participants lauded the panel for addressing the challenges of automation with a balanced perspective while highlighting opportunities that could drive growth and sustainability.



The Distinguished Audience

In closing the session, the moderator summarized the key takeaways, emphasizing the importance of:

- Investing in technology to stay competitive in the global market.
- Fostering innovation to address unique challenges in the Indian context.
- Prioritizing sustainability in all automation initiatives.

Preparing the workforce for a technologydriven future.

The event concluded with a resounding message: while the path to automation in the Indian textile and apparel industry comes with challenges, it also presents unparalleled opportunities for growth, efficiency, and sustainability. Stakeholders must act collectively and decisively to harness the potential of these transformative technologies.

There was good interaction by speakers with the delegates during question answer sessions/Tea & Lunch break resulting thereon effective delivery of the thought sharing on the theme of conference "Automation and Robotics in Textile & Apparel Industry".

Mr. Haresh B. Parekh, Hon. Secretary, TAI, Mumbai Unit proposed vote of the thanks to everyone who have contributed for the success of the international conference which was attended by around 350 participants.

For further information, please contact : The Textile Association (India), Mumbai Unit 602, Santosh Apartment, 6th Floor, Plot No. 72-A, Dr. M. B. Raut Road, Shivaji Park, Dadar (W), Mumbai – 400 028 Tel: +91-02231502687 / 9324904270 / 9324904271 E-mail: taimumbaiunit@gmail.com Website: www.textileassociationindia.com

India Pavilion in International Exhibitions by India ITME Society

We, at India ITME Society understands that in today's uncertain & volatile economic scenario, it is important for businesses to mitigate business risk as well as aggressively pursue new opportunities.

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- ♦ Year / Month of event:
- ♦ City & country of exhibition:
- ♦ Organizer Name & Contact:

Few suggested expos are:

- Segy Stitch & Tex Expo, Egypt
- ♦ Indo Intertex at Jakarta, Indonesia
- Febratex at Blumenau, Brazil
- Tashkent Intl Textile Machinery Exhibition at Tashkent, Uzbekistan

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Liva Reviva in collaboration with Ka-sha for their new line called 'Roz'

'Roz' Collection by Ka-Sha Features Liva Reviva's Sustainable, Plant-Based Fabrics for Everyday Elegance

In today's dynamic fashion landscape, sustainability is no longer just a buzzword—it's a necessity. As the textile industry faces increasing scrutiny over its environmental impact, brands like Liva Fabrics, made from renewable plant-based fibers, are taking the lead by promoting sustainable fashion and contributing to a greener future. Liva Reviva, known for repurposing textile waste, is revolutionizing the textile value chain by creating fabrics that are both stylish and environmentally conscious.

In a significant move towards merging fashion

with sustainability, Liva Reviva has joined forces with renowned Indian fashion label, Ka-Sha, to craft a line of artisanal and sustainable products under Ka-Sha's new brand, "Roz". This collection is an ode to everyday fashion, where comfort and design come together seamlessly, while sustainability is woven into every



thread. Derived from the word 'everyday' in Hindi, "Roz" captures the essence of clothing designed for regular wear, but with an extraordinary commitment to environmental responsibility.

The "Roz" collection is centered around mindful design, offering elevated basics that go beyond mere functionality. These pieces are perfect for the modern consumer who values sustainability without compromising on style or comfort. Every garment in the line features small yet significant details, demonstrating Ka-Sha's



commitment to craftsmanship and thoughtful design. This attention to detail ensures that "Roz" pieces not just feel good but also look great, making them a staple in any wardrobe.

A key highlight of this collection is the innovative fabric blend that defines it. The garments are crafted



using Liva's Reviva-M circular yarn, made from repurposed textile waste, handwoven together with indigenous kala cotton by artisans from Gujarat, that Ka-Sha has been associated with since the last couple of years. This fusion of cutting-edge sustainable materials and traditional craftsmanship results in garments that are durable, eco-friendly, and easy to care for. The emphasis on comfort, washability, and longevity makes "Roz" the perfect choice for individuals seeking timeless style with a minimal environmental footprint.

Mr. Sree Charan, VP Marketing, Global Head – Brands, Birla Cellulose, Aditya Birla

Group, said, "We are proud to partner with Ka-Sha in redefining fashion with 'Roz,' a collection that brings together sustainability and design. Liva Reviva's innovative fabrics not only reduce textile waste but also offer a premium feel and fluidity, making it easy for consumers to make eco-conscious choices without compromising on style."

Commenting on the collaboration, Karishma Shahani Khan, Founder of Ka-Sha, shared, "Roz is more than just a fashion line—it's a philosophy that champions sustainability in the most practical, everyday sense. We wanted to create pieces that reflect the simplicity of daily dressing while aligning with the values of conscious consumerism. Partnering with Liva Reviva allowed us to strike that balance between design and sustainability, crafting clothes that make you feel good inside and out."



The launch of "Roz" has already garnered widespread praise for its ethical production methods and sustainable origins. Fashion-conscious consumers are drawn to the collection not just for its

eco-friendly credentials, but for its timeless appeal and impeccable quality. The line reflects a modern aesthetic that resonates with those looking for versatile pieces that fit effortlessly into their everyday lives. Whether it's for a casual day out or a laid-back office look, "Roz" offers a perfect blend of comfort, style, and responsibility.



Ultimately, the success of "Roz" showcases the power of partnerships in driving

positive change in the fashion industry. Liva Reviva and Ka-Sha have demonstrated that sustainability and profitability can coexist, setting an inspiring example for other brands to follow. As the world continues to seek more sustainable practices, collaborations like this pave the way for a future where fashion doesn't just look good—it does good too.

About Liva Reviva

LIVA Reviva are fibres comprising of wood pulp sourced from FSC-certified forests blended with up to 30% recycled textile waste, making it an innovative fiber that represents futuristic sustainable fashion. LIVA Reviva tackles textile waste, which makes up 15–30% of the fabric discarded during the production of clothing, a critical environmental issue. LIVA Reviva turns this waste into fibers that mimic the superior qualities of virgin viscose, saving it from ending up in a landfill or causing pollution. Garments crafted from fabrics enriched with Liva Reviva are characterized by their flawless drapes, impeccable fit and breathability while keeping you comfortable always.

For further information, please contact: Nidhi Desai White Marque Solutions Creative Strategy, Public Relations, Digital Outreach, Live Reviva Birla Cellulose, Aditya Birla Group Landline: 022-26335094-98, Extension: 13 Cell: +91 9167688918 Email: nidhi@whitemarquesolutions.com Office No: 422/423, 4th Floor, Laxmi Plaza Laxmi Industrial Estate, Andheri (West), Mumbai-400053 Website: www.whitemarquesolutions.com □

An uprecedented collaboration among Lenzing, Kaihara Denim and ROICA[™] by Asahi Kasei launch SAISEI Collection, premium stretch denimline madeof recycled materials

- The unprecedented collaboration combines Kaihara Denim's premium Japanese denim craftsmanship, resource-efficient LENZINGTM ECOVEROTM fibers with REFIBRATM technology and sustainable yet durable ROICATM EF yarn by Asahi Kasei
- Made of recycled materials with exceptional softness, the stretch denim collection unleashes endless denim design possibilities from everyday chic to workwear with three distinct stretch denim styles
- The new collection will debut globally at Kingpins Amsterdam, October 23–24, 2024

The Lenzing Group, a leading supplier of regenerated cellulosic fibers for the textile and



nonwovens industries, ROICA[™] by Asahi Kasei, a pioneer in premium stretch fiber, and Kaihara Denim, the world-renowned Japanese denim manufacturer, join forces for the first time to co-create a premium stretch denim collection, "SAISEI Collection." The strategic partnership is

well-placed to offer the international market a higher composition of recycled materials in denim. Blending LENZINGTM ECOVEROTM branded viscose fibers with REFIBRATM technology with ROICATM EF recycled stretch yarnand entrusting them with Kaihara Denim's renowned denim

CORPORATE NEWS

craftsmanship, the high-quality denim collection is brought to light. It will make its first appearance at Kingpins Amsterdam, October 23-24, 2024.

"Through this partnership with Kaihara Denimand ROICATM by Asahi Kasei, we are taking



bold steps to drive denim circularity empowered by joint expertise and devotion," said Dennis Hui, Global **Business Development** Manager, Denim at Lenzing. "The synergy between ROICATM EF yarn, LENZING™ ECOVEROTM fibers with REFIBRATMtechnology, and Kaihara Denim's exceptional

craftsmanship has given life to premium, resourceefficient denim fabrics that have sustainability, performance, and style at heart. This partnership not only underscores the shared commitment between Lenzing and our partners to create excellent products while doing better for the environment, but also serves as a catalyst for driving the



transformation towards low impact practices across the denim value chain and beyond."

Weaving the future of denim with collective innovation

The new denim collection boasts a special fabric composition, making the most of ROICATM EF yarn and LENZINGTM ECOVEROTM fibers with REFIBRA[™] technology thanks to their resource-efficient attributes. ROICA[™] EF, made of pre-consumer recycled content as well as featuring excellent stretchability, is integral to the flexibility, and comfort of the fabric. On the other hand, LENZINGTM ECOVEROTM fibers with REFIBRATM technology, comprises up to 20% of post-consumer textile waste, which is sourced from cellulose-rich materials or polyester-cotton blends, supporting natural softness to the denim fabric.

"Our vision for sustainability at Asahi Kasei is to achieve zero emissions and seek to recycle all of our industrial waste," said Hiroaki Shinohe, Chief Marketing Officer of ROICA Europe at Asahi



Kasei. "Our innovative ROICA™ EF yarns, which is 30% lower in CO2 emissions compared to regular yarns5, exemplify this dedication. By partnering with Lenzing and Kaihara Denim on a recycling concept that gives new life to pre-used materials, we are able to leverage our collective expertise in sustainable stretch fabrics. We are thrilled that the incorporation of LENZINGTM ECOVEROTM with REFIBRA™ technology and Kaihara Denim's premium denim craftsmanship can provide an exceptional fabric that meets the growing consumer demand for environmentally consicous comfortable denimwear."



Redefining denim applications for high-performing, eco-conscious fashion

The collection offers three distinct denim fabrications - super stretch (Monster Stretch by Kaihara Denim), comfort stretch, and low stretch



(selvedge denim)-each crafted with Kaihara Denim's

artisanal expertise using the meticulous blend of LENZINGTM ECOVEROTM with REFIBRATM technology and ROICATM EF. This innovative denim fabric featuresa subtle bulkiness and reduced drape, delivering a unique hand feel. The



versatility of the new denim fabric opens a world of possibilities for fashion designers and brands, empowering them to create stylish, resourceefficient garments that range from everyday chic, casual wear to workwear.



"As Lenzing's long-standing partner, we are thrilled to be part of this transformative journey with ROICATM by Asahi Kasei that embodies our concerted efforts towards driving positive change across the global denim landscape," said Hirofumi Inagaki, Executive Officer, General Manager of Sales Department at Kaihara Denim. "Our long history and established expertise in premium denim manufacturing allow us to unlock the full potential of LENZINGTM ECOVEROTM with REFIBRATM technology and ROICATM EF, resulting in this innovative, resource-efficient denim collection. Together, we are reshaping the future of sustainable denim applications, both casual and formal, paving the way for a more circular fashion value chain."

About LENZING[™] ECOVERO[™]

Produced by the Lenzing Group, LENZING[™] ECOVERO[™] branded fibers are an environmentallyresponsible advancement in viscose production. Derived from the natural raw material wood, LENZING[™] ECOVERO[™] fibers are certified with the EU Ecolabel (license no. AT/016/001) for environmental excellence. They are made with at least 50% less carbon emissions and water consumption compared to generic viscose (Higg MSI Version 3.7). Naturally lightweight, LENZING[™] ECOVERO[™] fibers can be blended with a wide range of textile fibers to give woven and knitted fabrics tactile softness and a flowing drape. LENZING[™] ECOVERO[™] fibers are identifiable via tracing technology and can break down and compost at the end of their life cycle. It is certified by TÜV AUSTRIA under LENZING Viscose for the following properties: biodegradable in soil, fresh water and marine environment as well as compostable in home applications and industrial facilities.

LENZINGTM ECOVEROTM fibers produced with REFIBRATM technology use cotton textile waste as a raw material, inaddition to wood. The fibers contain a minimum of 20% recycled material.

About the Lenzing Group

The Lenzing Group stands for the ecologically responsible production of regenerated cellulose fibers based on cellulose and recycled material. As an innovation leader, Lenzing is a partner to global textile and nonwoven manufacturers and drives many new technological developments. The Lenzing Group's fibers are the raw material for a wide range of textile applications – from functional, comfortable and fashionable clothing through to durable and sustainable home textiles. A range of LENZING fibers is also certified by TÜV AUSTRIA for the following properties: biodegradable in soil, fresh water and marine environment as well as compostable in home applications and industrial facilities.

The Lenzing Group's business model extends far beyond that of a conventional fiber producer. Together with its customers and partners, Lenzing develops innovative products along the value chain, creating added value for consumers. The Lenzing Group strives for efficient utilization and processing of all raw materials used and offers solutions for the transformation of the textile industry from the current linear economic system to a circular economy. In order to reduce the rate of global warming and thereby also support the goals of the Paris Agreement and the EU Commission's Green Deal, Lenzing has a clear, science-based climate action plan that aims for a significant reduction in greenhouse gas emissions by 2030, and a net-zero target (Scopes 1, 2 and 3) by 2050.



About ROICA[™] EF

ROICATM EF, developed by Asahi Kasei, is a pioneering recycled stretch innovation created from proprietary pre-used materials in order to promote waste reduction. By selecting fabrics or garments made with ROICATM EF, you effortlessly elevate your modern wardrobe with sustainable and socially responsible values. This innovative material is certified by OEKO-TEX ® STANDARD 100, ensuring both quality and environmental standards are met.

About ROICA™

ROICATM "Advanced fit for living" is a premium stretch fiber with an innovative range of smart features to fit the modern wardrobe. ROICATM combines comfort, performance, and exceptional fit, elevating the quality and value of everyday attire for sports, activewear, underwear, fashion, and business. ROICATM is a brand of Asahi Kasei Corporation. ROICA / ROICATM are trademarks of Asahi Kasei Corporation.

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SINGER India to unveil First Experience Retail Center in Delhi

Flagship store in Nehru Place offers interactive sewing and craft experiences

SINGER, the world's leading sewing machine brand with a 170-year legacy, is set to open its first flagship experience retail center in South Delhi's bustling Nehru Place. This center marks a pivotal shift in SINGER India's retail approach, transforming the brand's traditional retail spaces into interactive, experience-driven hubs. Over the coming months, SINGER will roll out similar upgrades across its twenty-one existing stores nationwide.

The new retail concept, inspired by modern creative hubs and the growing DIY craft movement, blends functionality with style. Designed to resemble a modern country cottage, the store's minimalist aesthetic—featuring monochromatic tones and clean lines—highlights the vibrant fabrics and threads that accompany SINGER's innovative machines. The modular design ensures the space can easily adapt for product displays, training sessions, and demonstrations.

Interactive Experiences for Craft Enthusiasts

Customers will have the opportunity to work on SINGER's latest high-tech sewing machines, participate in hands-on workshops, and learn valuable tips from industry experts. The store will also offer courses in sewing and crafting, encouraging creativity and innovation among both seasoned sewists and newcomers.

"This flagship store marks a major milestone for SINGER India," said Rakesh Khanna, Vice Chairman and Managing Director of SINGER India. "India's rich heritage in textiles and craftsmanship, combined with the growing interest in DIY fashion, presents an exciting opportunity. We aim to make sewing a fun and accessible craft for younger generations while preserving the skills cherished by their mothers and grandmothers."



We have been associated with SINGER India for close to 3 decades and this was a fabulous opportunity for us to imagine a differentiated customer experience for this iconic brand which has been a part of Indian homes for generations," said Amit Krishn Gulati, Director of Incubis, SINGER's design partner. "This store will make the brand ethos accessible and relevant to young trendsetters looking at creating and customizing what they wear while reminding us of the memorable narratives and rituals associated with SINGER sewing machines".

Bringing SINGER's Legacy to Life

A highlight of the new store is the History Wall, a visual celebration of SINGER's remarkable journey, including its contribution to the Apollo mission's spacesuits. Through images and stories, visitors will discover the brand's long-standing



impact on fashion, craftsmanship, and technological innovation.

Scheduled to open this November, the flagship store aims to create an upscale, engaging environment where craft lovers, designers, and fashion enthusiasts can explore the future of sewing in a modern, interactive setting.

About Singer India

Established in 1851, SINGER India Limited is a leading consumer durables company known for its world-class sewing machines and diversified product portfolio. Headquartered in New Delhi, SINGER operates through an extensive network of showrooms, distribution channels, and after-sales service centers across India. For more details, visit: singerindia.com.

For further information, please contact: Juhi Jaitly, Account Executive Singer India M: +91 6306067872 juhi.jaitly@sixdegrees-bcw.com Nisha Tiwari - ntiwari@singerindia.com Juhi Jaitly - juhi.jaitly@bcw-global.com

Twenty Years of Sustainability Report for RadiciGroup; the document reveals the RadiciGroup's achievements in making good business management practices

- In the five-year period 2019-2023, €278 million allocated for the competitiveness of the Group's companies, including €45 million in 2023 alone
- Between 2011 and 2023, direct CO2 emissions dropped by 83%
- 59% of the electricity used comes from renewable sources

The RadiciGroup Sustainability Report reaches an important milestone this year: twenty years have in fact passed since the Group published its first Social Report in 2004, qualifying it as one of the pioneering companies in the realisation of voluntary non-financial reporting. The document measures the Group's achievements and the actions it has taken to reduce its environmental impact, respect social values, and implement good business management practices. Over the years, the Report has steadily evolved and is now a true sustainability report that considers all ESG (Environment, Social and Governance) aspects, showing how they are also central to the company's business strategy. Over time, many new topics have been covered, the accuracy of the data has improved and the scope has expanded to include all Group companies: over 30 sites across Asia, the Americas and Europe.



"Over the past 20 years, the Sustainability Report has been a benchmark for developing our Group's sustainable approach. Measuring was in fact the first step to knowing, knowing was the first step to deciding how to improve on a daily basis,' comments Angelo Radici, President of RadiciGroup. "Year after year, the Sustainability Report has provided a detailed overview of the strategies and actions undertaken by RadiciGroup to reduce its impacts and seize the opportunities that optimal management of environmental, social and governance aspects can offer. Today, it is a true added value that fuels the Group's reputation among all stakeholders. Naturally, our journey continues: we are in fact preparing for the mandatory reporting required by the European CSRD."



The information contained in the Sustainability Report shows RadiciGroup's strong commitment, starting with the investments made:

♦ between 2019 and 2023, €278 million were allocated to support the competitiveness of



the Group's companies, of which €45 million in 2023 alone;

◆ the amount invested in the environment in 2023 and earmarked for the introduction of Best Available Techniques and performance efficiency reached €4.2 million.

Twenty years of reporting have also allowed RadiciGroup to measure the results of the investments it has made, to such an extent that in 2023 it already achieved the first goal of its "From Earth to Earth" Roadmap to 2030, i.e., a Group-wide reduction of 83% in direct CO2 equivalent emissions compared to 2011. "To reduce our emissions," Angelo Radici explains, "we have implemented a multi-year investment plan of over 12 million euro in the Specialty Chemicals area alone, which has enabled us, step by step, to drastically reduce our environmental impact".

For further information, please contact: communication@radicigroup.com

Virgio achieved prestigious PETA India's 2024 Vegan Fashion Award for Company of the Year

Virgio, the fastest-growing sustainable fashion brand, has been awarded the prestigious 2024 Vegan Fashion Award for Company of the Year by People for the Ethical Treatment of Animals (PETA) India. This annual award recognizes brands that contribute significantly to animal-friendly fashion by championing vegan products, pioneering ethical design, and fostering compassionate consumer choices.

Virgio has been at the forefront of redefining fashion through its commitment to cruelty-free materials, sustainable production practices, and a forward-thinking approach to responsible fashion. As a circular brand, Virgio is dedicated to designing products with their entire lifecycle in mind, creating a closed-loop system that minimises waste and maximises resource efficiency. This holistic model allows Virgio to lead by example, setting a new standard for sustainability in the fashion industry. The company has continued to make strides in creating stylish and eco-conscious choices for modern consumers, aligning with PETA's mission to end animal exploitation in the industry.

Ashima Kukreja, Chief Corporate Liaison at PETA India, states, "PETA India is delighted to award

Virgio the Vegan Fashion Award for 'Company of the Year' because conscious fashion is the future. Virgio's commitment to creating innovative, stylish, and cruelty-free fashion sets a remarkable example in the industry, demonstrating you can have a look that kills without killing animals. We congratulate Virgio on this well-deserved recognition and look forward to witnessing their positive impact on the fashion world."



Amar Nagaram, CEO and co-founder, Virgio says, "We are deeply honoured to receive the Vegan Fashion Award from PETA India. Animal cruelty remains a menace in fashion, with countless animals killed for leather and fur every year. At Virgio, we are committed to breaking this harmful cycle by creating cruelty-free, sustainable fashion. It's crucial to start this conversation and make ethical fashion more mainstream. This award inspires us to keep proving that style and compassion can go hand in hand, while raising the bar for conscious fashion."

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Helena Helmersson and Jonatan Janmark accelerate Circulose's journey towards global leadership

Circulose is proud to announce the appointment of its new Chairman of the Board and Chief

Executive Officer. Circulose now welcomes two strong leaders with in-depth expertise to accelerate Circulose's journey to become a global champion for renewable textiles.

Circulose has appointed Helena Helmersson as the new Chairman of the Board, along with Jonatan Janmark as new CEO. They will be assuming their roles on December 1st, 2024.

"A challenger like Circulose, with the power to make the textile industry circular, will need experienced and worldclass leaders to drive that change. We are taking action on that now, and we are immensely proud to attract Helena and Jonatan, a true dream team. Their experience and expertise are key for us to secure a stable and successful path for Circulose moving forward. They will be a great addition to Magnus, who has done an excellent job navigating Circulose through an intensive year as interim CEO and will continue to lead operations moving forward" said Clara Zverina, Principal at Altor.

Helena Helmersson joins Circulose with an extensive experience from the fashion industry and driver of sustainability leadership, most recently in her role as CEO at H&M Group.



"I am thrilled to be joining Circulose and support the company in my role as Chair. We have an ambitious agenda ahead of us and a talented team ready to make it happen. I am glad to be working with Altor, our partnership will benefit from their industrial heritage and helping companies scale. Circulose feels very much like a natural fit, for me and for the future, and I look forward to contributing with my many years of experience in the fashion industry." said Helena Helmersson, Chair of Circulose.

Jonatan Janmark assumes the role of CEO for Circulose, Jonatan Janmark joins the company with

in-depth experience from the consumer and textile industry as Partner at McKinsey & Company.

"For the past years, I have had the fortune of dedicating my time to helping companies navigate the sustainability transition in the apparel and textile industry, working with both brands and textile manufacturers. When the opportunity to join Circulose opened up, I was excited to accept the challenge. With a strong team, we will now focus on strengthening Circulose to unlock the necessary shift from a linear to a circular textile industry. We recognize the many challenges ahead and the shift won't happen overnight, but we are fully committed to seeing it through" said Jonatan Janmark, CEO at Circulose.

About Circulose

Circulose is a Swedish sustain-tech company that developed a patented process that enables the recycling of cellulosic textile waste, such as worn-out cotton clothes and production scraps, transforming it into a new material called CIRCULOSE®. Fast Company named Circulose (formerly Renewcell) one of the World's Most Innovative Companies in 2021 and was a winner of the 2023 World Changing Ideas Awards. CIRCULOSE® was also included on TIME Magazine's list of the 100 Best Inventions 2020. Founded by innovators from Stockholm's KTH Royal Institute of Technology in 2012, the award-winning company's vision is to make fashion circular.

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An impressive Dress: How Mimaki's Innovative Fashion Technology Created an Outfit to Dye For

Innovation through collaboration is a mantra for Mimaki. By partnering with industry and creative professionals, Mimaki leverages diverse expertise and perspectives, fostering a culture of creativity, customization and responsiveness to market demands. When applying this approach to the fashion industry, the result could not be anything but exciting!



At the prestigious Icona d'Or 2024 awards ceremony in Paris, Julia Nojac, President of FESPA France, wore a one-of-a-kind, eye-catching dress. In fact, this dress was the result of a successful collaboration, featuring an all-female team that combined the creativity of artists, the expertise and accuracy of technology experts and the ingenuity of Mimaki's advanced digital printing.



Under the creative and technical direction of FESPA France and Mimaki, a team of artists and professionals helped turn an idea into a unique evening dress. The iconic print design was created by Madrid-based visual artist Kinda Youssef and, with the expertise of Rosanne Kooijman, Mimaki's youngest female application specialist, the print was turned into a vibrant, detailed fabric. The elegant tailoring, doneby French couturier Cécile Derouin, brought the dress to life.

Current trends, that see self-expression, high levels of personalisation and the desire to stand out of the crowd more important than ever, mean

that advanced printing technology plays an increasingly more important role in this industry. Leveraging Mimaki's inkjet printing, designers and creators are now able to explore n e w application opportunities that were not accessible before. Not only can they achieve high levels of customisation, but also, they can start from an idea on paper and get their final unique item



through a process that is accessible, easy-to-handle and yet top-level in terms of quality.

Talking technology, the Mimaki TS330-1600 dye sublimation inkjet printer served asthe backbone

of this creative project. The machine delivers on-demand printing with high-quality results, enabling the efficient production of the unique, one-off dress with minimal waste compared to conventional printing methods. Once again, with this successful partnership with FESPA France, Mimaki demonstrates how technology can be applied towards excellence in creativity.

Arguably, this dress marks an outstanding example of what young professionals coming from various sectors and areas of expertise are capable of doing to push the boundaries of creativity using print. It also is a fantastic achievement in the application of personalisation indigital printing, furthering Mimaki's vision of high-quality capabilities for universal application.

About Mimaki

Mimaki is a leading manufacturer of wideformat inkjet printers and cutting machines for the sign/graphics, industrial, textile/apparel and 3D markets. Mimaki develops the complete product range for each group; hardware, software and the associated consumable items, such as inks and cutting blades. Mimaki excels in offering innovative, high quality and high reliability products, based upon its aqueous, latex, solvent and UV-curable inkjet technology. In order to meet a wide range of applications in the market, Mimaki pursues the development of advanced on-demand digital printing solutions. Mimaki Engineering Co. Ltd., (President: Kazuaki Ikeda) Nagano (Japan), is publicly listed on the Tokyo Stock Exchange, Inc.

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Resolute decision of to 100% bluesign® Approved Fabrics by 2025, Storm Creek Joins bluesign® System as the First US Promotional Products Brand Partner

Storm Creek (https://distributor.stormcreek. com/), a leading innovator in sustainable apparel



within the promotional products industry, is proud to announce its official partnership with bluesign[®] as a system partner. This partnership marks a

significant milestone, as Storm Creek becomes the first promotional products brand to join the bluesign® system, setting a new standard for sustainability in the industry.

As part of this commitment, Storm Creek has pledged to



use only bluesign® Approved fabrics by 2025. Their upcoming 2025 product catalog will already feature a range of products made with bluesign® certified fabrics, demonstrating their dedication to reducing environmental impact and promoting safe, responsible production practices.

"This partnership takes our already strong commitment to sustainability to the next level," said Doug Jackson, Storm Creek Founder and President. "Our aim is to inspire and educate promotional products distributors to sell sustainably and increase the impact their end buyers can have. Storm Creek is proud to set the standard for the promo industry."



Storm Creek's partnership with bluesign® aligns with their mission to deliver high-performance, sustainable apparel while minimizing environmental impact. By adhering to the rigorous standards set by bluesign®, Storm Creek is not only ensuring the safety and sustainability of its products but also leading the charge in transforming the promotional products industry.

"We are thrilled to welcome Storm Creek as a promotional products brand to join the bluesign® System," said Daniel Rüfenacht, CEO of bluesign technologies ag. "Their commitment to using 100% bluesign® Approved fabrics by 2025 is a bold and commendable step towards a more sustainable future. Storm Creek's leadership in this area sets an inspiring example for the entire promotional products industry."

About bluesign:

The bluesign® SYSTEM is the solution for sustainable textile production. It eliminates harmful substances right from the start of the manufacturing process, and it sets and controls standards for environmentally friendly and safe production. This not only ensures that the final textile product meets very stringent consumer safety requirements worldwide but also gives consumers confidence in purchasing sustainable products.bluesign technologies ag was founded in 2000. Since then, with over 850 system partners, the bluesign® SYSTEM has been adopted by worldwide leading textile and accessory manufacturers as well as chemical suppliers. Various well-known brands in the outdoor, sportswear and fashion industry partner with Bluesign and trust its extensive knowledge and services to collectively reduce the textile industry's impact on people and the planet. Bluesign is part of the \$7-billion+ SGS family of companies. SGS is the world's leading testing, inspection, and certification company.

About Storm Creek:

Storm Creek produces high-quality sustainable lifestyle apparel for retailers, consumers, and promotional products distributors throughout North America. Every style in the 2025 collection is ecomade using upcycled materials and sustainable practices. Storm Creek is a proud bluesign® SYSTEM PARTNER, which means fabrics and products are held to the highest standards with a focus on reducing environmental impact. All factory partners are certified by the Worldwide Responsible Accredited Production (WRAP) and Business Social Compliance Initiative (BSCI) programs to meet the criteria required by the world's top apparel brands. Storm Creek is a WBENC-certified woman-owned business with a mission of giving back for the greater good and goal of donating \$5 million to charity by 2030. The company is also a 1% for the Planet partner and a Minnesota Keystone Program member. For more information, visit distributor.stormcreek.com.

For further information, please contact: bluesign®

Ken@chapter2agency.com, www.bluesign.com. ■

Clean India Show

Clean India Show opened on 21st November 2024 with an advanced and tech-based showcase to take cleaning, hygiene and waste management solutions to the next-level

The 20th edition of Clean India Show, along with its concurrent expos – Waste Technology India Expo, LaundrexIndia Expo and Autocare Expo has successfully opened on 21st November with a grand inauguration at Bombay Exhibition Centre, Mumbai. The show has attracted 170+ exhibitors coupled with nearly 600+ brands showcasing their latest solutions developed for enhanced cleaning, waste management, laundry and autocare industry. The event also attracts a large turnout of qualified visitors and delegates from 60+ segments, government departments as well as private organisations.



With hygiene standards becoming non-negotiable and growing importance of waste management as well as professional cleaning becoming standardised across diverse public and private facilities, Clean India Show with its concurrent shows opened today showcasing a series of advanced range of products and solutions from the industry.



Amidst the presence of esteemed dignitaries, the 20th edition of the expo was inaugurated by (LtoR):

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- 1. Ms MohannaLakshmi M, Editor- Clean India Journal
- 2. Mr Winston Pereira, Executive Director, Messe Frankfurt Trade Fairs India Pvt Ltd
- 3. Mr Rohit Arora, Chief Growth Officer-Support Services, Compass Group
- Mr Nimesh Ajmera, Director Purchase, Architecture – Sustainability Projects and IT Division, Ajmera Reality & Infra India Ltd.
- 5. Mr Sanjay Katkar, Municipal Commissioner, Mira Bhayandar Municipal Corporation



- 6. Mr Chandresh Mehta, Director/Promoter, Compass Group
- Mr Manoj Parekh, Managing Director, OCS Group – India
- 8. Mr Ulhas Parlikar, Global Consultant-Waste Management, Circular Economy, Policy Advocacy & Co-processing
- 9. Mr Ashish Jain, Founder, Indian Pollution Control Association
- 10. Mr J.P. Nair, Managing Director, VIS Group
- 11. Mr Vivek Mata, Managing Director, Charnock Equipments Pvt. Ltd
- 12. Mr Nitin Nagrale, Founder, Hospitality Purchasing Managers Forum
- 13. Mr Johannes Schmid-Wiedersheim, Director, Texcare International / Brand Management Textile Care & Cleaning, Messe Frankfurt Exhibition GmbH
- 14. Mr Suresh Bhatia, President, DLAI
- 15. Mr Blake McKeown, Commercial Director-AMEA Region, Reckitt Pro Solutions
- 16. Mr Jayaram Nair, Chairman, VIS Group

Declaring the 20th Clean India Show open, Mr Sanjay Katkar, Municipal Commissioner, Mira Bhayandar Municipal Corporation, expressed: "There is a significant need for cleanliness in India.

These expos help bring innovative solutions for making India cleaner. Even the Mira Bhayandar Municipal Corporation (MBMC) relies on a digital waste management system using an app ecosystem. This system helps us segregate 85% of solid waste and has identified strategic locations to minimize the time it takes for waste to be transported. They have also set up waste processing plants in three different areas to manage waste better. As waste is collected and processed efficiently, it helped us prevent flooding during the rainy season. I believe this show will highlight more innovations. In Indian society, the role of industries is crucial, as they develop innovative solutions, while government bodies assist in implementing them, thereby reducing and managing waste efficiently."

The cleaning and hygiene, waste management and technology, laundry and autocare industry has seen an overhaul recently, especially post-COVID with increased focus on hygiene, sanitation. Industries have now dedicated standard protocols in place when it comes to cleanliness and hygiene. On this backdrop, a staunch increase in smart solutions have emerged as an advanced approach that is here to stay. As smart cities grow, upgrading mobility infrastructure and encouraging urbanlocal bodies (ULBs) to implement smart waste management systems aim to restore hygiene and support the Swachh Bharat Mission.

Mr Jayram Nair, Chairman, Virtual Info Systems (VIS Group) shared his thoughts as: "The solutions and products showcased at the 20th edition of Clean India Show will bring about a change in the way we manage facilities, waste, laundry, automobiles and other spaces. It will also educate and encourage respective industry segments to accommodate and gel with the smart solutions we see here on display from India and across the globe. We have dedicated sessions for the conferences which contemplates sustainable solutions, government policy, smart solutions for waste management, water conservation for laundry sector among many more creating a knowledge rich experience for the visitors and attendees."

Sharing similar sentiments, **Mr Raj Manek**, **Executive Director & Board Member**, **Messe Frankfurt Asia Holdings Ltd.**, expressed: "I find Clean India Show - one such holistic amalgamation of industry sectors who are closely connected but require distinctive solutions. This show taps the industry temperament which needs smart solutions to grow and efficiently manage respective operations in-line with government initiatives. It is a platform that encourages innovation, knowledgesharing and networking opportunities for our exhibitors and visitors. Our goal is to help them stay ahead of the curve in the rapidly evolving cleaning and waste management industry landscape."

The feature features launch of innovations in the industry with demonstration and first of its kind product launches. Besides several interesting displays, some unmissable innovations include:

- Cleanfix will be launching its robotic cleaning machine, RA660 Navi XL, with automatic docking system on day one. This robotic cleaning machine is designed for the wet and dry cleaning of large areas such as warehouses, production facilities, data centres and etc.
- Famso, an Australian facility management company will launch its Facade Cleaning Drone (KTV Working Drone) in India. This drone eliminates human exposure to risky heights, increases speed, access to architecturally challenging area and reduces overall cost for building maintenance.
- Adachi Svipegreen Private Limited will be launching its TiGreen Decentralised Wastewater Treatment which houses TiGreen Radical bubble technology that effectively treats wastewater. It enhances the efficiency of biological treatments by increasing the surface area for microbial activity, which can lead to cleaner water being returned to the environment or reused.

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ITMA ASIA + CITME

Singapore 2025

28-31 October 2025

Threads of Innovation: How the Middle East's Textile Industry is Weaving a Modern Future

The Middle East's textile industry is undergoing an exciting transformation, blending ancient

artistry with cutting-edge technology. From Egypt's luxurious long-fibre cotton to Iran's potential for soaring exports, countries are fiercely investing in modernisation. Jordan's duty-free access to the U.S. market and Saudi Arabia's billion-dollar initiatives are further energising this dynamic sector. Meanwhile, the UAE is emerging as a global hub for luxury textiles, attracting top brands and fostering international trade.

Discover how this vibrant industry is driving innovation and sustainability across the region.

Springboard Your Business to the Fastest Growing Region in Global Economy – Asia

Asia's textile and garment industry has made significant progress in the development of innovation, and it continues to develop and grow rapidly. With increasing demands for costeffective and sustainable technologies from textile manufacturers looking to enhance their competitiveness, profitability and value, the need to invest in automation and modernise their operations has become a necessity.

Textile machinery manufacturers and solution providers should leverage this exhibition to springboard to regional markets. Here are the top reasons why you should participate.

The exhibition is brought to you by the industry's most influential textile machinery associations, CEMATEX and CTMA, and supported by major textile organisations.

Only direct textile machinery and technology manufacturers are eligible to exhibit. Your exhibits should fulfil at least two of the following criteria: design, manufacture, or sales.

Exhibits clustered by 19 product sectors, ensuring you are positioned alongside industry peers in your specific field, if you apply by the deadline of 12 November 2024.

Singapore is an excellent gateway to growing textile manufacturing hubs in Asia and the Middle East. It enjoys unparalleled connectivity, with flights to more than 100 countries and a visafriendly policy.

The expansion of the exhibition from Shanghai to Singapore recognises the growing needs of the Asian textile industry, especially India. Today, the industry is seeking technologies to optimise production, reduce supply chain risks, improve quality and finishes, and enhance sustainability throughout the production process. We are eager to

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see how the Singapore exhibition will address these needs and support the largest textile manufacturing and exporting region in the world in utilising the latest technologies and innovations."

Ms Chandrima Chatterjee, Secretary General, Confederation of Indian Textile Industry (CITI)

Strong Industry Endorsement

With more than 100 trade and industry organisations expected to support the Singapore edition of ITMA ASIA + CITME, the exhibition is poised to be the leading textile technology exhibition next year.

We invite trade associations, industry media, and overseas travel agents to join us as supporting partners of ITMA ASIA + CITME, Singapore 2025.

Japan Textile Machinery Association (JTMA)

We are pleased to welcome JTMA as a special partner for ITMA ASIA + CITME, Singapore 2025. JTMA will be facilitating the participation of its members who are leading textile machinery manufacturers at the exhibition.

For further information, please contact: info@itma.com

The textile industry will get gathered at the Textile Machinery Fair GTMF 2025, which will be held in Gaziantep, Turkey between 15-17 October 2025

The GTM 2025 Textile Machinery Fair, which brings together the leading figures in the textile industry with the region where 75 percent of Turkish textile production is carried out, will be the prevalent textile event both in Turkey and around the world.

The Gaziantep Textile Machinery Fair GTM 2025 will set out a vision for world textiles, and will bring a mobility to the industry valued at millions of dollars.

Gaziantep, the meeting spot of Turkish textiles where the production of Turkish textile and garment products are mainly carried out around neighboring cities such as Adana, Adıyaman, Kayseri, Kahramanmaraş, Malatya, Niğde, Osmaniye and Şanlıurfa, is an important center for the organization of a such event.

The Textile Machinery Fair, which will be held in a 30,000 square meter closed area at the Gaziantep Middle East Fair Center between October 15-17,

2025, will bring together domestic and foreign machinery manufacturers with the textile industry. **GTM 2025 Fair**

Will be held under the auspices of Gaziantep Metropolitan Municipality.

With the support of textile and raw material exporter associations.

With the cooperation of Gaziantep Chamber of Industry, Gaziantep Chamber of Commerce, Gaziantep Organized Industrial Zone Directorate.

Business Networking Opportunities Worth of Million Dollars

According to statistical data, the Turkish textile machinery market has a volume of 3 billion 4 million dollars. According to 2023 TÜİK data, 1 billion 950 million dollars of textile machinery imports were realized, while 1 billion 450 million dollars of the Turkish domestic market's capacity was met by domestic textile machinery manufacturers.

In the same period, exports of Turkish textile machinery manufacturers recorded as 840 million dollars. Turkey is the world's largest machinery buyer, right after China and India. It is the most important market for both domestic and foreign machinery manufacturers. At Gaziantep Textile and Apparel Machinery Fair GTM2025, which will bring the textile industry together under one roof, technology manufacturer brands will showcase their newest applications and will have the opportunity to exhibit their innovative products. Companies wishing to take advantage around domestic and foreign markets will have the opportunity to establish new business connections and to form new partnerships. The fair, which will increase the innovative capacity of the textile industry, will bring a mobility to the industry valued at millions of dollars.

What will be showcased at the Fair?

Textile machinery manufacturer companies participating in the fair will have the opportunity to directly reach the market with the hosting of Gaziantep, which holds a prominent importance in textiles, ready-made clothing, home textiles, carpet, nonwoven, fabric and yarn production. Gaziantep, which is amongst the provinces that have made significant progress in the textile sector, has been the leader in many product groups with its Textile Production Capacities. In addition to the textile production carried out by Gaziantep, the city positioned as the center of Turkish textile production with the textile industry which is clustered around the neighboring cities. Gaziantep, is the leading producer in Turkey, producing 91% of the machine-made carpet production in Turkey, 91% of the Polipropilen İplik / Polypropylene Yarn production produced in Turkey, 82% of Dokusuz kumaş / Nonwoven fabric production, 77% of (Akrilik İplik) Acrylic Yarn production, 48% of Gipe İplikler / Gipe Yarns production, 40% of the production of Çuval, torba /Bags and Sacks from PE/PP Band from PE or PP strip, 36% of Pamuk İpliği / Cotton Yarn alone.

The following Product Groups constitute the Participant Concept of the Fair:

- ♦ Yarn Preparation Machines
- Yarn and Fabric, Dyeing & Finishing Machines
- Cotton and Fiber Preparation Machines
- Transferring, Twisting, Texturing Machines
- Nonwoven Machines
- Weaving Preparation Machines
- ♦ Weaving Machines
- Tufting and Carpet Weaving Machines
- ♦ Narrow Weaving Machines
- Warp Knitting Preparation Machines
- Flat and Circular Knitting Machines
- ♦ Washing, Bleaching, Drying Machines
- Wrapping and Folding Machines
- Cord and Rope Machines
- Socks Machines
- Embroidery Machines
- ♦ Quilting Machines
- ♦ Textile Printing Machines
- Digital Textile Printing Machines
- Textile Printing Dyes and Chemicals
- Textile Chemicals, Laboratory Equipment and Quality Control Systems
- CAD-CAM-CIM Applications and Automation Systems
- Auxiliary Machines, Spare Parts and Accessories
- ♦ Garment machines and accessories

For further information, please contact: International Relations & Sales Manager Mr. Hasan Keleşer http://www.textotex.com/

http://tekstilbusiness.com/www.gtmfair.com

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Functional contract textiles: the multitalents at Heimtextil 2025

Heimtextil will be the first stop for architects, interior designers and hospitality experts looking for contract textiles. Here, they find the entire spectrum of textile furnishings in one place and at the same time an informative comprehensive programme, design and trend inspiration. Top international exhibitors and innovative newcomers present their latest products for the contract business. The entire textile spectrum is covered - from wallpapers, curtains and sun protection, upholstery and outdoor fabrics, bedding, bed linen, bathroom textiles, mattresses and sleeping systems, fibres and yarns to carpets.

Functional, reliable and innovative - this is how the products for the contract sector are presented at Heimtextil in Frankfurt from 14 to 17 January 2025. Interior designers, architects and hospitality experts awaits a broad and international range of textiles, specifically for use in public buildings and facilities.

Visit the global ordering platform for knowledgehungry textile professionals – with numerous talks, tours and special presentations.

For further information, please contact: info@india.messefrankfurt.com

GENTEXH 2025

Global Exhibition on Nonwoven & Hygiene Technology

12-13-14 March 2025

Saigon Exhibition and Convention Center (SECC), HO Chi Minh City, Vietnam

Stalls Filling Fast at GENTEXH 2025

Don't miss your chance to be a part of GenTexh – the ultimate platform to connect, collaborate, and showcase your innovations!

Stalls are filling up fast! Ensure your brand is at the forefront by booking your spot today.

Explore our Focus Segments: Driving Innovation Across Nonwoven & Hygiene Industries

Why Exhibit at GENTEXH 2025?

1. Strategic Market Access: Connect with Southeast Asia's fast-growing nonwoven and hygiene sectors, positioning your brand in a pivotal and high-demand market.

2. Expand Business Horizons: Meet top buyers, distributors, and manufacturers actively seeking innovative products and solutions, opening doors to partnerships across Vietnam and beyond.

3. Showcase Your Innovations: Highlight your latest products and technologies to an audience ready to invest in cutting-edge solutions, allowing your business to shine in a competitive space.

4. Gain Industry Insights: Access expert-led sessions, workshops, and networking events to stay ahead with the latest trends, technologies, and regulations in nonwoven and hygiene markets.

5. Boost Brand Credibility: Strengthen your brand reputation by aligning with industry leaders and enhancing visibility through Vietnam's largest nonwoven expo platform.

How to Exhibit at GENTEXH 2025?

1. Register Your Interest: Visit the GENTEXH 2025 website and complete the exhibitor inquiry form to get started with the process.

2. Choose Your Booth Package: Select from various booth options tailored to your needs—whether it's a standard space or a premium showcase, GENTEXH offers a range of flexible setups.

3. Prepare Your Exhibit: Work with our dedicated team to finalize booth details, promotional materials, and logistics. Ensure your products and materials align with your marketing goals.

4. Promote Your Participation: Take advantage of GENTEXH's marketing tools. Announce your presence through social media, email campaigns, and the exhibitor listing on our site to attract visitors.

If you are interested in exploring opportunities in Vietnam's growing Nonwoven Industry secure.

For further information, please contact: +91 95125 92902 mktg@gentexh.com www.gentexh.com Radeecal Exhicon 42, Ishan 3 Tower A, MCA College Road, Satellite, Ahmedabad, Ahmedabad Gujarat - 380015, India

Textile Industry on the Path of Wellness

There has been continued initiative on spreading wellness in textile spinning industry for uplifting the quality standards of Yarn Quality, which will affect better fabric, better grey, better dyeing, better weaving, better printing, better finish, reflecting on better garments and other such fabric end products. The intention is to have better demand and better price in the market. A group has taken up upwardly steep mission to implement the awareness to adopt these simple steps to adopt wellness and experience the joy of wellness.

Wellness Seminar at Baddi and Ludhiana



Continuing the series, the seminars were conducted on 6th January 2024, at Mandideep in Madhya Pradesh and later on from 1st to 5th March 2024, at Baddi and Ludhiana in Northern area. Around 250 people participated in the seminars. It was enthusiastically attended by the participants and equally well presented. The organizers took care to explain the Wellness in spinning mills concept in very simple and understanding language and speakers had well conducted the seminar using slide projector to show various examples and points in support of their statements. The points were presented by including various case studies from the textile spinning mills and very subject oriented. The audience found these to be very interesting. The last part of the seminar included questions and answer session. The questions were interesting and were very well answered to their satisfaction.

Wellness Seminar at Mandideep, MP



Many myth breaking informations were highlighted and which were equally well supported with valid results analysis. There were necessities to adopt new processes in day to day work cycle on spinning floor.

The initiative is very interesting and necessary for the industry and market. It is understood that this initiative will be carried on in other parts of country as well.

Creating Benchmarks in Finer Counts Combed Compact Process: Pongalur Pioneer Textiles Success Powered by LMW's Smart Technology

Pushing Boundaries & Spinning Success: A Legacy of Innovation Powered by LMW

Through a steadfast commitment to modernization and innovation, and by leveraging LMW's machinery, Pongalur Pioneer Textiles has embraced advanced automation and digitalization. These advancements, made possible with LMW's Smart technology, have enabled the company to significantly enhance productivity, quality and produce yarns with superior strength. This dedication to quality, coupled with LMW's superior equipment, has solidified Pongalur Pioneer Textiles' position in both the domestic and international textile markets, catering to the growing global demand for highquality yarns.

Founded in 1992 by Shri V Selvapathy, Pongalur Pioneer Textiles began as a modest mill with 2,800 spindles. Over the years, under the visionary leadership of Mr. Selvapathy and Mr. S Aravind, Managing Director, the company has transformed into one of the most modern and technologically advanced textile mills in South India. Today, with a spindle capacity of 1,20,000, Pongalur Pioneer Textiles specializes in producing premium combed compact yarns.

Strategic Collaboration with LMW: A Path to Excellence

Pongalur Pioneer Textiles has maintained a close and successful collaboration with LMW, a partnership that has been instrumental in the company's modernization efforts. LMW's machinery has enabled Pongalur Pioneer Textiles to optimize production efficiency, improve yarn quality, and achieve consistent output. Mr. S Aravind also quoted that "The availability of engineers and spare parts locally, combined with LMW's prompt service support, has provided Pongalur Pioneer Textiles with a competitive advantage in terms of cost efficiency and operational continuity."



(Mr. S Aravind, Managing Director, Pongalur Pioneer Textiles)

"We are witnessing tremendous gain with the latest LMW smart machines setup, Pongalur Pioneer Textiles has achieved success in the production of fine combed yarns. Credits to LMW 's superior quality of machines and the continuous support in quality checks. The company has seen substantial improvements in production metrics, leading to increased customer satisfaction and market demand."

— Mr. S Aravind, Managing Director


TextileTrends

Creating Benchmarks in Finer Counts Combed Compact Process: Pongalur Pioneer Textiles Success Powered by LMW's Smart Technology

A Benchmark in fine count processing with LMW's Cutting-Edge Solutions

Pongalur Pioneer Textiles is equipped with LMW's LRJ 9/SXL Smart Ring Frame featuring the SPINPACT Suction Compact System, which consistently delivers superior performance. This advanced technology from LMW has enabled the company to reach benchmark levels in both productivity and quality, ensuring optimal efficiency in their operations. The innovative design and cutting-edge features of LMW's machinery are instrumental in achieving these highperformance standards.

They produce high-quality yarn with impressive productivity metrics. The units achieve excellent results, with 40s at 165 GPSS, 60s at 95 GPSS and 80s count at 65 GPSS. Leveraging LMW's advanced technology, they have achieved very high production, setting a new benchmark in the textile industry.





Pongalur Pioneer Textiles, exclusively focused on producing 100% cotton yarn, operates with LMW's advanced machinery



The technical team says, "LMW has been phenomenal in achieving superior production quality. Their machinery has allowed us to optimize every phase of the spinning process, ensuring maximum efficiency with minimal downtime. We've been able to maintain a consistent output of high-quality yarn."

TextileTrends

Creating Benchmarks in Finer Counts Combed Compact Process: Pongalur Pioneer Textiles Success Powered by LMW's Smart Technology

to manufacture Ne 40s to Ne 105s combed compact yarns. Leveraging LMW's stateof-the-art technology, Pongalur Pioneer delivers superior yarn quality that caters to manufacturers specializing in linen, shirts, and sarees. This versatility, powered by LMW's reliable and high-performance machines, ensures that Pongalur Pioneer continues to be a vital player in the textile industry.

Rapid Expansion and Operational Efficiency

Pongalur Pioneer Textiles currently operates with a spindle capacity of 1,20,000, with an additional 33,000 spindles in the pipeline for expansion. This planned expansion aligns with the company's market demand and will significantly boost production capacity for cotton yarn. The expansion, fueled by LMW's High-Performance Technology, will allow Pongalur Pioneer to meet the rising customer demand for high-quality cotton yarn. This growth will further strengthen Pongalur Pioneer Textiles in the cotton yarn segment, enhancing both its domestic and international reach.

Pongalur Pioneer Group				
Department	Model	Quantity		
LMW Blowroom	LA23/S	1		
LMW Card	LC300A V3	16		
LMW Draw Frame	LDB3 S	3		
	LDF3 2S	1		
LMW Lap former	LH 15	1		
	LH 10	2		
LMW Comber	LK64 / LK64 Z	8		
	LK54 / LK54 Z	6		
LMW Speed frame	LF 4280/SX	2		
	LF 1400-A	9		

LMW Ring frame	LR 60/A	32
	LRJ 9/SX	11
	LRJ 9/AXL	14
	LRG 5/1	10
	LR 6/S	2

Commitment to Sustainability and Energy Efficiency

Pongalur Pioneer Textiles is committed to sustainability and energy efficiency, integrating green energy solutions into its operations. The company uses 15 MW of green energy, with 12 MW sourced from solar energy and 3 MW from wind



energy. This approach not only reduces operational costs but also aligns with their dedication to sustainable practices. With green energy sources, Pongalur Pioneer is taking significant steps toward minimizing its environmental footprint while maintaining high standards of productivity and efficiency.

For further information, please contact LMW Periyanaickenpalayam

Coimbatore-641020 Phone : +91 73976 88873 Email: info@lmwtmd.com Website: http://www.lmwtmd.com/





AUTO BLEND LA 10

Versatile Solution with High Blending Accuracy



Oerlikon

Oerlikon Barmag Huitong Engineering (OBHE) supplies polycondensation plant for sustainable production with better quality

FixDye to produce recycled dope-dyed filament yarn with rPET flakes on systems of Oerlikon Barmag Huitong Engineering

The recycled polyester yarn manufacturer FixDye has opted for the polycondensation system manufacturer Oerlikon Barmag Huitong Engineering (OBHE) to increase its production capacities.

The company, based in Huai'an, China, is thus expanding its production capacities in melt preparation, the production stage upstream of the spinning mill. This will not only allow FixDye to better inf luence yarn quality, but also to keep an eye on the supply chain of its products, regardless of external inf luences. This is an unbeatable advantage when it comes to the ambitious goals of the circular economy.



Oerlikon Barmag Huitong Engineering's polycondensation systems stand for the best downstream performance and a reduced environmental footprint

The plant with a capacity of 3×180 tons per day of recycled bottle flakes for textile f ilament yarn is a clear commitment to the sustainable textile industry. From mid -2025, it will mainly produce FDY and POY/DTY for the European and US markets. The yarns produced are spun-dyed for ecological reasons, zero water dyeing method.

With its sustainability concept, FixDye is a pioneer in the textile industry. Certif ied by numerous recognized institutes such as GRS, BSCI and OEKO-TEX, the company produces everything from recycled melts to textile surfaces for wellknown international textile and sporting goods manufacturers. "In the medium term, FixDye also wants to of fer materials produced using the Textile-2-Textile recycling process," explains Ivan Ye, CMO of FixDye. "Conf idence in the reliability of the highly efficient systems and the sustainable, energy-saving concept were the decisive aspects in choosing OBHE as the supplier of the polycondensation system," adds General Manager Kevin Wang.



Becomes textile yarn again: recycled bottle flakes

Oerlikon Polymer Processing Solutions showcased at the ITMA Asia + CITME 2024 Oerlikon offers energy-efficient technologies for further conversion and expansion of a sustainable Chinese manmade fiber production

This year's ITMA Asia + CITME 2024 trade fair appearance of the Oerlikon Polymer Processing



André Wissenberg, Head of Marketing, Corporate Communications and Public Affairs

Solutions Division once again focused on current challenges for the global textile machinery industry: the consistent replacement of old systems with energy-efficient and sustainable technology solutions, the use of digital software and hardware solutions to increase productivity and ensure material quality, and the traceability of all

products to enable the recycling of the raw materials used in a future-oriented circular economy.

Oerlikon invited all visitors to ITMA Asia + CITME 2024 to address their questions to their

experts on site and enter into dialogue with them. In Hall 7, B09, of the National Exhibition and Convention Center (NECC) in Shanghai, they discussed their answers to current questions of the present and future on a ca. 100m² booth between 14 and 18 October 2024.

Oerlikon Polymer Processing Solutions offers complete solutions ranging from extrusion and polycondensation systems to texturized yarn, accompanied by automation and digital solutions. The supply of all process steps from a single source ensures a coordinated technology that guarantees the high quality of the fibers and yarns produced. The entire product portfolio of one of the world's leading suppliers of machines and systems primarily to produce polyester, polypropylene and nylon therefore took centre stage at this year's trade fair.



Oerlikon at ITMA Asia + CITME 2024: With WINGS POY (left), Oerlikon Barmag continued to set the benchmark for innovative manmade fiber production. With its BCF technologies (right), Oerlikon Neumag is even more the leading supplier of carpet yarn production systems today.

"The Chinese market continues to have enormous potential for us, even if it has not been able to match the previous times in terms of large new installations of manmade fiber plants and the associated expansion of production capacity for good two years. However, there is still a great need for renewal, especially in terms of sustainability. Shutting down old plants and replacing them with new, modern and energy-efficient technologies is the path to a better and lower-emission future for us all," explains André Wissenberg, Head of Marketing, Corporate Communications and Public Affairs. "We have been contributing to sustainability with our technology solutions for decades. Be it by increasing energy efficiency with each new generation of machines or by processing new materials," Wissenberg continues. Oerlikon is proud of the fact that the company has been offering innovative solutions for the textile industry under the e-save sustainability label for 20 years and has saved over 15 million tons of CO2 thanks to the machines and systems developed and installed on the market during this time.

About Oerlikon Polymer Processing Solutions Division

Oerlikon is a leading provider of comprehensive polymer processing plant solutions and highprecision flow control component equipment. The division provides polycondensation and extrusion lines, manmade fiber filament spinning solutions, texturing machines, BCF and staple fiber lines as well as nonwoven production systems. It also develops and produces advanced and innovative hot runner systems and multi-cavity solutions for the injection molding industry. Its hot runner solutions serve business sectors, including automotive, logistics, environmental, industrial applications, consumer goods, beauty and personal care and medical. Moreover, Oerlikon of fers customized gear metering pumps for the textile, automotive, chemical, dyes and lacquers industries. Its engineering competence leads to sustainable and energy-efficient solutions for the entire polymer processing value chain with a circular economy approach.

Oerlikon Polymer Processing Solutions Division serves customers through its technology brands – Oerlikon Barmag, Oerlikon Neumag, Oerlikon Nonwoven and Oerlikon HRSf low – in around 120 countries with production, sales, distribution and service organizations.

The division is part of the publicly listed Oerlikon Group, headquartered in Switzerland, which has more than 12 600 employees and generated sales of CHF 2.7 billion in 2023.

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Textechno Herbert Stein GmbH & Co. KG

Bending-Abrasion and Cyclic Stress Tester for Fibres and Yarns

FIBRESTRESS

During the fibre bending-abrasion test, the fibre sample is cycled back and forth over a wire or thin pin under given tension and defined angle, e.g. 90°. In this test, the number of cycles up to fibre breakage is the measured variable. Concerning fibres for apparel textiles, the test provides a measure for the tendency to pilling of the wovenor knitted fabric: The smaller the cycle number to break occurrence, the lower is the tendency to pilling, since the pills that develop during textile wear would be shed within a short period. With this test, for example, Polyester fibres that show little or no pilling have a life span of less than 1000 load cycles, whereas fibres with poor pilling characteristics can reach up to 100 000 cycles.

The opposite is desired for fibres used for carpets: Fibres for carpet piles must be highly resistant to bending stresses in order to avoid premature breakage during heavy wear of the carpet.



The bending-abrasion test is also suitable for staple fibre yarns concerning the stability of their structure or resistance to stress during subsequent processing, e.g. for warp yarn in weaving. With flax fibres, the fibres increasingly divide into small single fibrils when subjected to the bending-abrasion test, which provides information concerning processing properties.

Finally, in the area of hair care products, conclusions can be drawn regarding the influence of the treatment media concerning hair characteristics, such as elasticity or brittleness, by subjecting the

treated human hair to the bending-abrasion test and analysing the results.

A further test method in addition to the bendingabrasion test, which is also cyclic, is the cyclic stress test. Here, the fibre or yarn is subjected to an alternating change between tension and full relaxation. The measured variable is again the number of load cycles up to break occurrence. Such cyclic stress tests also supply valuable information regarding the fibre or yarn properties during processing, performance characteristics, e.g. for carpets, or the effects of special treatments in the case of human hair.

FIBRESTRESS Type F

This equipment has been designed for bendingabrasion tests on fibres with a linear density within the range of 0.3 - 20 dtex. For the test, one of the fibre ends is held by a clamp and the other end loaded with a pre-tensioning weight. The fibre is bent at a 90° or 110° angle around a wire, which brings about the abrasion stress.

The clamp cycles in a horizontal direction, pulling the fibre backwards and forwards over the wire. A sensor registers the occurrence of fibre breakage, and the appropriate cycle number count up to that moment is recorded. The equipment features a clamping strip with 25 positions for the simultaneous testing of 25 fibres.



FIBRESTRESS Type C

This equipment uses an identical method as the Type F for bending-abrasion tests on fibres with a



high linear density and yarn segments within the range of 3 - 100 dtex. Due to the higher sample count, the equipment has heavier pre-tensioning weights that are guided within vertical channels. If necessary, the weights can be secured against any tendency to self-twist.

In addition to the bending-abrasion test, the FIBRESTRESS Type C can also be used to carry out cyclic stress tests. Here, the reciprocating arrangement of the clamping strip is converted from its position of horizontal movement into a position with vertical motion. The fibre length must be measured in such a way that, with each downward movement of the clamp, the weight comes into contact with the sensor where upon the fibre is relaxed. If fibre breakage occurs, the weight is no longer raised during the following upward movement of the clamp and the cycle number is recorded. As an option, there is the additional possibility of recording any lengthening of the fibres during the test as a function of the cycle number.

FIBRESTRESS Type C/H

The construction of this model for the testing of human hair is mainly identical to the FIBRESTRESS Type C. Here, the ends of the hair segments to be tested are fitted with clamping tubes, which are fastened into the clamps of the tester and to the tensioning weights. This eases treatment of the test samples with liquid media prior to the testing.

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Crealet AG

Advanced warp let-off controls for maximum effciency and reliability

Efficient management and precise monitoring

We use industrial PCs to operate multiple warp beams, allowing efficient management of the warp beams and precise monitoring of the warp yarn feed.

The visualisation on the display shows the status of the activated warp beams in real time and enables the operator to control the entire process easily and intuitively.



Warp beam frame for multiple warp beams with warp tension control using load cells.

In weaving mode, the display provides comprehensive information for each warp beam, such as:

- ♦ Set value of the warp tension
- ♦ Actual value of the current warp tension
- ♦ Motor speed
- ♦ Current consumption
- Direction of rotation of the motor



In the event of a deviation in the warp thread tension, an alarm signal is immediately triggered and transmitted to the weaving machine to prevent possible damage or production stoppages. This system ensures a high level of operational reliability and contributes significantly to the efficiency and quality of the weaving process.

Article data management

Product data management is crucial for the efficient management and storage of product-related information.

All relevant settings and parameters are summarised in this central database, which enables the exact and simple reproduction of products.

Our control systems are also equipped with remote maintenance and on-line support functions.



These advanced remote capabilities allow optimisations and fine-tuning to be carried out quickly and easily without interrupting production. Software updates and configuration adjustments can be seamlessly integrated, ensuring continuous quality improvement.

In summary, our control systems with industrial PCs and remote maintenance and online support functions offer optimised management of warp beams and warp yarn feeding. This results in increased productivity and reduced operating costs, giving our customers a clear competitive advantage.

For further information, please contact: Crealet AG Hüeblistrasse 418636, Wald, Switzerland info@crealet.ch, Skype: info_crealet Tel: +41 (0) 55 286 3020 Fax: +41 (0) 55 286 3029

SAITEX

SAITEX Releases 2023 Impact Report of unwaving commitment to sustainability

Pioneering the Future of Circular and Sustainable Denim Manufacturing

We're excited to share SAITEX's 2023 Impact Report, showcasing their unwavering commitment to sustainability, innovation, and social responsibility within the fashion industry.



As a pioneer in circular manufacturing, SAITEX aims to set benchmarks in sustainable denim production through collaboration with leading global brands. This year's impact report provides a transparent account of their progress, contextualizing data to highlight areas for improvement and outlining next steps. It shares key milestones in their regenerative practices, the implementation of cutting-edge technologies, and innovations that transform waste into meaningful products, all with a focus on environmental stewardship and social empowerment.

"At SAITEX, we believe in transparent accountability. Sharing our impact—whether positive or negative—is essential for progress. Our evolution as a circular system depends on setting ambitious goals and continuously improving where we fall short," says CEO Sanjeev Bahl.



Since its founding in 2001, SAITEX has been human-centric and purpose-driven, dedicated to advancing social and environmental practices in the apparel manufacturing industry. Celebrated as "The World's Cleanest Denim Factory" by Bloomberg, SAITEX has become a global benchmark for responsible and sustainable manufacturing. Over the years, the organization has evolved into an ecosystem that now includes:

- SAITEX Apparel Manufacturing in Vietnam (2006) - sustainable denim at scale
- SAITEX Los Angeles in USA (2021) designed to address style trends with speed to market
- SAITEX Mill clean denim fabric spinning facility in Vietnam (2022)
- STELAPOP a division upcycling waste into consumer products (2019)
- ♦ Inclusive workforce initiative REKUT (2019)
- Denim Upcycling project Atelier & Repairs (2021)

Together, these entities share a unified vision, collaboratively redefining how denim is made and [re]used.

At SAITEX, cutting-edge technology and human creativity form the backbone of operations, integrating Industry 4.0 advancements like AI, machine learning, IoT, RFID, robotics, and cloud computing. This smart factory approach enhances Speed-to-Market (STM), transparency, and traceability—key pillars of sustainability and circularity. Through a vertically integrated ecosystem and ongoing Life Cycle Assessments (LCAs) in partnership with Ecochain since 2019, SAITEX maps its operations, enabling datadriven decisions that drive continuous improvement, accountability, and solutions for a sustainable future.

Partnering with leading global brands such as G-Star, Everlane, J.Crew, Madewell, Zara, A.P.C., IKEA, and Polo Ralph Lauren, SAITEX produces high-quality denim and apparel while consistently pushing the boundaries of responsible production. SAITEX also actively engages with certifying bodies, including bluesign®, GOTS, GRS,





regenagri[®], OEKO-TEX[®], and C2CPII, to ensure adherence to the highest standards of sustainability and accountability.

After reviewing the impact report, I'd be happy to connect you with Sanjeev Bahl, CEO of SAITEX, for further insights or an interview to explore how SAITEX is transforming into the factory of the future.

KEY INSIGHTS FROM SAITEX 2023 IMPACT REPORT

- By 2023, SAITEX Mill in Vietnam achieved a milestone in which 25% of all fabrics produced by the facility were Cradle to Cradle Certified® Gold denim. These fabrics are created with substantial reductions in CO2 emissions, energy usage, and water consumption, enabling brands to produce cleaner denim sustainably—all under one roof.
- Since 2021, SAITEX has been the only mill in Vietnam equipped with Smart-Indigo[™] technology. After 2 years of implementation, this has reached the milestone of reduced CO2 emissions by 90%, energy use by 70%, and water consumption by 30%, marking a significant leap for SAITEX in clean denim manufacturing.
- By 2023, SAITEX's REKUT program successfully integrated 98% of employees from marginalized backgrounds into garment production across all categories, exemplifying CEO Sanjeev Bahl's dedication to inclusivity and equity.

For further information, please contact: Saitex International Co. Ltd Lot 225, Amata Industrial Zone Bien Hoa, Dong Nai, Vietnam E-mail: info@sai-tex.com Website: www.sai-tex.com

Mayer & Cie.

Braiding machine manufacturer presents new development

Mayer & Cie. offering first braiding machine equipped with 48 carriers

The German braiding machine manufacturer Mayer & Cie. has been offering braiding machines with 48 carriers since this autumn. An MR-11 type braiding machine will be the first to be delivered with 48 carriers. It will leave the plant in Albstadt, Southern Germany, before Christmas. The first MR-15 equipped with 48 carriers is to follow in spring 2025. With the braiding machines with 48 carriers, customers benefit from larger inner tube diameters, short set-up times and unaltered coil volumes. This applies to both yarn and wire.

"We are pleased to be able to present this new development to our customers," says Patrick Moser, head of the business unit. "This significantly increases the possible applications of our machines."

More carriers for larger hose diameters

Previously, Mayer & Cie.'s braiding machines were available with 16, 20, 24 and 36 carriers.

The option to equip both the MR-11 and the MR-15 with 48 carriers expands the range of hose inner diameters: braiding machines for reinforcement of highpressure hoses made of



wire offer an inner diameter of up to 50 millimeters (2 inches). With 48 carriers, systems for textile braids achieve an inner diameter of up to 150 millimeters (6 inches).

Same coil volume combined with more carriers

As the number of carriers increases to 48, the braiding machine maintains the same coil volume. The Bobbin Standard, suitable for both yarns and wire, holds 1,580 cubic centimeters. For a larger capacity dedicated to yarn, the Bobbin Long offers 3,920 cubic centimeters, while the Bobbin Extra Long provides the maximum volume of 5,170 cubic centimeters, also exclusively for yarn.

"With more carriers and higher coil volumes, users can process greater material quantities before needing a spool change," explains Patrick Moser. "This translates to shorter setup times for the same machine application, boosting efficiency overall." The rotor speed remains the same on all MR-11 and MR-15 models, regardless of the number of carriers the machine is equipped with. However, the speed of the individual carrier decreases the higher the total number of carriers.

Extensive combination options

Mayer & Cie. currently offers two braiding systems in its lineup: the MR-11 and MR-15, both operating on the maypole braiding principle. The MR-11 uses a 2-over-2 braid pattern, while the MR- 15 utilizes a 3-over-3 pattern. Both models come in single, double, and triple-deck versions and are now available with 16, 20, 24, 36, and, most recently, 48 carriers.



Since 2019, Mayer & Cie. has centralized its braiding machine production at the company's



headquarters in Albstadt, enhancing its research and development capabilities. "The move has certainly paid off," says Patrick Moser. "Alongside component improvements, our

innovations like the SpeedBooster and the expanded carrier options offer users significantly increased productivity."

About Mayer & Cie.

Mayer & Cie. (MCT) is one of the world's leading manufacturers of circular knitting machines. The company offers the full range of machines needed for the production of modern textiles – from fabrics for home textiles, sportswear, nightwear and swimwear, seat covers and underwear to technical textiles. In addition, Mayer & Cie. regularly develops new approaches. Since 2019, Mayer & Cie.'s service portfolio has been supplemented by the production of braiding machines. They are used to manufacture sheaths for hydraulic hoses, for example for use in aviation, the automotive industry or other special niche applications.

Founded in 1905, Mayer & Cie. generated sales of around 100 million euros in 2023 with around 450 employees, including around 350 at the Albstadt site, according to preliminary figures. In addition to its headquarters in Albstadt, Germany, and its subsidiaries in China and the Czech Republic, Mayer & Cie. is represented in a total of around 80 countries through its sales partners in the field of circular knitting and braiding machines.

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