

CSIR-CLRI at 12th AICLST 2022 in New Zealand

Industry 4.0 Detection and Traceability. Personalization Production on the concepts of Industry 4.0



Industry 4.0 Detection and Traceability. Personalization Production on the concepts of Industry 4.0 The Indian Finished Leather Manufacturers & Exporters Association in India is beginning to play a new and important role. Not long ago, this association of leading leather manufacturers from the country started working on Traceability of Raw Materials by creating a software and portal named "Geotrace." TODAY, they ready with GEOTRACE and they hope play an important role. Chairman of Indian Finished Leather Manufacturers & Exporters Association, Mr K R Vijayan, who is also a leading tanner and manufacturer & exporters of shoes and accessories besides finished leather to the global brands speaks on GEOTRACE; while Md Sadiq of CSIR-CLRI speaks on "Framework for personalization production based on the concepts of Industry 4.0." This is a CSIR-CLRI presentation at the 12th Asia International Conference on Leather Science and Technology at Massey University, Palmerston North, New Zealand on 19th October 2022. The presentation can also be viewed on YouTube by clicking on the link:

<https://youtu.be/M9Y3MQNqF-Y>

Customers are moving towards sustainable goods. Hence, there arises a question on whether leather goods are sustainable in nature **leading to another question** whether the entire industry is sustainable. The raw materials sourced for the leather industry do not require additional land and resources, **since they are a byproduct of the meat industry**. As long as there is consumption of meat by humans, **there will always be raw animals hides in abundance**. Therefore, it is understood that the industry would be sustainable for the foreseeable future.

Environmental, social, and economic sustainability are all intertwined in the concept of sustainability.

Traceability in Industry 4.0

The growing demand for highly customized products is a factor present in the fourth industrial revolution, directly impacting the different stages of the supply chain, which implies more flexible production systems and shorter product life cycles.

To meet these requirements, interconnecting and self-managing production processes in an "intelligent factory" environment that incorporates external and internal conditions for autonomous adaptation for the benefit of optimizing these processes is essential.

In the intelligent factory, the flow of bidirectional information between all components and assets is understood through traceability.

Technology and systems for traceability are the main support for monitoring products within Industry 4.0 The concept of traceability according to ISO 8402 and ISO 9000 refers to the ability to track the history, application or location of an entity through registered identifications.

In the Global Leather Industry

TRACEABILITY IN THE GLOBAL LEATHER INDUSTRY 4.0

is an audit procedure to analyze a supplier's capability to track their raw material up to the first slaughterhouse?

This assures that establishments clearly know where their raw material originates from.

Leather Traceability

Leather Traceability can be challenging since it requires the affiliates at every stage of the supply chain to become enrolled and get audited.

The supply chain may involve overseas transactions and transit which may further complicate the tracing process.

Leather is subjected to a variety of procedures

along its journey from the slaughterhouse to the final destination.

This type of traceability is known as

Chain Traceability, as opposed to internal traceability which deals with tracing processes within the same manufacturer.

Why would the companies voluntarily agree to traceability?

Leather companies are experiencing pressure from the investors and NGOs to be more transparent. Traceability would help them prove their transparency. It would also help them in improving their CSR goals, which can allow them to showcase their sustainability.

Here is an interview with

Mr KR Vijayan

Chairman, Indian Finished Leather Manufacturers & Exporters Association, India/ Chennai

We spoke with Mr Vijayan on "TRACEABILITY"

1. **GEOTRACE & how it works**
2. **Does the Leather Industry impact 'deforestation'?**
3. **Is Traceability mandatory?**
4. **How does the supply chain get enrolled?**



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The Indian Finished Leather Manufacturers & Exporters Association in India is beginning to play a new and important role. Not long ago, this association of leading leather manufacturers from the country started working on Traceability of Raw Materials by creating a software and portal named "**Geotrace.**" TODAY, they ready with GEOTRACE and they hope play an important role

We have in our midst, the Chairman of Indian Finished Leather Manufacturers & Exporters Association Mr K R Vijayan who is also a leading tanner and manufacturer & exporters of shoes and accessories besides finished leather to the global brands.

Please allow us to introduce to you Mr Vijayan.

Response by Shri KR Vijayan, Chairman, IFLMEA

Good Morning to one and all.

I am happy to learn that the CENTRAL LEATHER RESEARCH INSTITUTE is presenting Industry 4.0. Detection and Traceability" at the 12th Asia International Conference on Leather Science and Technology in Zealand on 19th October 2022 and is addressing the framework for personalization production based on the concept of Industry 4.0



In picture (L to R): Md Sadiq, CSIR-CLRI Design & Fashion Studio in conversation with Mr KR Vijayan, Chairman, IFLMEA

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Sir, could you please tell us as to how GEOTRACE works?

Response by Shri KR Vijayan, Chairman, IFLMEA

Geotrace provides an audit procedure to analyze a supplier's capability to track their raw material up to the first slaughterhouse. This assures that the participating establishments clearly know where their raw material originates from. As the supply chain unifies around this common aim, it may be guaranteed that animal welfare would remain a top concern.

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Sir, does the leather industry impact deforestation?

Response by Shri KR Vijayan, Chairman, IFLMEA

Geotrace aims to address this gap by introducing a traceability tool for the raw materials of leather at each stage. The platform would track the animal skins right from its respective owners to the final client delivery across supply chains of all domain including footwear, clothes, and automobiles. This is done to guarantee that the obtained leather is not involved with deforestation.

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Is traceability becoming mandatory for the manufacturers of leather and leather products globally?

Response by Shri KR Vijayan, Chairman, IFLMEA

Why would the companies voluntarily agree to traceability? Leather companies are experiencing pressure from the investors and NGOs to be more transparent. Traceability would help them prove their transparency. It would also help them in improving their CSR goals, which can allow them to showcase their sustainability.

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Leather Traceability can be challenging since it requires the affiliates at every stage of the supply chain to become enrolled and get audited.

Response by Shri KR Vijayan, Chairman, IFLMEA

Leather traceability would break the myths associated with the leather industry and could minimize the misconceptions among the general public.

Moreover, Geotrace would help in supply chain mapping at individual stages, and can assist in providing the necessary data for the concerned participants including customers, governing bodies, and NGOs.

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THANK YOU very much Sir for your insights. We are confident that our international audience would greatly appreciate the efforts taken by you and your Team at the Indian Finished Leather Manufacturers and Exporters Association.

Response by Shri KR Vijayan, Chairman, IFLMEA

THANK YOU and good wishes from India to all participants at the Conference.

The Indian Leather Industry A Glance

India is the second-largest producer and consumer of footwear. It is also the second largest exporter of leather garments and the fourth largest leather goods exporter around the world. This industry generates roughly 2% of India's GDP and employs an estimated 4. million people, making it one of the country's leading job creators. The footwear market in India is expected to grow to \$15.5 billion in 2022. An annual growth rate of 11% is predicted over the following five years. The sector is renowned for its high export revenues and is one of the country's top foreign exchange earnings. India's exports of leather and leather products were \$ 3.68 billion in 2020-21, according to the Council for Leather Exports (CLE).

For worldwide footwear companies and producers, as well as those looking to expand, India's growing economy and changing demographics provide an appealing prospect. A huge domestic market with rising disposable incomes and an expanding labour force is now driving a vibrant footwear ecosystem. In the leather and footwear industry, India has one of the most lenient investment regulations in the world, allowing 100 percent automatic FDI.

The country's abundant supply of raw resources has benefited the industry. India has 20% of the world's cow and buffalo population, and 11% of the world's goat and sheep population. The sector benefits

from a skilled labour pool, increased industrial compliance with global environmental requirements, innovative technology, and a dedicated support of related crafts. The industry employs a large number of individuals, generally from the most disadvantaged parts of the population. 30% of the workforce are women in the industry.

Water pollution has long been a serious problem in the Northern Tamil Nādu cluster, which extends from the city of Chennai to the town of Vaniyambadi in the state of Tamil Nadu. This results in a greater environmental effect in the production and processing of leather. India's grim outlook is poised to improve, though, as the country moves toward a greener future. Numerous small and medium-sized businesses in the area are leading the way in implementing ethical and responsible methods to increase the long-term viability of the leather industry. The pallavaram tanner's association are investigating and developing different procedures and mechanics that will recirculate almost all of the water utilized to recycle the waste from leather manufacture [2]. Electro-oxidation treatment is used to achieve a zero-liquid waste method. Salt-free tanning, electro-oxidation-based zero waste discharge, physio-remediation pilot for wastewater, sulphide enzyme-based unhairing, occupational health and safety interventions aimed at reducing lead pollution and water consumption in tanneries are some of the environmentally friendly technologies being implemented by the industry.

Framework for personalization production based on the concepts of Industry 4.0

Industry 4.0: a way from mass customization to mass personalization production

Leather has emerged as a fashion product. Colour, texture and other highlights add to the fashion values of creatively designed leather products. These add significantly to the value realization from leather products. To emerge as a strong global player in the world leather trade, all efforts to take proactive measures to be ready with the fashion leathers when the fashion does emerge, is crucial. This is a framework for personalization production based on the concepts of Industry 4.0

Although mass customization, which utilizes modularization to simultaneously increase product variety and maintain mass production efficiency, has become a trend in recent times, there are some limitations to mass customization.

- Firstly, customers do not participate wholeheartedly in the design phase.
- Secondly, potential combinations are predetermined by designers.
- Thirdly, the concept of mass customization is not necessary to satisfy individual requirements and is not capable of providing personalized services and goods.

Industry 4.0 is a collective term for technologies and concepts of value chain organization.

Direct customer input to design will enable companies to increasingly produce customized products with shorter cycle-times and lower costs than those associated with standardization. The producer and the customer will share in the new value created.

How did the Leather, Shoes and Leather Products Industry stand up to this challenge?

Industry 4.0 will enable novel forms of personalization.

Industry 4.0, Tiny until you turn it on!



About the Speaker

MOHAMED SADIQ, Chief Scientist, CSIR-CLRI India; is a distinguished Leather Technologist with specialization in Footwear Science and Engineering in which he holds a Master's degree.

His focus has been on Footwear Styling and Design; R & D in Trend Forecasting, Colours and Texture development. He has also innovated in HRD activities with accent on Shoe Design Education and Training. He has also excelled in Planning for the Indian Leather sector in the area of design, trends and global competitiveness.

His signature contribution has been in enabling the 'Travel of India in fashion forecasting for LEATHER' - an R&D initiative for garnering global leadership. He helped India gain a foothold in the prestigious MODEUROP Colour Club and Fashion Trend Pool.

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