

TECHNICAL OVERVIEW

Building the Data Foundation for Compliance, Traceability, and Intelligent Supply Chains

Executive summary

The problem: ESG is a data problem, not a reporting problem

The fashion industry is entering a regulatory and operational inflection point. ESG is no longer a downstream reporting exercise handled annually. It is becoming a continuous, product-level requirement embedded across the lifecycle of every item. Regulations such as Digital Product Passport (DPP), UFLPA, EPR, demand not only data, but data that is provable, auditable, and connected.

Most organizations are not failing due to lack of tools. They are constrained by fragmented data architectures that cannot support this new reality. Fashion brands are facing a fundamental shift. ESG is no longer a voluntary reporting exercise. It is becoming a mandatory, product-level, evidence-based requirement driven by new and ever-expanding regulations.

They are failing because:

- Data is fragmented across PLM, ERP, MES, and supplier systems
- Critical information exists in spreadsheets, PDFs, and emails
- There is no unified structure to validate, connect, or reuse data

The result: compliance risk, operational inefficiency, and an inability to scale AI or advanced analytics.



The solution: BlueCherry ESG as a data backbone

To address this shift, a new architectural approach is required. One that treats ESG not as an output, but as an embedded data layer across the supply chain.

BlueCherry ESG is not a reporting tool. It is a supply chain data backbone.

It enables organizations to:

- Capture data from any source (systems, suppliers, documents)
- Normalize and structure data into a unified model
- Collate and validate evidence for compliance
- Power DPP, UFLPA, and EPR workflows
- Enable AI-driven insights and operational decisions



The ESG challenge: fragmented data across the value chain

Disconnected systems, disconnected truth

Modern fashion enterprises operate with highly specialized systems across each stage of the lifecycle. While these systems are individually optimized, they are rarely designed to operate as a cohesive, data-driven network.

Most fashion enterprises operate with a fragmented technology landscape:

- PLM manages product design and BOM
- ERP manages orders, inventory, and finance
- MES/SFC manages production
- Suppliers operate in external or manual systems

In parallel, ESG data is captured across:

- Certificates (PDFs)
- Audit reports
- Material declarations
- Compliance spreadsheets

These systems and artifacts do not align naturally.



The impact

The lack of integration creates compounding challenges across operations, compliance, and decision-making.

- No single source of truth
- Inconsistent product and supplier data
- Delayed or incomplete compliance reporting
- High manual effort to prepare regulatory submissions

Most importantly:

Data required for compliance originates early in design and sourcing, but is only assembled at the end. This creates inefficiency, cost, and risk.

Solution overview: ESG as a platform layer

From reporting tool to data backbone

To meet regulatory and operational demands, ESG must evolve from a standalone function into an integrated platform capability.

BlueCherry ESG is designed as a horizontal data and evidence layer across the supply chain.

It connects:

- PLM
- ERP
- MES / Shop Floor Control
- WMS
- External supplier systems

Core capabilities

The platform provides a comprehensive set of capabilities that enable both compliance and operational transformation:

- Unified ESG data model
- Multi-source data ingestion
- Evidence capture and linking
- Chain of custody mapping
- Regulatory data packaging
- AI-ready data foundation



Key principle

Build data once. Use it everywhere.

Data ingestion: capturing data from any source

Multi-source data capture

The foundation of any ESG solution is consistent data capture across a fragmented ecosystem. BlueCherry ESG is designed to ingest data regardless of system maturity or format.

BlueCherry ESG is designed to ingest data from any source across the value chain:

Enterprise Systems

- ERP (SAP, Oracle, BlueCherry)
- PLM systems
- MES / SFC

External Sources

- Supplier systems (Tier 1–Tier 4)
- Logistics providers
- Certification bodies

Unstructured Inputs

- Excel files
- CSV uploads
- PDFs (certificates, audits)
- Documents and declarations



Ingestion methods

To support this flexibility, multiple ingestion mechanisms are supported:

- API integrations
- File uploads
- Supplier portals
- Low-code connectors

Key principle

No dependency on system maturity. Data can be captured regardless of format or origin.

Data normalization: creating a single source of truth

The core data model

Capturing data is only the first step. The true value is created through normalization—aligning disparate data into a structured, reusable model.

All data is normalized into a unified ESG data model including:

- Product (Model, SKU, GTIN)
- Materials and BOM
- Suppliers and facilities
- Production processes
- Transactions (POs, batches, shipments)
- Evidence (documents, certifications)

Data alignment

The platform maps relationships across entities to create traceability and consistency:

- SKU → PO → Batch → Facility
- Material → Supplier → Process → Product



Outcome

- Consistent, validated data
- Cross-system alignment
- Full traceability across the supply chain

Evidence & compliance: from data to proof

Evidence-centric architecture

Modern ESG compliance requires not just data, but verifiable proof. BlueCherry ESG is built around an evidence-first architecture.

Each ESG data point is supported by verifiable evidence:

- Certificates
- Lab results
- Audit reports
- Supplier declarations

Evidence linking

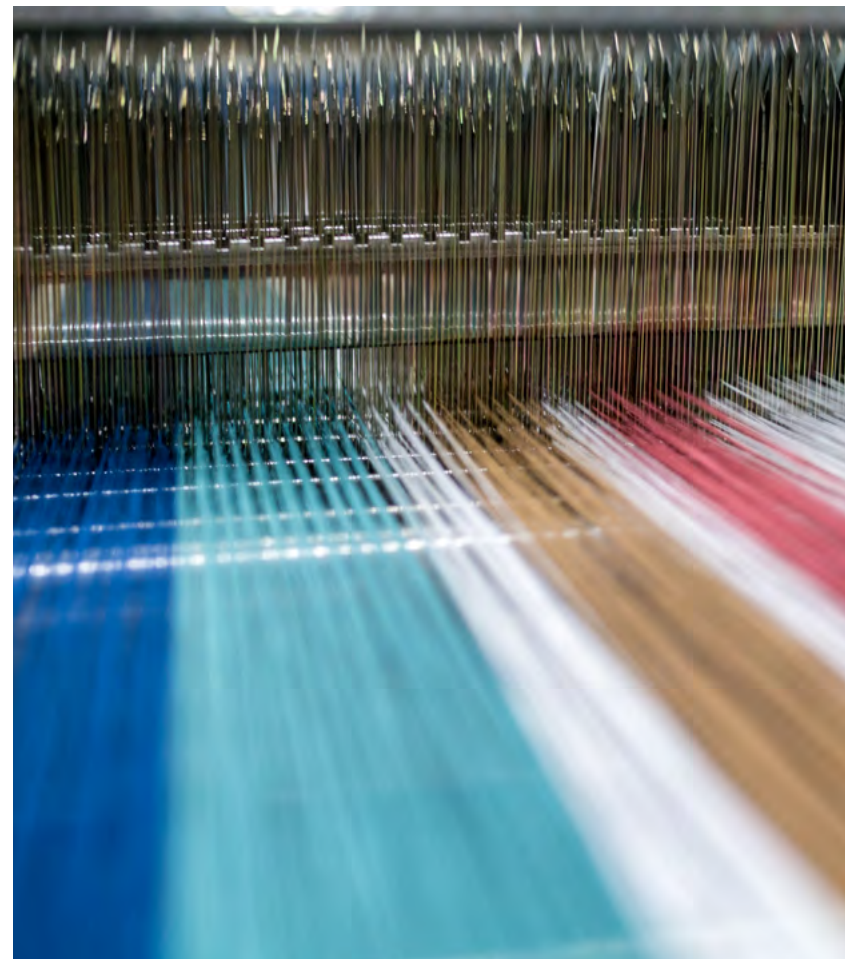
Evidence is contextually linked across the supply chain:

- Products
- Suppliers
- Facilities
- Processes
- Transactions

UFLPA readiness

The platform enables full traceability and audit readiness:

- Chain of custody mapping (Tier 1–Tier 4)
- Raw material origin tracing
- Evidence validation



Output

- Audit-ready documentation
- Reduced customs risk
- Faster clearance

Regulatory workflows: DPP, EPR, and beyond

Digital Product Passport (DPP)

DPP represents a new standard for product-level transparency. BlueCherry ESG enables organizations to operationalize DPP through structured data preparation.

BlueCherry ESG prepares and structures DPP data:

- Product-level digital IDs
- Lifecycle data capture
- Integration with DPP providers

Extended Producer Responsibility (EPR)

EPR introduces financial implications tied directly to product design and materials. BlueCherry ESG supports proactive management of these requirements.

The platform:

- Aggregates product and material data
- Maps to regional requirements (EU, US, UK)
- Supports fee optimization strategies



Multi-regulation alignment

A unified data model enables scalability across evolving regulations:

- DPP
- EPR
- CSRD
- CSDDD
- Green Claims

Integration into the supply chain platform

ESG as a connected layer

Rather than existing as a standalone solution, ESG becomes embedded within the operational fabric of the supply chain.

BlueCherry ESG integrates into the broader platform:

- PLM → Product data
- ERP → Transactions and finance
- MES → Production data
- WMS → Inventory and logistics

Bi-directional data flow

Integration enables continuous feedback loops:

- Systems feed ESG data
- ESG feeds insights back into systems



Result

A connected, end-to-end supply chain intelligence platform.

AI & intelligence layer

Enabling AI through data

AI is only effective when built on high-quality, structured data. BlueCherry ESG provides the foundation required to unlock advanced analytics and automation.

BlueCherry ESG enables:

Regulatory Intelligence

- Predict compliance risks
- Recommend design changes

Operational Intelligence

- Identify inefficiencies
- Optimize production

Financial Intelligence

- Reduce EPR costs
- Improve margins



Key insight

AI is only as powerful as the data foundation beneath it.

Low-code / no-code flexibility

Configurable architecture

Every organization has a unique operating model. BlueCherry ESG is designed to adapt rather than impose rigid structures.

The platform adapts to each customer's environment:

- Custom data mappings
- Workflow configuration
- Integration setup

Benefits

- Faster deployment
- Lower IT dependency
- Adaptability to evolving regulations





Roadmap & expansion

Data mapping: the foundation of scalable ESG intelligence

While data ingestion and normalization establish a unified structure, data mapping is the critical layer that enables true traceability, compliance, and intelligence across the supply chain.

Data mapping defines how entities relate to one another across systems, tiers, and time. Without it, ESG remains a collection of disconnected data points. With it, ESG becomes a connected, queryable, and auditable system of record.

What data mapping solves

Fashion supply chains are inherently multi-tiered and multi-system. Data mapping resolves:

- Product-to-material relationships across BOMs
- Supplier-to-facility relationships across tiers (T1-T4)
- Transactional flows (PO → production → shipment)
- Evidence linkage to each stage of the lifecycle

Mapping across the digital thread

BlueCherry ESG connects the full digital thread:

- **Design (PLM):** Materials, components, and specifications
- **Sourcing (ERP):** Suppliers, POs, and contracts
- **Production (MES/SFC):** Batches, processes, and outputs
- **Logistics (WMS/3PL):** Shipments and distribution

Each layer is mapped to create continuity across the lifecycle.

Multi-tier traceability

The platform enables hierarchical mapping across supply chain tiers:

- Tier 4: Raw material origin
- Tier 3: Processing facilities
- Tier 2: Component manufacturing
- Tier 1: Final assembly

This mapping enables:

- Full chain of custody
- Regulatory compliance (UFLPA, DPP)
- Risk identification at any tier

Temporal and transactional mapping

Beyond structural mapping, BlueCherry ESG supports:

- Time-based tracking (when data was generated or changed)
- Batch-level traceability (linking production runs to materials and suppliers)
- Version control (tracking changes in BOMs, suppliers, and processes)

Outcome

Data mapping transforms ESG from static reporting into a dynamic, interconnected system, enabling:

- Real-time traceability
- Faster compliance validation
- AI-driven insights across the supply chain



From data to competitive advantage

The shift

The industry is transitioning toward a new operating model where ESG is embedded into every decision and workflow. Organizations that treat ESG as infrastructure and not reporting, will gain a measurable competitive advantage.

The industry is moving from:

- Reporting → Proof
- Fragmentation → Integration
- Reactive → Intelligent



Roadmap enhancements and strategic benefits

The BlueCherry ESG solution is designed to deliver true end-to-end DPP workflows, support UFLPA auditing, integrate with third-party ERP platforms, and enable AI enhancements.

Full DPP workflows

- End-to-end orchestration of Digital Product Passport data
- Automated generation and validation of product-level records
- Integration with GS1 and external DPP ecosystems

Benefits:

- Faster compliance with EU regulations
- Reduced manual effort in passport creation
- Improved consumer transparency and brand trust

UFLPA enhancements

- Deeper chain-of-custody validation
- Automated evidence gap detection
- Pre-built audit workflows for customs submission

Benefits:

- Reduced risk of shipment delays or detentions
- Faster audit preparation
- Increased confidence in sourcing and compliance

EPR integrations

- Direct integrations with regional EPR systems and partners
- Automated material classification and fee calculations
- Scenario modeling for product design impact on fees

Benefits:

- Lower compliance costs
- Improved margin optimization
- Better design-to-cost alignment

Partner ecosystem integrations

- Integration with third-party providers (LCA, DPP platforms, certification bodies)
- Open API ecosystem for data exchange

Benefits:

- Faster onboarding of partners
- Reduced integration complexity
- Increased scalability of ESG initiatives

Advanced AI insights

- Predictive analytics for compliance and risk
- AI-driven recommendations for sourcing and design
- Automated anomaly detection across supply chain data

Benefits:

- Proactive risk mitigation
- Improved operational efficiency
- Better decision-making across teams

Circular economy enablement

- Tracking of product lifecycle beyond sale
- Integration with resale, recycling, and take-back systems
- Material recovery and reuse tracking

Benefits:

- Support for circular business models
- Increased sustainability performance
- Alignment with future regulatory requirements

TECHNICAL OVERVIEW



BlueCherry ESG is:

- A data backbone
- A compliance engine
- A foundation for AI-driven supply chain intelligence

BlueCherry can help you better understand your ESG readiness and data gaps.

Engage with BlueCherry today to map your data architecture and compliance strategy. Contact bluecherry@cgsinc.com. Visit www.BlueCherry.com.



The right fit