

Digital Transformation of Bangladesh's Leather Supply Chain: A Case Study of the LeatherTrace Traceability System

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Leathertrace
BANGLADESH

ACKNOWLEDGMENT

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DISCLAIMER

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The Leathertrace Bangladesh project, implemented by the University of Northampton, Aston University, the University of Hertfordshire, iDEA TREE, SERA Bangladesh, and the Sustainable Leather Foundation (SLF), has been awarded a UK International Development grant to develop and pilot an e-traceability system for the leather sector in Bangladesh. The grant has been made via the SMEP Programme and has been awarded until June 2026.

The SMEP Programme is funded by the UK International Development and implemented in partnership with the United Nations Trade and Development (UNCTAD), which provides technical support. UK International Development has appointed a Project Management Agent (PMA) to manage programme delivery. The PMA comprises a consortium partnership between Pegasys and SouthSouthNorth.

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This case study was developed by SERA Bangladesh in collaboration with University of Northampton, Aston University, the University of Hertfordshire, iDEA TREE, and the Sustainable Leather Foundation (SLF) under the framework of LeatherTrace Bangladesh.

SUGGESTED CITATION

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Bangladesh's leather industry is a vital contributor to the national economy and one of the country's leading export sectors, generating approximately USD 1.14–1.5 billion annually and contributing around 0.4–0.6% to GDP. However, the industry has faced increasing pressure from international markets due to persistent concerns over environmental compliance, transparency and responsible sourcing. Global regulatory frameworks and buyer requirements, particularly the EU Deforestation Regulation, are intensifying the demand for robust traceability systems. While leather is not always directly regulated under EUDR, it is indirectly impacted through upstream supply chain requirements, especially regarding the traceability of cattle origin and land-use compliance.

At present, the sector faces several critical compliance gaps, including limited verification of raw hide origin, weak documentation systems, inconsistencies in supply chain traceability and challenges in meeting international certification standards such as Leather Working Group (LWG). These gaps have, in some cases, led to audit failures and reduced buyer confidence. Without credible and scalable traceability mechanisms, the sector risks losing access to key export markets and undermining its long-term competitiveness.

To address these challenges, the Traceable and Circular Leather Production (TCLP) Project in Bangladesh was launched to support the sector's transition toward transparency, sustainability and global competitiveness. The project is implemented through a collaborative partnership involving the University of Northampton, University of Hertfordshire, Sustainable Leather Foundation, Aston University, SERA Bangladesh and iDEA TREE.

The TCLP project is structured around four key components designed to strengthen sustainability and accountability within the leather value chain. These include: (i) an Electronic Traceability System (e-traceability), (ii) Environmental Impact Analysis (EIA), (iii) a Circular Economy Model and (iv) policy recommendations. Together, these components aim to improve transparency, enhance environmental performance, promote resource efficiency and facilitate investment in cleaner production technologies within the sector.

Within this framework, the Electronic Traceability System plays a central role in addressing the growing demand for transparent and verifiable supply chains. Through the LeatherTrace digital platform, leather materials can be tracked from slaughterhouses and collection centres through tanneries to finished leather products. By replacing fragmented paper records with a secure digital system using QR codes and mobile and web-based applications, the platform establishes a reliable data trail across the supply chain.

Under this initiative, the pilot implementation of Bangladesh's first fully e-traceable leather supply chain represents a significant milestone. The primary objective of the pilot was to establish a fully digital, end-to-end traceability for the leather sector. Specifically, the pilot aimed to:

- Demonstrate the practical application of digital traceability across multiple value chain actors
- Replace fragmented paper records with QR-enabled, tamper-proof digital documentation
- Ensure continuous data flow from raw hide sourcing to finished footwear
- Strengthen compliance readiness and buyer confidence in export markets.

INTRODUCTION

Bangladesh's leather and footwear sector is a major contributor to national exports but has long faced challenges in demonstrating transparent and verifiable sourcing across its value chain. Fragmented supply chains and paper-based documentation systems have limited the industry's ability to provide credible evidence on raw material origins, production processes and sustainability practices. For instance, traceability gaps persist at the upstream level, where raw hides are often not linked to identifiable slaughterhouses or livestock origins, while the presence of multiple, informal intermediaries obscures chain-of-custody information. These challenges are further exacerbated during peak collection periods such as Eid al-Adha, when high volumes, inadequate preservation practices and weak documentation systems lead to both quality deterioration and data loss. As global buyers and regulatory frameworks increasingly require end-to-end traceability, the sector must adopt reliable digital systems to maintain competitiveness and access to international markets.

In response, the Traceable and Circular Leather Production (TCLP) Project in Bangladesh introduced LeatherTrace, a cloud-based, centralized digital e-traceability solution developed by LeatherTrace Bangladesh project team. The platform captures and links supply chain data from raw hide sourcing and collection centers to tanning, manufacturing and finished product export, creating a secure, QR-enabled digital record across the leather value chain.

As part of the project's initial engagement process, a Project Briefing and Planning Event was organized to introduce the initiative and engage key industry stakeholders. The event brought together a pilot group from our 16 partner industries (11 tanneries and 5 footwear and leather goods manufacturers), providing a platform to discuss traceability, sustainability and collaborative approaches for strengthening the leather value chain. During the event, a formal stakeholder agreement was concluded with the participating partner industries, with all representatives signing the agreement to confirm their commitment to the project and its pilot activities.



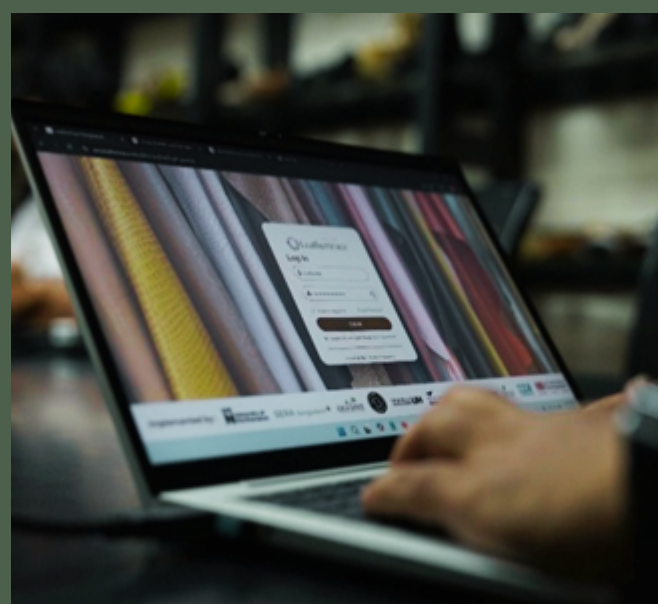
Wet blue leather stockpile at tannery

This document outlines the successful pilot implementation of LeatherTrace Solution across two partner organizations: Superex Leather Ltd and Leatherex Footwear Industries Ltd. Established in 2016, Superex Leather Limited has rapidly emerged as a trusted exporter of premium-quality leather products, serving markets across North America, Europe and Asia. The company is recognized for its strong commitment to craftsmanship, quality assurance and responsible sourcing, while actively promoting environmentally sustainable manufacturing practices, waste reduction and eco-friendly production processes.



Leatherex Footwear Industries Ltd., established in 2000, is one of Bangladesh's leading export-oriented footwear manufacturers. The company began operations with technical collaboration from ASICS of Japan, initially supplying the Japanese market. It later expanded to European markets and strengthened its global presence through a joint venture with BZ MODA of Italy in 2012, specializing in traditional and handcrafted Italian footwear. An in-house component manufacturing facility, established in 2008, further enhanced its production efficiency and quality control.

Within the pilot, Superex Leather Ltd managed raw hide sourcing, tanning, and leather processing, while Leatherex Footwear Industries Ltd carried out footwear manufacturing and preparation for export. Supported by targeted technical assistance and capacity building, the pilot demonstrated that transitioning from fragmented, paper-based systems to a secure, end-to-end digital traceability solution is both feasible and operationally viable. This experience provides a practical pathway for the wider Bangladeshi leather industry to strengthen supply chain transparency, enhance sustainability credentials, and maintain competitiveness in global markets.



Web interface of LeatherTrace solution

THE JOURNEY: FROM RAW HIDE TO LEATHER SHOE

The pilot began at Superex Leather Limited, where the LeatherTrace platform was introduced to digitize procurement and production records. Traditionally managed through paper-based documentation, key sourcing information, including slaughterhouse locations, collection centers and supplier details were systematically registered within the digital platform. Each data point was linked to the subsequent tanning and finishing processes, creating a verifiable digital trail within the tannery's operations.

During the pilot phase, several hide consignments were recorded and tracked through the system. Two lots of cow hides and skins were sourced from the Sirajganj region was selected to demonstrate full traceability. From the moment these hides entered the tannery, their journey was digitally documented. Through the LeatherTrace system, sourcing data, processing stages and batch information were captured and linked via QR-enabled records as the hides were transformed into finished suede leather. This phase clearly demonstrated that tannery-level digital traceability is not only technically feasible but also operationally manageable, significantly improving record accuracy, transparency and readiness for compliance audits.

Once processing was completed, a total of 1,718.5 sq. ft. of traceable cow suede leather were delivered to Leatherex Footwear Industries Ltd for the next stage of the supply chain. Upon arrival, the leather batches were registered in the LeatherTrace system, ensuring that the digital linkage created at the tannery remained intact.



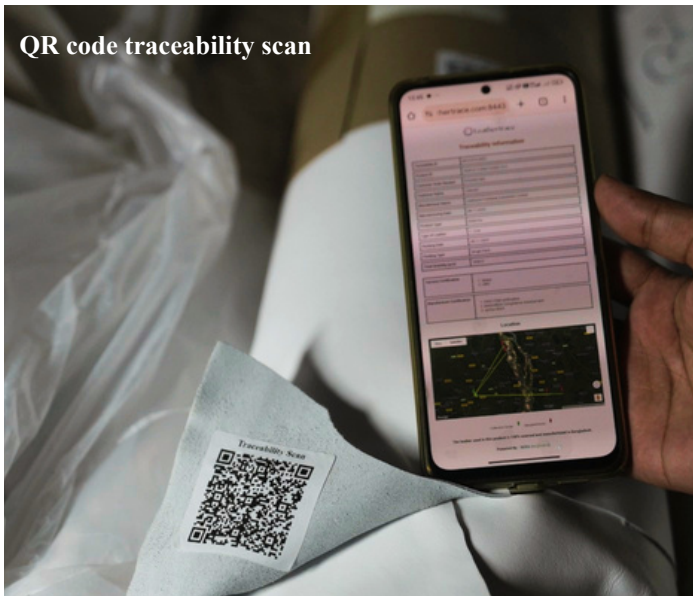
Regional raw hide collection center registration via LeatherTrace Mobile App

This seamless data continuity preserved the complete upstream history from sourcing locations to tanning processes, while integrating it into downstream footwear manufacturing operations.

To support effective implementation, targeted on-site capacity building was provided to Leatherex personnel. Factory teams were trained to incorporate traceability into their daily workflows, including registering incoming materials, documenting production steps and generating digital traceability records for finished footwear products. This hands-on support ensured that the traceability system was not merely a pilot exercise but a practical tool embedded within regular factory operations.



Receiving raw hide at tannery from regional collection center



“We are proud to be part of this initiative. As an LWG certified tannery, we recognize that traceability is essential for ensuring product credibility in global markets, and this digital system will greatly support us in strengthening our data management and transparency efforts.”

- Md. Ataur Rahman, Compliance Officer, Superex Leather Limited

Using the digitally traceable suede leather supplied by Superex, Leatherex produced 1,000 pairs of Leather Ballerina Shoes. Each pair was assigned a unique QR-generated digital identity through the LeatherTrace system. Scanning the QR code allowed buyers and consumers to access the complete production history, connecting the finished footwear to verified sourcing locations, registered collection centers, tannery processing details, and factory manufacturing records.

Production of the traceable footwear batch was completed in early November, 2025 and the finished shoes were prepared for export to Berlin, Germany. This shipment represented a milestone for Bangladesh's leather sector: for the first time, a complete digital traceability chain, from raw hide sourcing to export-ready footwear, had been successfully documented. From the hide collection points in Sirajganj to the final shoes destined for international markets, every step of the journey was securely captured within the LeatherTrace e-traceability solution. The pilot proved that transparent, verifiable and globally compliant leather supply chains are not only possible but achievable within Bangladesh's existing industrial system.

“Traceability information is essential for ensuring product credibility in export markets. Leatherex Footwear Industries Ltd. is proud to be the first footwear manufacturer to implement this digital traceability system under the TCLP project.”

- Md. Abu Tal ha, General Manager, Leatherex Footwear Industries Ltd.



Finished leather

RESULTS AND KEY BENEFITS

The pilot implementation of LeatherTrace at Superex Leather Ltd and Leatherex Footwear Industries Ltd yielded significant positive results, demonstrating the platform's transformative potential.

- **End-to-End Visibility Achieved:** For the first time, the two organizations could digitally trace 1,000 pairs of finished shoes back to the specific batch of raw hides used in its production, along with the complete history of its processing and manufacturing.
- **Enhanced Credibility:** The platform facilitates the generation of verifiable, QR-coded records that serve as definitive proof of responsible sourcing and production. This enhanced transparency enables international buyers to authenticate product origins, thereby reinforcing stakeholder confidence.
- **Improved Operational Efficiency:** The transition from manual, paper-based reporting to a centralized digital system resulted in measurable reductions in administrative time and effort associated with data entry.
- **Data-Driven Decision Making:** The platform provides valuable data on supply chain performance, allowing management to identify bottlenecks, monitor supplier reliability, and make more informed strategic decisions.

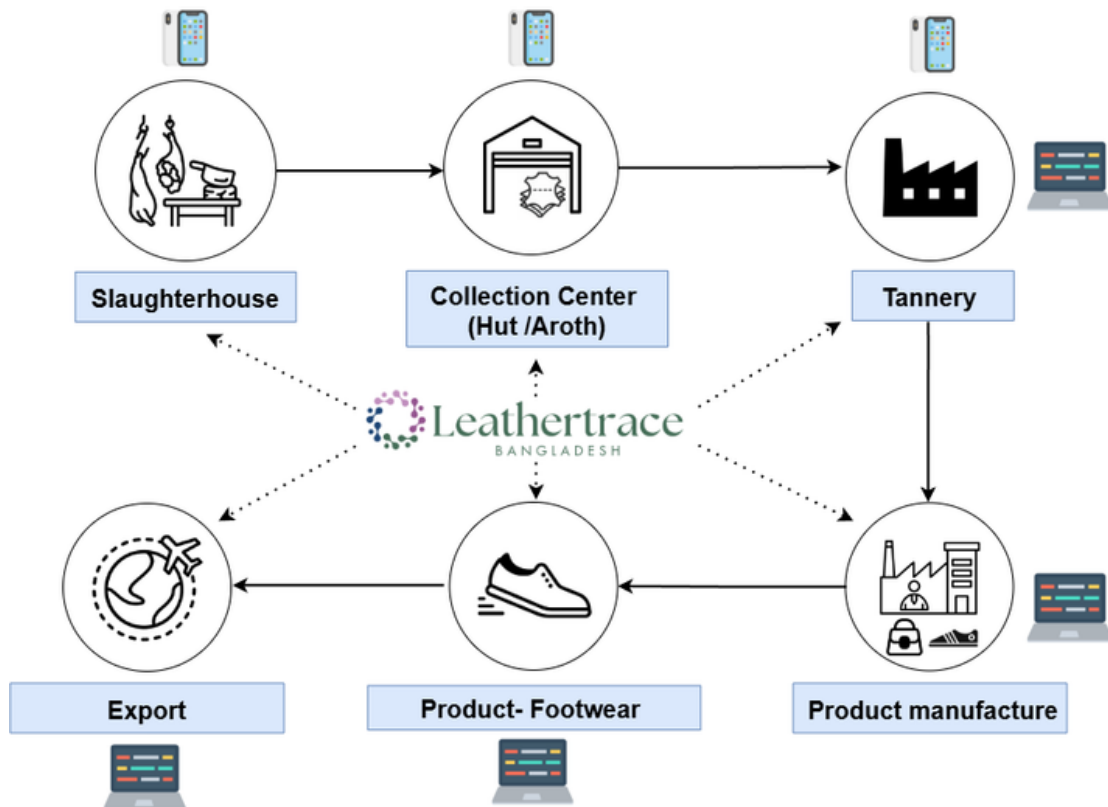
KEY LESSONS LEARNED

The pilot implementation yielded critical insights that will inform future scaling and replication efforts:

- **Targeted Training is Critical for Adoption:** Hands-on, practical training for end-users proved essential for improving data accuracy and building user confidence in the system.
- **Consistency Enhances Credibility:** Maintaining disciplined, consistent digital documentation practices is fundamental to ensuring the reliability and trustworthiness of all traceability records.
- **Value is Maximized Through Integration:** Actively linking upstream suppliers with downstream buyers amplifies the platform's utility and strengthens market relevance across the entire value chain.
- **Ongoing Support Enables Sustainability:** Continuous technical support and responsive troubleshooting are vital for long-term system sustainability and successful large-scale deployment.



"From Slaughterhouse to Storefront- Trace Every Steps, Strengthen Every Export"



CONCLUSION

The successful piloting of the LeatherTrace system demonstrates that full digital traceability across Bangladesh's leather footwear supply chain is both practical and scalable. By seamlessly connecting raw hide sourcing, tanning, manufacturing and export preparation, the initiative proved that transparent and verifiable production systems can be effectively integrated into existing industry operations.

The experience highlights the broader potential of digital traceability to strengthen audit readiness, improve data reliability and enhance buyer confidence in international markets. As the approach is replicated across more tanneries and footwear manufacturers, LeatherTrace offers a clear pathway for Bangladesh's leather sector to meet evolving global compliance requirements and position itself as a transparent, competitive and future-ready supplier in the global leather value chain.



Box of shoes with traceability QR code

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CO-DEVELOPED BY:



WITH GENEROUS FUNDING FROM:

