

Global Macro Trends
Challenges & Opportunities
Case Studies for Sustainability and
Cost Improvements through QMS Transformation

BUREAU VERITAS

October, 2026

EXECUTIVE SUMMARY
MACRO TRENDS – COMPLEX & CONFUSING

Geopolitical events (tariffs, conflicts, natural disasters, etc), supply chain resiliency risks, ESG/Sustainability regulations and increased demands around traceability, circularity/waste, and quality management transformation to drive cost improvements continue to be the macro business drivers in 2026. Addressing and managing all of these trends is confusing, complex and challenging.

➢ Geopolitical Risks

- ✓ Ukraine/Russia; USA/Israel/Iran; Cambodia/Thailand; Pakistan/Afghanistan; other regional conflicts (?)
- ✓ Trade route disruptions (Red Sea, Panama Canal, Straight of Hormuz)
- ✓ Political Uncertainty – Tariffs, Trade Agreements, Nationalism/Protectionism, Elections (US, Brazil, Israel, France, etc)
- ✓ Sourcing Risk Management (Traceability & Business Continuity)

➢ Regulations & Requirements

- ✓ ACE Connection – UFLPA, CPSC e-filing (focus on enforcement)
- ✓ Regulatory Whack-a-Mole – Numerous ESG related regulations in the US, EU, UK and others related to impact, climate, circularity/EPR and transparency (but gov'ts keep moving the goal posts):

  EmpCo, CSRD, PPWR, EUDR, CSDDD, ESPR, DPP, etc.

- ✓ Numerous states have adopted (or considering) EPR regulations

  - CA SB-707 (Responsible Textile Recovery Act - EPR) ;
  - NY SB 4747 / AB 4333 (Fashion Act);
  - WA SB 5965 / HB 2068 (Fashion Sustainability Accountability Act – EPR)

- ✓ US withdrawal from Paris Climate Accord and re-regulation

➢ Transformation & Re-imagination

- ✓ Can no longer work in a "business as usual" environment.
- ✓ Proactive use of Data/Data/Data to identify problems and provide solutions – Predictive, Agentic-AI
- ✓ Cost Control vs Price Control – SCQMS – remove waste and inefficiencies to drive sustainable cost improvements.

➢ The Economic Value of Sustainability

- ✓ Leaders are looking to reduce the environmental and social impacts and overall costs of supply chains while creating economic value.
- ✓ Stronger (measurable) QMS and Processes reduce material, energy and human resources waste, driving SC cost savings of up to 4% FOB
- ✓ There is a ROSI – return on sustainable investment – both for retailers/brands and suppliers.
- ✓ Climate Action (Scope 1, 2, 3 measure and validate), Impact Reports. Do you know your supply chain (T1 to T4) – to meet the requirements of these reports and to manage risks and resiliency

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GLOSSARY – SUSTAINABILITY ALPHABET SOUP

The following is a partial glossary of the Sustainability acronym's

Classification	Term/Acronym	Definition	Comments
General	CSR	Corporate Social Responsibility	
	ESG	Environment, Social & Governance	
Organizations/ Membership	Cascale	Sustainable Consumer Products Coalition	Formerly Sustainable Apparel Coalition (SAC)
	ZDHC	Zero Discharge of Hazardous Chemicals	
	Aii	Apparel Impact Institute	
	TE	Textile Exchange	
	OIA/CAC	Outdoor Industry Association/Climate Action Corps	Climate Action Corp is part of OIA
	AAFA	American Apparel & Footwear Association	
	GFA	Global Fashion Agenda	EU based
	FDRA	Footwear Distributors and Retailers Association	
	LWG	Leather Working Group	Members are tanneries, manufacturers, footwear, luxury brands
Higg Assessment	FEM	Facility Environmental Module	Higg is associated with the Cascale (formerly SAC)
	FSLM/SLCP	Facility Social Labor Module / Social Labor Convergence Project	
	BRM	Brand/Retailer Module	
Textile Exchange	GOTS	Global Organic Textile Standard	
	GRS	Global Recycled Standard	
	OCS	Organic Content Standard	
	RCS	Recycled Claim Standard	
	RDS	Responsible Down Standard	
	RWS	Responsible Wool Standard	
Others	FSC	Forest Stewardship Council	Focus on wood based products - especially paper and packaging
	SBTi	Science Based Targets initiative	
	GhG	Green House Gas	
	CDP	Carbon Disclosure Project	
	C2C	Cradle to Cradle	
	BCI	Better Cotton Initiative	
	BB	Better Buying	
	LBS	Lenzing Brand Standards	
	RSB	Roundtable on Sustainable Biomaterials	

ESG REGULATIONS (PARTIAL AND CHANGING)

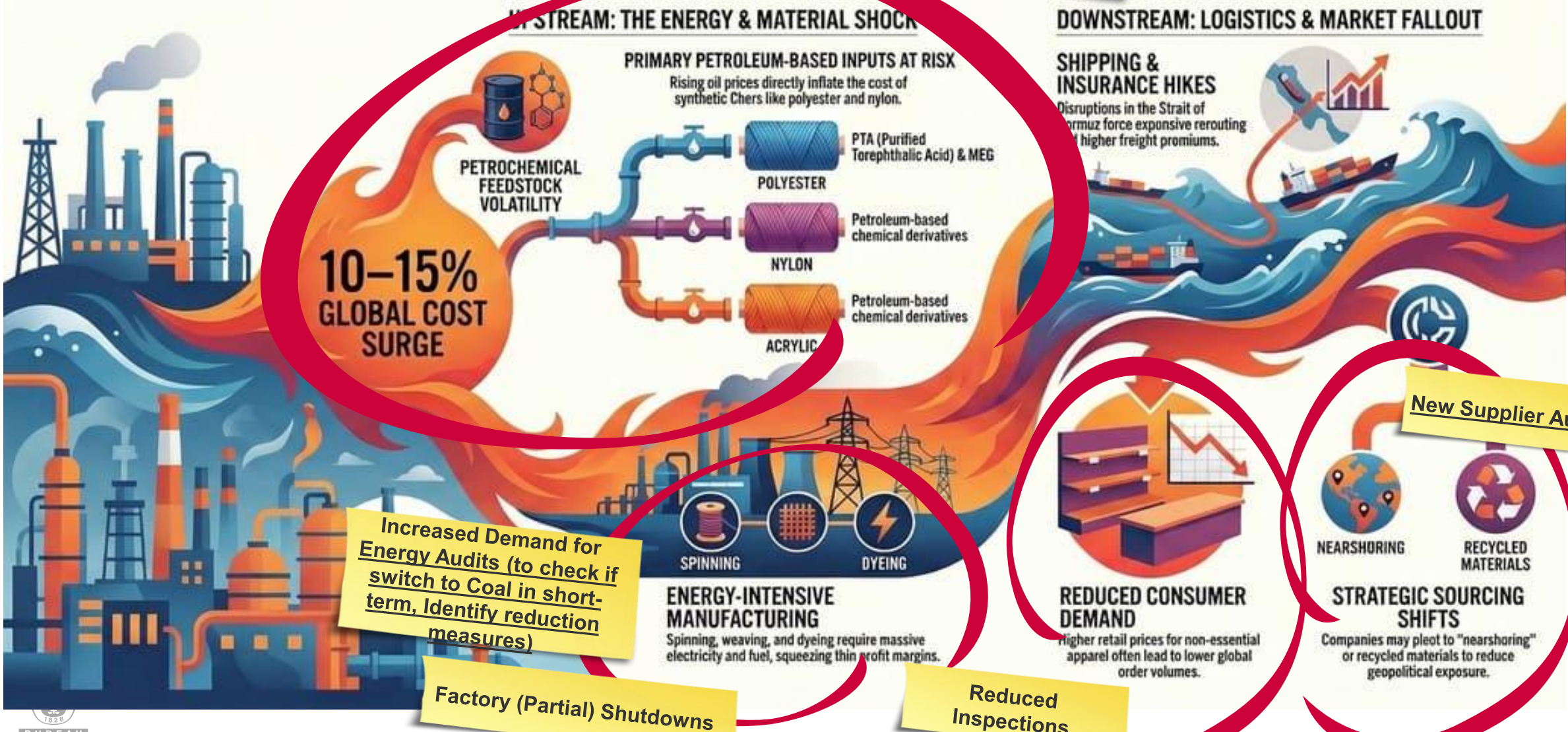
Country/State	Reg #/abrev	Reg Name	Classification	Climate	Circularity	Transparency
US/CA	**SB 707**	**Responsible Textile Act**	EPR		x	x
US/CA	AB 1305	Green Claims/Net Zero		x		
US/CA	SB 253	Climate Corp Data Accountability		x		
US/CA	SB 54	Plastic Pollution Reduction	EPR		x	
US/CA	SB 261	Climate Related Financial Risk Act		x		
US/CA	SB 260	Climate Corp Accountability Act		x		
US/CA	**AB 1201**	**Biodegradable/degradable/decomposable**	EPR		x	x
US/NY	**SB 4747 / AB 4333 (P)**	**Fashion Act (FSSA) (P)**	EPR	x	x	x
US/WA	**SB 5965 / HB 2068 (P)**	**Fashion Sustainability Accountability Act**	EPR	x	x	x
US/MA	H 420 (P)	Fashion Act	EPR	x	x	x
US	SEC (P)	Climate Disclosure Requirements (SEC)		x		
US	FTC 16 CFR § 260	Green Guides				x
US	UFLPA (CBP)	Uyghur Forced Labor Prevention Act				x
Canada		**Extended Producers Responsibility**	EPR	x	x	x
EU	**CSRD**	**Corp Sustainability Reporting Directive**	EPR		x	
EU	SFDR	Sustainable Finance Disclosure Reg		x	x	x
EU	**DPP**	**Digital Product Passport**	EPR	x	x	x
EU	**ECD (EmpCo)**	**Empowering Consumers Directive (formerly GCD)**				x
EU	**EUDR**	**Deforestation Regulation**				x
EU	**PPWR**	**Packaging & Packaging Waste**	EPR		x	
EU	**CSDDD (FR, GR, NW, NT)**	**Corp Sustainability Due Diligence Directive**				x
EU	Taxonomy	Taxonomy for Sustainable Activities		x		
EU	**ESPR**	**Eco-design for Sustainable Products**	EPR	x	x	x
EU	FLD	Forced Labor Directive				x
UK		**Anti-Greenwashing Act**				x
UK	SECR	Streamlined Energy & Carbon Reporting		x		
UK	Financial Conduct Authority (FCA)	Climate Financial Reporting Directive (CFRD)		x		
UK	Bus, Energy & Industrial Strategy (BEIS)	CFRD		x		
UK		Sustainable Disclosure Requirements				x
UK		Extended Producers Responsibility	EPR	x	x	x

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THE GEOPOLITICAL PRICE OF FASHION: HOW CONFLICT DRIVES TEXTILE COSTS

a) Increased Demand for GRS/RCS
b)Switch to natural fiber like cotton (BCI)

Potential Impact/Opportunities



Increased Demand for Energy Audits (to check if switch to Coal in short-term, Identify reduction measures)

Factory (Partial) Shutdowns

Reduced Inspections

New Supplier Audits

https://www.globaltextiletimes.com/articles/us-iran-war-risks-higher-costs-for-global-textile-industry/

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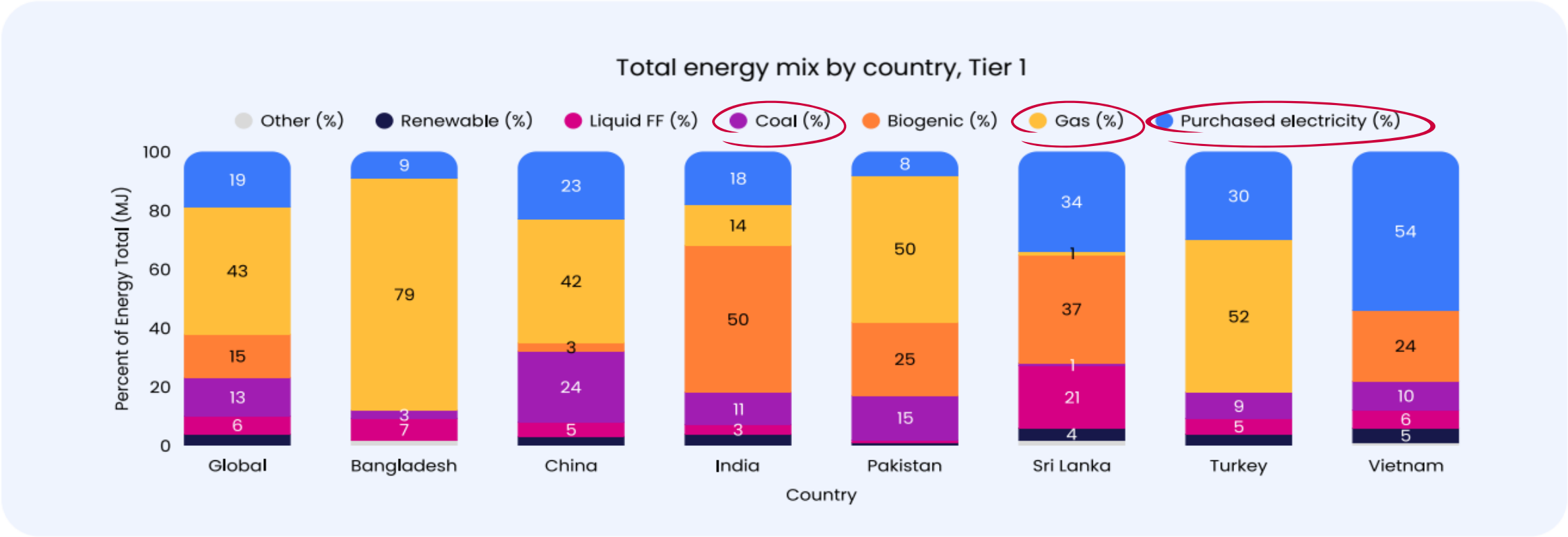


Figure 11 - Total energy mix by country, Tier 1

HIDDEN CONSTRAINTS

Can Expansion Hubs Effectively Scale Their Production?

Labor Markets Are Near Exhaustion Across Key Expansion Hubs

Low Unemployment

0.5–5%

across all hubs

→

Hard to Recruit

let alone skilled workers

→

Hard to Scale

Production Bottleneck

capacity ceiling hit fast

Country	Unemployment	Youth	Mfg Emp. %	Youth Pool	Recruitment Risk
Vietnam	2.1%	7.6%	23%	Moderate	Medium
India	3.2%	17.4%	11%	Large	High
Indonesia	4.8%	13.5%	14%	Large	High
Cambodia	0.5%	2.5%	10%	Very Low	Critical
Bangladesh	3.5%	10.6%	16%	Large	Medium
Thailand	1.1%	5.2%	16%	Low	High

Sources: Vietnam GSO (2024), India PLFS (2023–24), Indonesia BPS (Aug 2025), Bangladesh BBS (2024), Cambodia NIS/ILO (2024), Thailand NSO (2024)

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RESILIENCY – DO YOU KNOW YOUR SUPPLY CHAIN















SUPPLY CHAIN
RESISTANCE

"The capacity to **sustain difficulties**; toughness"

"Business resistance is the ability an organization has to sustain disruptions while maintaining continuous business operations and safeguarding people, assets and overall brand equity"

SUPPLY CHAIN
RESPONSIVENESS

"The quality of **reacting quickly and positively**"

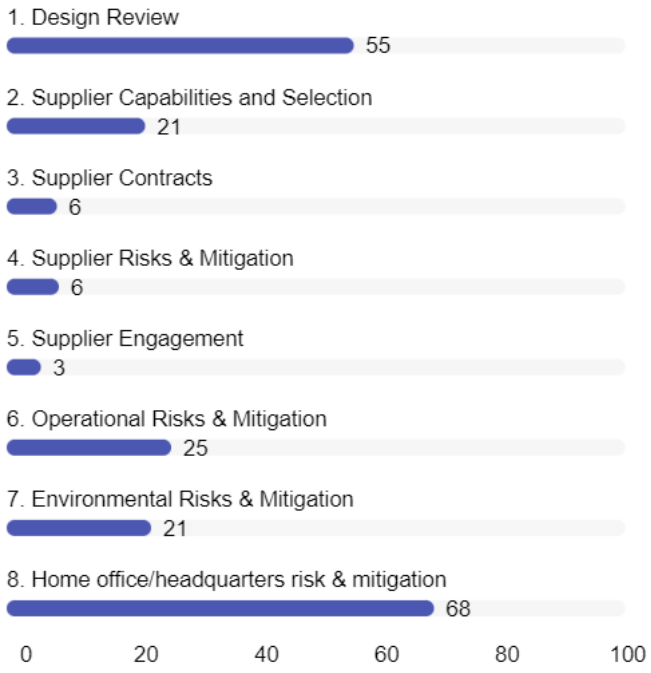
"Operational responsiveness is a quality of a business process which indicates its ability to respond to changing conditions and customer interactions as they occur"

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SUPPLIER RESILIENCE LOWEST SCORE: *Business Continuity*







Common issues:

- Missing incentives /penalties or termination clauses in suppliers' management system
- Lack of dual source or back up plan for the key suppliers
- ***Absence of business continuity plan (BCP) for special or emergency cases***

Risks and Challenges:

- Disruption or interruption of the supply chain
- Limited choices of suppliers or inability to find adequate backup resources
- Lack of business continuity consideration, no awareness of BC plans

Recommendations:

- Establish ISO 22301 business continuity management system and obtain certification.
- Conduct a BC assessment at least once a year
- Require key/critical suppliers to develop and maintain a BCP – for themself and for their T1/T2.

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CASE STUDY - GLOBAL APPAREL/FOOTWEAR BRAND/RETAILER

Overview

- **Objective** – Gain visibility and mapping into key suppliers supply chain resilience (resistance + responsiveness)
  - **Resistance** = Business resistance is the ability an organization has to **quickly adapt to disruptions while maintaining continuous business operations** and safeguarding people, assets and overall brand equity
  - **Responsiveness** = Operational responsiveness is a quality of a business process which indicates its **ability to respond to changing conditions and customer interactions as they occur**
  - Start with Tier 1 and Tier 2. If possible, map down to Tier 3 and Tier 4
- **Focus/Modules (6)** - Business Continuity, Health, Safety & Environment, Data Integrity, Information Security, Supplier Technical Assessment, Logistics & Inventory Practices
- **Countries** - China, Taiwan, Vietnam, Cambodia, Indonesia, Philippines, Malaysia, Jordan, El Salvador, Nicaragua

Results & Findings

- **Scope and Mapping** - 51 most strategic T1 suppliers = 69 T1 sites; 372 T2 sites; 132 T3 sites; 17 T4 sites. 590 sites total
- **Overall Resiliency/Resistance Score 35%** (0-100 scale)
- **Lack of Business Continuity Plans** (BCP) with key suppliers = significant risks and exposure
- **Supplier Feedback Surveys -** the suppliers were overwhelmingly positive and appreciative, with clear takeaways and actions.



THE (COST OF) QUALITY LANDSCAPE

The Data Behind This Publication

- Proprietary quality data from Bureau Veritas Consumer Products Services
- Global Trade flow data from IHS Markit – S&P Global

Over 500K
Quality Data

11
Sourcing Countries
China, Vietnam, Cambodia, India, Indonesia, Bangladesh, and more

2 Years
Data Window
Full-year 2024 and 2025 — trend and year-over-year analysis

IHS Markit
Global trade data 2019-2025

3
Deep-Dive Categories
Furniture, Electrical & Electronics, and Footwear

520
Product Categories
Across 7 product lines: Hardlines, Softlines, Electrical, etc.

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BUREAU VERITAS Consumer Products Service Bureau Veritas Supply Chain Quality Intelligence 2026

Key Metrics

First-Pass Quality Rate (Pass Rate)

All pass rates in this report are volume-weighted: each inspection's pass/fail outcome is weighted by the number of reports in that segment. This approach prevents small-sample suppliers from distorting country or regional averages.

Supplier Consistency

Measured using the interquartile range of pass rates across client groups within a given country. A narrow spread indicates most suppliers perform within a tight band; a widespread signals significant variability where quality outcomes depend heavily on which factory a buyer is matched with—making thorough supplier audits and capability assessments a prerequisite before onboarding.

Workmanship Defect

The proportion of inspected items exhibiting workmanship-related defects. This metric captures execution quality beyond the binary pass/fail outcome.

Abortive Rate

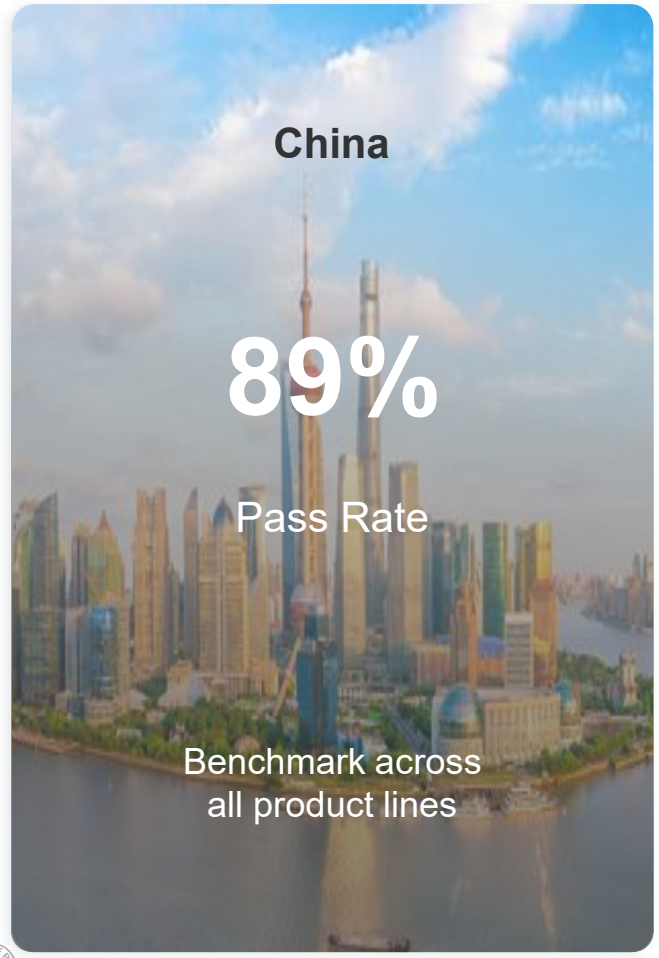
The proportion of inspections that could not be completed because goods were not ready, documentation was missing, or the factory was unprepared. A strong indicator of production management maturity.

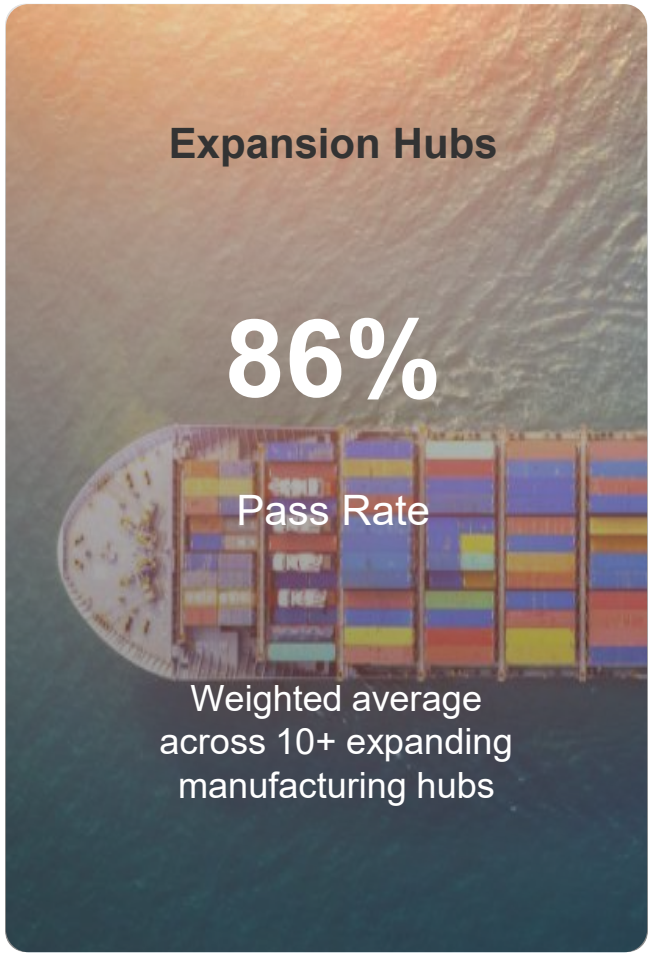
Important Caveats

Product mix differs by country: China handles a broader range of complex product categories, while some hubs concentrate on simpler product types. Buyer specifications also vary—a premium retailer may impose stricter tolerances than a value-channel buyer. This dataset captures inspections conducted by Bureau Veritas clients and may not represent the full manufacturing output of any given country.

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Is China Still the Quality Benchmark?
How Are Expansion Hubs Performing Under Pressure?



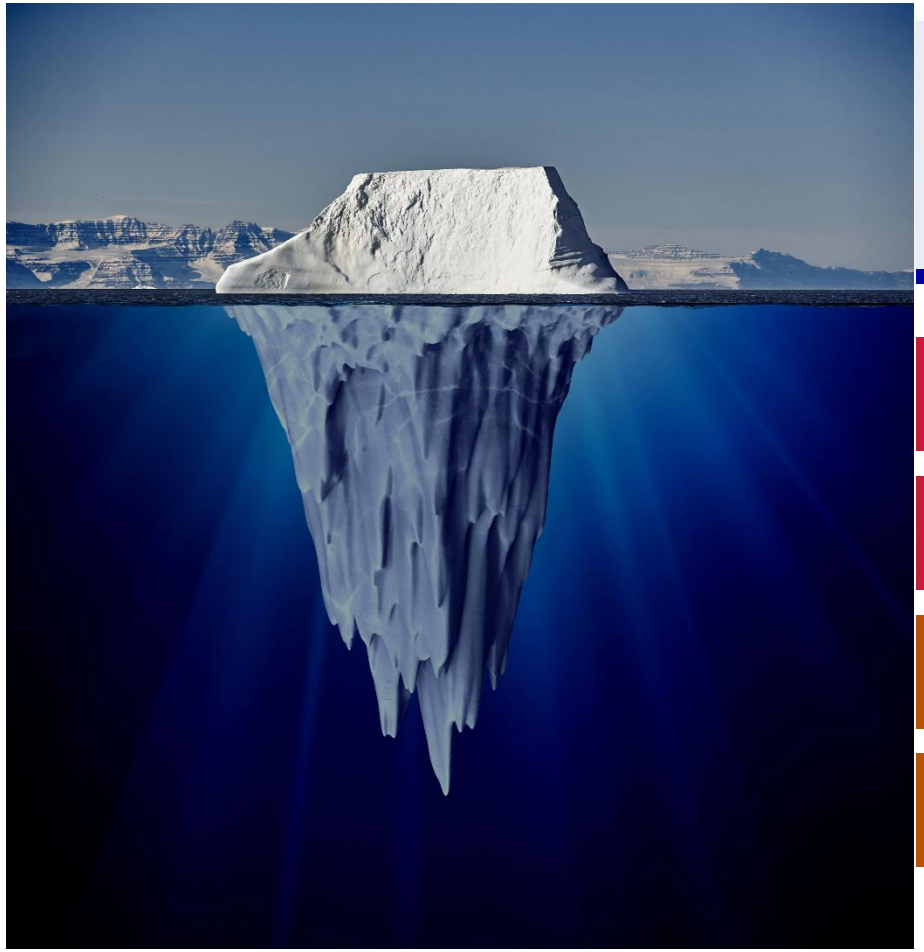




Over the past 5 years I have talked to numerous senior level executives at retailers and brands both in the US and Europe. The majority believe the numbers on this slide are accurate. Essentially, they feel they have a very good/high performing, and trusted, supplier in China (for many years). This supplier has opened operations in a new country ('expansion hub'). The supplier has provided capital, equipment and management. So, the assumption is the production quality will be the same. However, the real numbers show a different story.

Rick Horwitch
Supply Chain Leader
Bureau Veritas

Beneath The Surface Of 3pp Quality Gap
What The Quality Outcome Tells Us?



~3pp pass rate gap

"We're almost at parity with China"

Workmanship/Defect Rate	**up to 3×** **More Frequent**	Higher defect rate
Abortive Rate	**up to 2×**	More cancelled inspections
Beyond AQL	**1.7× Higher**	Higher critical failure rate
Product Breadth	**469 vs 177**	Categories China vs Rest of the World (ROW)

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THE COST DUE TO POOR QUALITY

Poor Quality = Cost in the supply chain + Cost in lost sustainable opportunities (materials, waste, energy, human resources)

What is typically thought of as cost:

- Rework
- Scrap
- Overruns
- Defects
- Returns



What is also a cost to Quality & Sustainability

- Product failures in field
- Rush deliveries
- Incorrect product specs
- Equipment failures
- Complaint investigation
- Unnecessary procedures
- Retesting
- Warranties
- Returning customer + first time customers (word of mouth)
- Material, Energy and Human Resources Waste

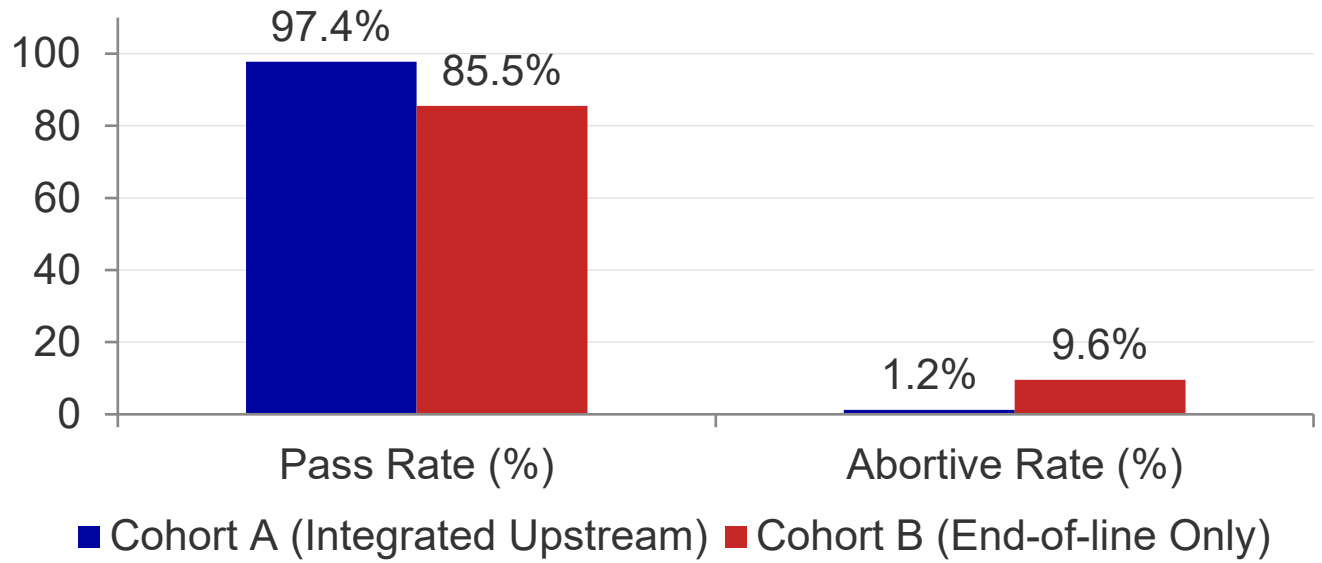
Upstream QA/QC Involvement: Impact on Quality Metrics

Vietnam Furniture sector:

Cohort A (Integrated Upstream) vs Cohort B (End-of-line Inspection Only)

***Chart takeaway** | End-of-line inspection alone will not close the gap. Upstream interventions deliver +12pp higher pass rates, 87% lower abortive risk, and up to 29% fewer workmanship defects.*

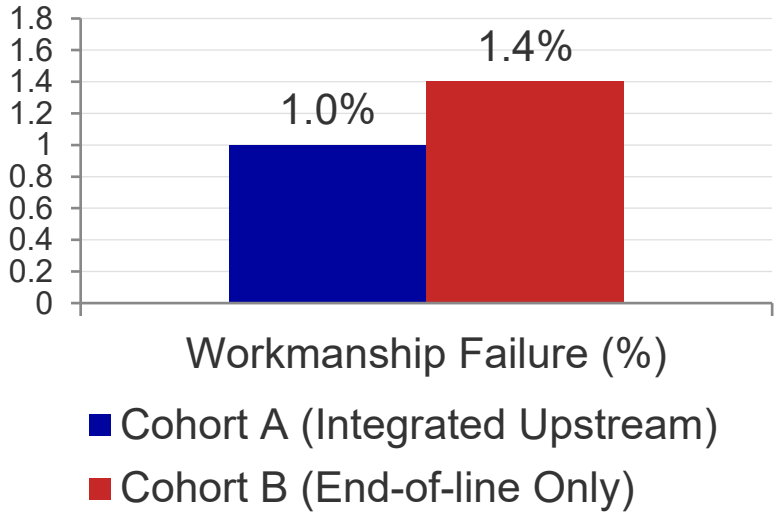
Pass Rate & Abortive Rate Comparison



+12% Quality Stability

8x Higher Disruption
(Signal of Poor Planning)

Workmanship Failure Comparison



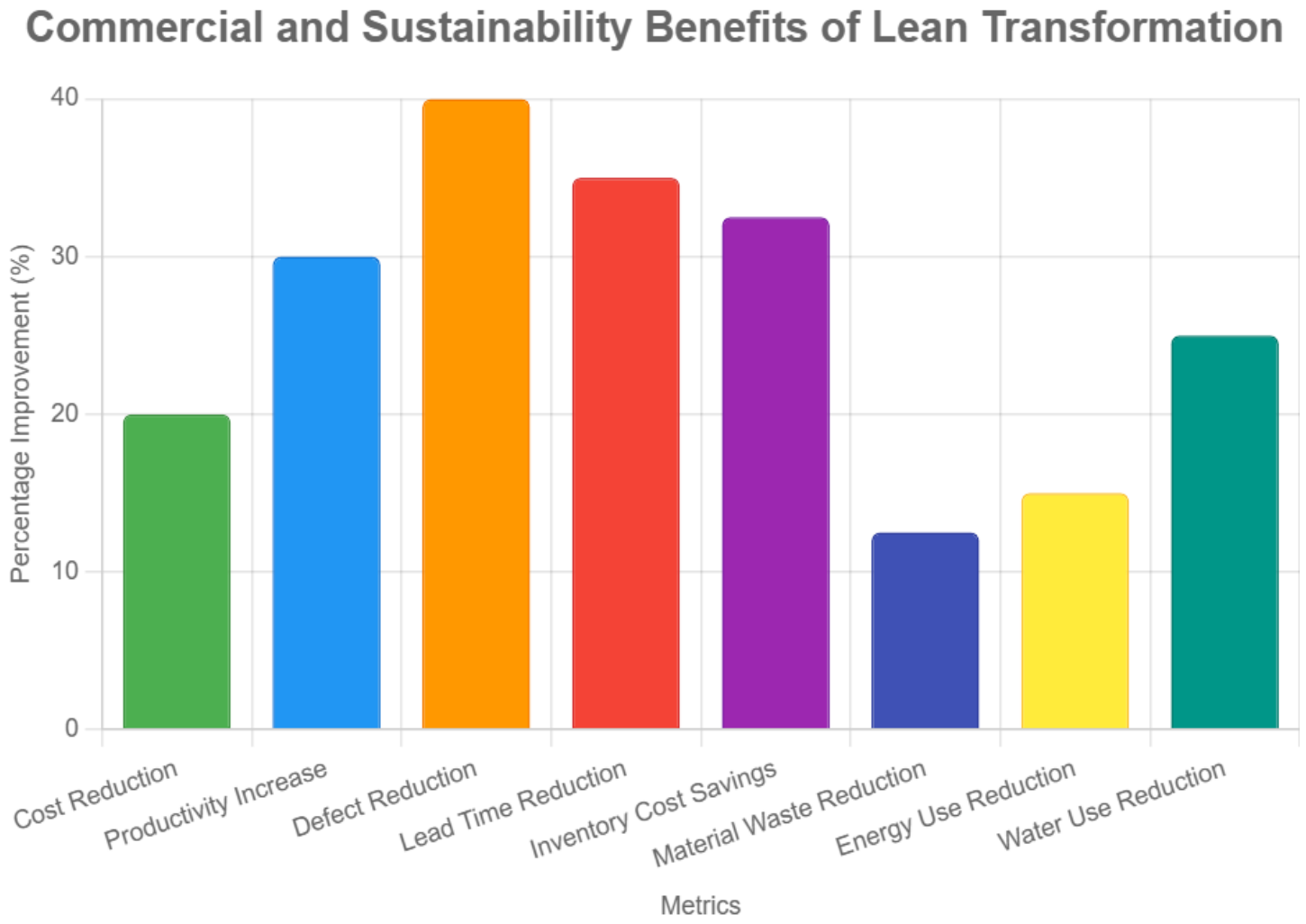
1.4x Higher Workmanship Failure

Programs incorporating upstream quality interventions, supported by Bureau Veritas, showed materially different quality results compared with those relying primarily on end-of-line inspection. By the numbers:

- Programs with upstream involvement achieved pass rates **> 97%**
- Programs relying mainly on final inspection averaged **~85%**
- Abortive inspection risk was up to **8× higher** in the latter group
- Workmanship failure rate was **1.0%** with upstream intervention vs **1.4%** without

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Case Study: Right First Time Quality Transformation In An Apparel and Footwear Factory



Results:

- 20-40% productivity gains
- 30-50% fewer defects
- 20-50% faster lead times
- 25-40% lower inventory costs
- up to 4% savings on FOB

Sustainability benefits:

- up to 20% less material waste
- 15 -25% lower energy use
- 20-30% reduced water consumption
- Improved worker conditions and support for circular economy practices

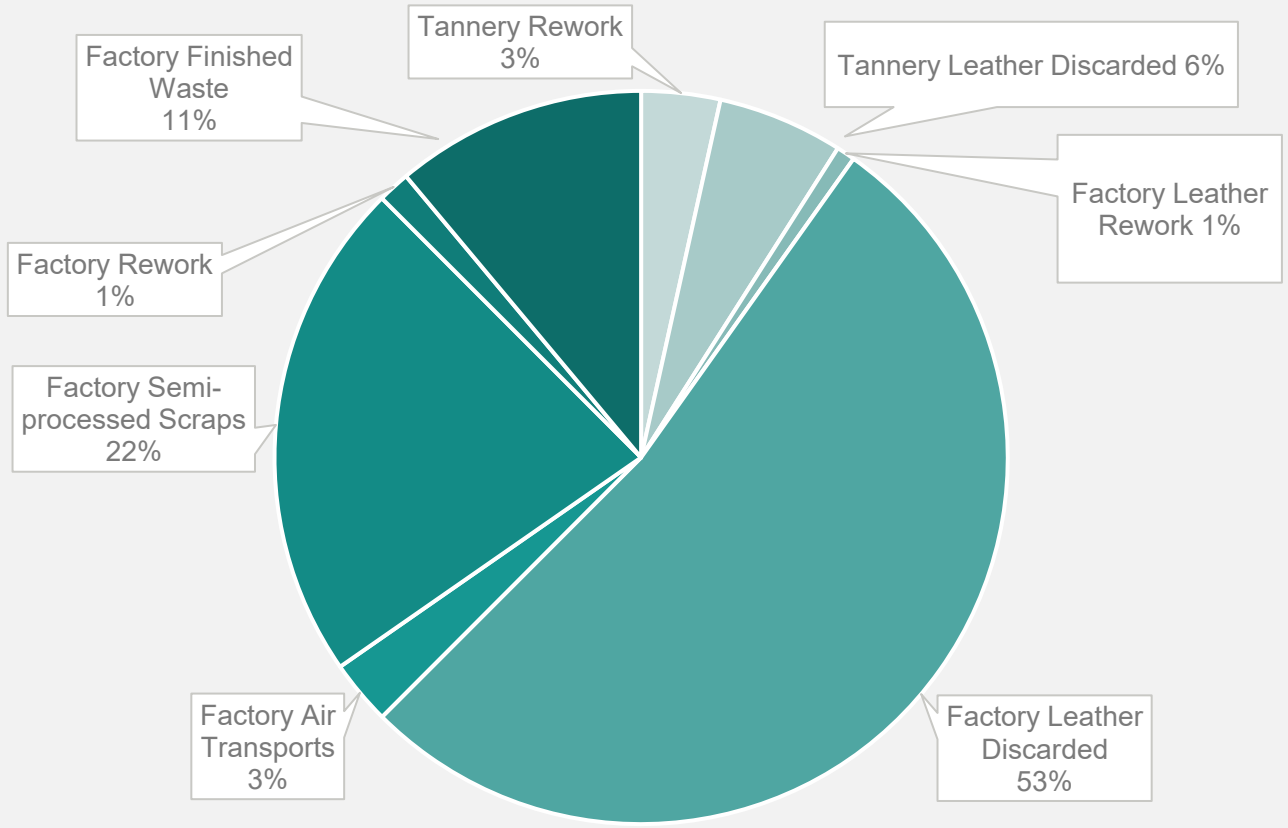
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RIGHT FROM THE START = ENVIRONMENTAL IMPACT

IMPACTIVA MATERIAL USE REDUCTION	
Tannery Rework	1.25% ↓
Tannery Leather Discarded	0.20% ↓
Factory Leather Rework	1.10% ↓
Factory Leather Discarded	1.90% ↓
Factory Air Transports	2.30% ↓
Factory Semi-processed Scraps	0.80% ↓
Factory Rework	1.90% ↓
Factory Finished Waste	0.40% ↓
TOTAL	**9.85% ↓**

Environmental Impact:
1,751.7t
CO2 eq/year

ENVIRONMENTAL IMPACT BREAKDOWN



*10M Units Leather Sports Shoes/y = 49,000t CO2E/Y

VISIBILITY AND EFFICIENCIES TO DRIVE COST IMPROVEMENTS

THEME	IMPACT	SOLUTION	GAINS
Acceleration of New Manufacturers	Factory Readiness | Product Knowledge / Experience	• Factory Onboarding / Academy • Capability & Capacity Assessment	**+50% / +20%** Reduction in Defect Rate; improvement in material and energy utilization
	Stretched Capacity -> Declining Quality / Compliance Risks	• Academy / Quality Advisory Program • Product QA • Social Compliance Program	
	Stretched Capacity -> Need for Productivity Gains	• LEAN Optimization Assessment • Empowerment | Inspection Reduction Program	+ **4%** Reduction in FOB price
	Stretched Capacity -> Increased Subcontracting	• Factory Subcontract Validation	+ **6%** Improvement in Quality Yield
"Wait & See"	Extended Asia Warehousing Free Trade Zone Warehousing - USA	• Mold/Infestation Prevention Assessment • Loading Check	+ **30%** Productivity Gains



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Shaping a World of Trust