

# End to End Traceability in Fashion Industry

Navigating Challenges and GI Solutions

# Embarking on the journey of end-to-end traceability

Embarking on a journey towards end-to-end traceability in the fashion textile industry, we set our sights on a future defined by comprehensive insights and seamless data flow. This prologue serves as an introduction to the intricate world of traceability, where every thread of the supply chain intricately woven is scrutinized for transparency and efficiency. Titled "Advancing Traceability in the Textile Industry," this exploration takes us deep into the realms of Fiber Forward (MTS) and Product Backward (MTO) approaches. Join us in unraveling the intricacies of these methodologies, as we navigate the textile landscape towards a future marked by complete traceability, innovation, and sustainability.

## Introduction

Textile Solutions innovates at the intersection of tradition and technology, uniting decades of manufacturing experience with cutting-edge IT. As a leader in Supply Chain Traceability, Sustainability Certification, and Carbon Footprint Management, General Intelligence harmonizes craftsmanship and digital expertise, driving efficiency and sustainability for suppliers through technology. We navigate the textile landscape, shaping a future where sustainability, compliance, and efficiency seamlessly coexist.

## Company Overview

- **Innovative Compliance for the Textile Landscape**  
Our proprietary **All-in-One** platform serves as the nexus for compliance, seamlessly consolidating various requirements.
- **AI Empowered Solutions**  
Textile Solutions is underpinned by integration, automation, Artificial Intelligence (AI), and block chain – collectively forming the backbone of our innovative solutions.
- **Mitigating Compliance Risks**  
**End-to-end** traceability ensures compliance with various standards while reducing risks in key markets.

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# Challenges in a Comprehensive Analysis of Fiber Forward MTS and Product Backward MTO Approaches

## Introduction

In the ever-evolving landscape of the textile industry, ensuring transparency and traceability throughout the entire supply chain has become a paramount concern. Two distinct approaches have emerged as pioneers in this endeavor: Fiber Forward Make-to-Stock (MTS) and Product Backward Make-to-Order (MTO). This article delves into the intricacies of these methodologies, shedding light on their significance and impact on the textile production process.

## Fiber Forward (MTS)

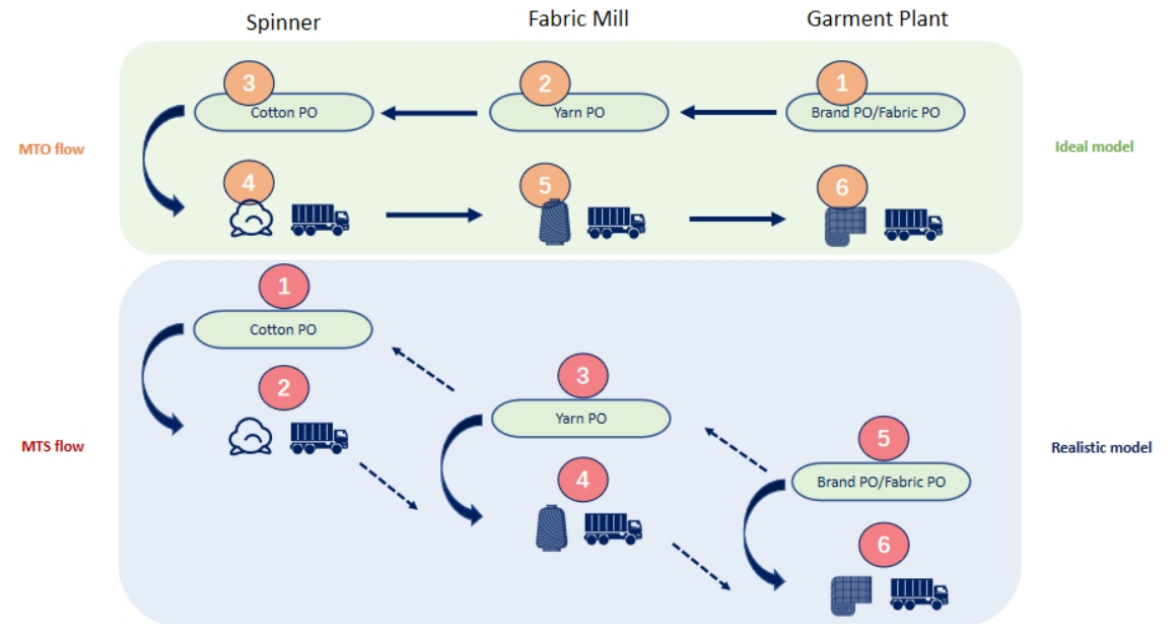
Fiber Forward MTS (make to stock) represents a groundbreaking paradigm shift in the textile supply chain. At its core, this approach emphasizes the traceability of raw materials, starting from the very inception of the production cycle. By leveraging advanced tracking technologies, such as RFID (Radio-Frequency Identification) and blockchain, stakeholders can monitor the journey of fibers from their origin through every stage of processing. This meticulous tracking not only enhances supply chain visibility but also facilitates compliance with sustainability standards.

The adoption of Fiber Forward MTS ensures that manufacturers have real-time insights into the availability and quality of raw materials. This not only streamlines production planning but also enables proactive measures to address potential disruptions. Additionally, consumers are increasingly valuing transparency, and Fiber Forward aligns with this growing demand for ethically sourced and sustainable products.

## Product Backward (MTO)

In contrast, Product Backward MTO focuses on traceability from the final product backward through the supply chain. This approach is particularly relevant in a market where customization and personalization are key drivers of consumer preference. By implementing advanced order management systems and data analytics, manufacturers can tailor production processes to meet specific customer requirements.

Product Backward MTO is inherently customer-centric, allowing for a high degree of flexibility in product design and manufacturing. This approach minimizes excess inventory, reduces lead times, and enhances overall efficiency in the production process. As consumer expectations for unique and personalized products continue to rise, Product Backward MTO stands out as a strategic response to these market dynamics.



The MTO Flow & The MTS Flow

## Comparative Analysis and Challenges

The choice between Fiber Forward MTS and Product Backward MTO is not a one-size-fits-all decision; rather, it depends on the specific needs and goals of each textile manufacturer.

Fiber Forward MTS excels in ensuring raw material traceability and promoting sustainability, making it an attractive choice for companies emphasizing ethical sourcing. However, it comes with its set of challenges, including:

- **Bulk Production in MTS:**

Managing large-scale production in MTS can pose challenges, as the process involves producing bulk quantities that may not align with specific customer demands.

- **Lead Time Discrepancies:**

MTS often operates on longer lead times compared to MTO, potentially causing delays in response to rapidly changing market trends.

- **Backtracking Data for Raw Materials:**

The requirement for backtracking data in MTS can be complex, especially when dealing with a one-to-many production model, leading to intricate data handling.

In navigating the choice between these approaches, manufacturers must carefully weigh the benefits and challenges to align their strategy with their unique business objectives.

## Conclusion

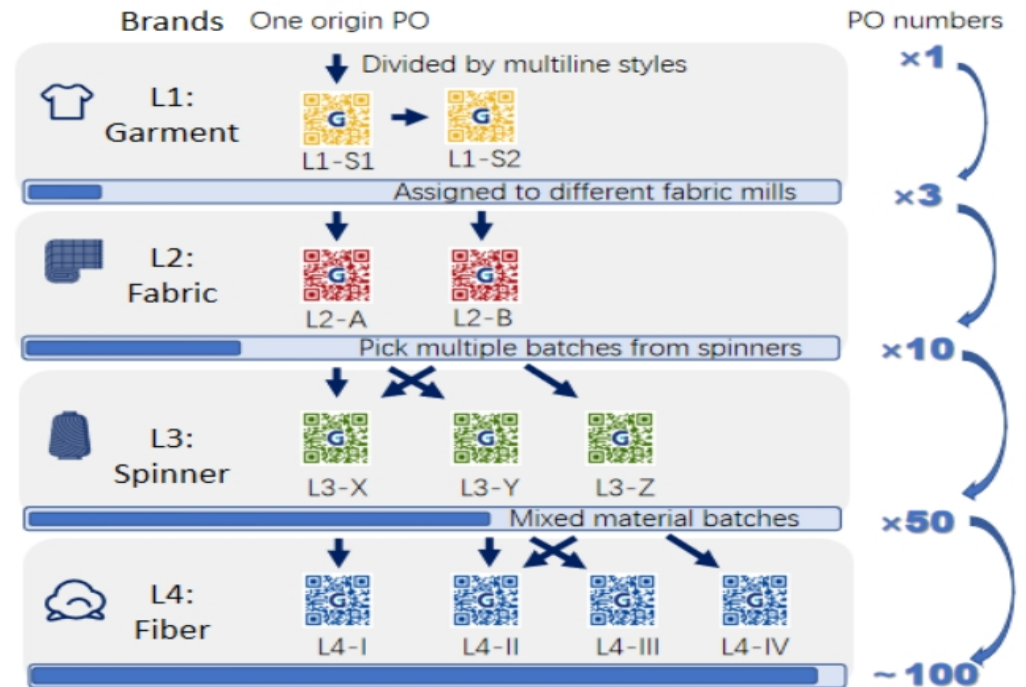
In conclusion, the textile industry's pursuit of enhanced traceability has given rise to innovative approaches like Fiber Forward MTS and Product Backward MTO. Both methodologies bring distinct advantages to the table, catering to the diverse needs of manufacturers in a dynamic market. As technology continues to evolve, the synergy between these approaches may pave the way for a new era of transparency and efficiency in the textile supply chain.

# Unraveling the PO Explosion: Navigating the Complexities of the Entire Supply Chain

## Introduction

In the intricate web of the modern supply chain, the challenge of Purchase Order (PO) explosion has emerged as a formidable obstacle. As businesses grapple with a surge in PO numbers, often reaching hundreds of times their usual volume, the associated workload has become overwhelming. This article explores this challenge and presents a comprehensive solution aimed at providing clarity and efficiency in navigating the entire supply chain.

### PO explosion when dive into the whole supply chain



## Challenge

The challenges include a notable rise in purchase order (PO) numbers, resulting in increased workload, limited visibility for individuals with a need for comprehensive insights across the entire supply chain, and the unique network structure of the actual PO system, deviating from a linear or tree-like format.

### **1. Significant Increase in PO Numbers and Workload**

The surge in PO numbers has led to a substantial increase in workload.

Optimization: Coping with a surge in PO numbers has created a significant uptick in the overall workload.

### **2. Limited Visibility for Individuals, Comprehensive Insight Needed for Brands**

Individuals have a restricted view limited to their immediate upstream and downstream partners.

### **3. Real PO Structure as a Network, not a Linear Line or Tree**

The actual PO structure forms a single-direction network, deviating from a linear line or tree structure.

## Solution

The solution features an order-link mechanism for preventing duplicate orders, employs a graph trace algorithm for comprehensive network tracing, and boasts a proven infrastructure tested in real-time big data scenarios over several years.



**1. Order-Link Feature for Order Duplication Prevention:**

The platform incorporates an innovative order-link feature designed to prevent the duplication of orders.

**2. Graph Trace Algorithm for Comprehensive Network Tracing:**

The implementation of a graph trace algorithm allows for thorough tracing of the complex network structure.

**3. Proven Infrastructure Tested Over Years in Real-Time Big Data Scenarios:**

The platform's infrastructure has undergone extensive testing over the years, particularly in real-time big data situations.

## Conclusion

In conclusion, the PO explosion presents a significant challenge in the contemporary supply chain landscape, necessitating innovative solutions for effective management. The integration of order-link features and graph trace algorithms not only addresses the surge in PO numbers but also empowers stakeholders to comprehend the intricacies of the entire supply chain network. As businesses continue to navigate the complexities of the modern market, such solutions contribute not only to efficiency but also to a deeper, more insightful understanding of the supply chain dynamics.

# Encompassing the Big Cycle: Extending Coverage from L1-L5 to Post-Sale and Recycling

## Introduction

The textile industry is undergoing a paradigm shift with a transformative approach to supply chain management, extending from customer side, L1 (finished goods) to L5 (farm) and beyond. This article explores the concept of a comprehensive lifecycle approach, incorporating post-sale services and recycling initiatives. Additionally, it delves into the pivotal role of General Intelligence (GI) in supporting stringent carbon calculations, alongside the introduction of Web 3.0 concepts, and the emphasis on recyclability.

## Expansion of Supply Chain Management Scope

Traditionally, the textile supply chain has been delineated from L1 to L5. However, the evolving dynamics of consumer expectations and environmental consciousness demand a more extensive coverage that spans beyond the point of sale. This expansion includes post-sale services, encompassing aspects such as maintenance, repair, and customer engagement, as well as recycling initiatives aimed at minimizing environmental impact.

## Emphasis on Sustainability Certification

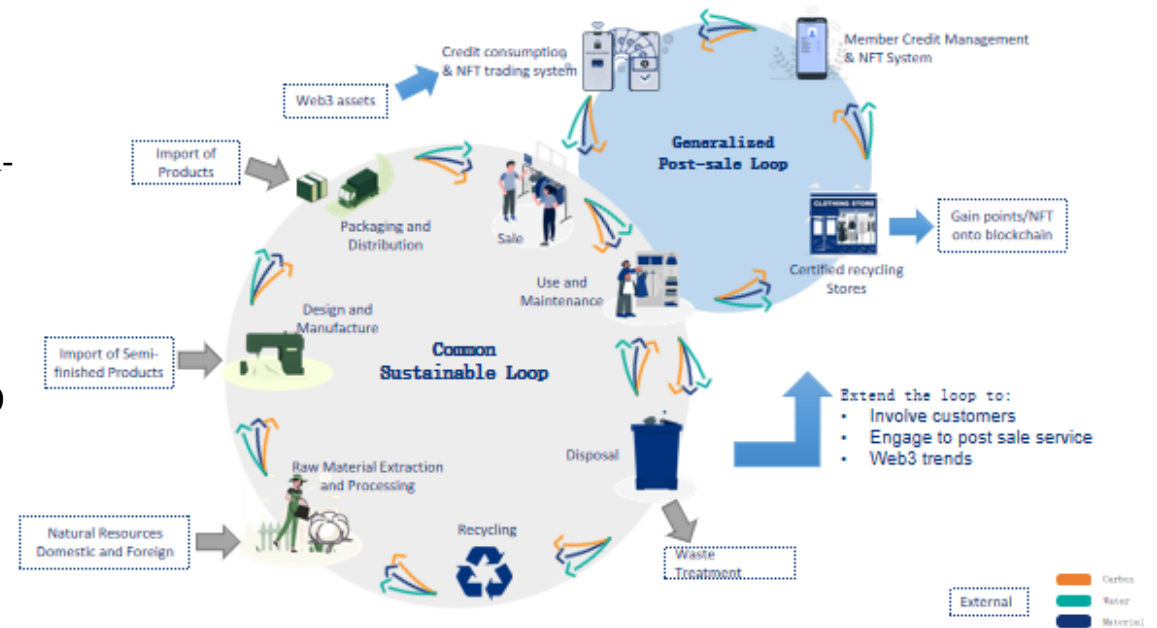
The GI platform transforms L1-L5 supply chain certification by centralizing documentation and automating report generation. This feature eliminates repetitive document creation, letting suppliers store essential documents for multiple certifications. Automation ensures report accuracy, reducing time and workload. Parallel data uploads improve efficiency and cooperation, shortening certification timelines. GI's pre-audits minimize exchanges between suppliers and certification bodies, proactively correcting discrepancies and reducing non-compliance risks. This streamlined process offers suppliers an efficient path to certification success, ensuring compliance and competitiveness in the fast-paced industry.

## AI Solution for Carbon Calculation

Accurate carbon calculation is paramount in the textile industry's quest for sustainability. GI plays a pivotal role in supporting the most stringent carbon calculations across the entire supply chain. By integrating advanced technologies and analytics, GI facilitates real-time monitoring and assessment of carbon emissions at every stage, empowering stakeholders to make informed decisions and reduce their carbon footprint effectively.

## Emphasis on Recyclability

Creating a sustainable textile supply chain involves a holistic approach that places a significant emphasis on recyclability. Essential steps include incorporating recyclable materials into production and designing products with considerations for their end-of-life journey, aiming to minimize environmental impact. The commitment to circularity extends beyond the production phase to include efficient mechanisms for collecting, sorting, and recycling textile products post-consumption. To enhance connectivity and transparency in the textile supply chain, the introduction of Web 3.0 concepts is crucial. Web 3.0, characterized by decentralized data, interoperability, and enhanced security, can revolutionize the industry. In this context, Web 3.0 not only fosters seamless collaboration among stakeholders but also introduces innovative concepts such as customer credit/trade for the metaverse, ensuring real-time information flow and building trust across the entire supply chain.



GI Sustainable Route

## Conclusion

The textile industry's journey toward a more sustainable and comprehensive supply chain is marked by the extension of coverage from L1-L5 to post-sale services and recycling initiatives. Green Infrastructure, with its capacity for stringent carbon calculations, coupled with the introduction of Web 3.0 concepts, is propelling the industry into a new era of connectivity and transparency. Emphasizing recyclability ensures that the industry not only meets the demands of the present but also shapes a more sustainable future. As stakeholders collaborate to implement these transformative measures, the textile supply chain is poised to become a model of environmental responsibility and innovation.

# Open the Black Box: Insights from Raw Material Procurement, Warehouse Management, Production, Product Transportation

## Introduction

In the complex web of contemporary production processes, unlocking the mysteries of end-to-end supply chain traceability has emerged as a crucial necessity, fostering transparency, efficiency, and compliance. This article will explore the intricacies of each stage in production and processing, shedding light on the journey from sourcing raw materials to transporting the final product. By approaching the topic from the perspective of a specific factory, we aim to unveil the inner workings of what is often perceived as a black box. This narrative will not only provide insights into the entire supply chain but also offer a unique perspective by zooming in on selected stages rather than examining the entire chain.

## Raw Material Procurement

The supply chain journey commences with raw material procurement, a critical phase that sets the foundation for product quality. The advent of advanced technologies such as QR code and blockchain has revolutionized this stage, allowing for real-time tracking of the origin, quality, and sustainability credentials of raw materials. Traceability in raw material procurement not only ensures compliance with ethical and environmental standards but also facilitates proactive measures in addressing potential issues.

## Warehouse Management

Upon procurement, raw materials transition to warehouse management, a nexus where efficiency is paramount. The adoption of Warehouse Management Systems (WMS) powered by IoT sensors ensures accurate inventory tracking, minimizes losses, and expedites the retrieval of materials for the production line. End-to-end traceability at this stage involves the seamless integration of data, providing stakeholders with real-time visibility into stock levels, expiration dates, and other pertinent details.

## Production

The production phase represents the heartbeat of the supply chain, where raw materials metamorphose into finished products. Advanced Manufacturing Execution Systems (MES) and Enterprise Resource Planning (ERP) systems play a pivotal role in ensuring traceability. Each production step, from formulation to assembly, is meticulously documented, allowing for granular insights into the manufacturing process.

**It's essential to highlight the role of information in processes like the Cotton Mix, where GI provides a clear understanding of the correspondence between cotton and yarn. GI mandates the recording of bale IDs for American, Brazilian, and Australian cotton, ensuring authenticity and transparency throughout the production cycle. This level of traceability not only aids in quality control but also enables rapid responses to deviations or recalls.**

## Finished Product Transportation

In the Finished Product Transportation phase, documentation plays a pivotal role in ensuring the entire supply chain's comprehensive traceability. Pertinent information, ranging from shipping manifests and transport records to quality control certificates, needs to be diligently uploaded. These uploaded data serve as the digital fingerprints of each product's journey, enabling stakeholders to trace and monitor its movement with precision.

**Emphasizing the importance of timeliness, real-time knowledge of each stage's product location and progress becomes crucial.** This meticulous documentation not only ensures compliance with regulatory standards but also contributes to the broader objective of fostering transparency, accountability, and reliability throughout the transportation process.

## Conclusion

End-to-end supply chain traceability, from raw material procurement to product transportation, is a multifaceted endeavor that requires seamless integration of technologies and processes. By focusing on each microscopic stage, businesses can not only enhance efficiency and mitigate risks but also meet the growing consumer demand for transparency and sustainability. As the industry continues to evolve, the microscopic insights into supply chain processes pave the way for a future where traceability is not just a compliance measure but a cornerstone of responsible and agile business practices.

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## Insights Into GI Online Tools

Elevate your business with GI's online tools, empowering enterprises with assessments on fundamental operations, internal IT capabilities, product traceability, sustainable raw material certification, and product carbon footprint proficiency.

<https://www.gimind.com>