

ULTRUS™

Driving Scope 3 Transparency: PCF for Suppliers

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UL Solutions Enterprise Sustainability Services

- Meet Today's Presenters



Tom Caldicott
Senior Product Manager



Ines Veiga
Sustainability Consultant



Tino Kretschmer
Software Solution
Architect

Trusted data and AI empowers innovation - enabling safer products, smarter operations and a more sustainable planet.



Backed by UL Solutions' 130 years of global leadership, ULTRUS is the trusted digital partner for safety, sustainability and product innovation

Trusted data and content

Backed by 130-years of testing, inspection, and certification expertise offers trusted, verifiable, and audit-grade data and regulatory content at global scale

Connected intelligence

Unmatched solution breadth and depth, underpinned by a singular, unified data platform that integrates product design, supply chain, operations, and reporting with expert services

Global supplier network

Seamless supplier transparency and collaboration from design through distribution to efficiently gather and manage product-related data from over 80,000 suppliers

Deep expertise

Combination of platform intelligence with embedded technical expertise for confident decision-making



RISK AND COMPLIANCE SOFTWARE

**ULTRUS software empowers product innovation,
compliance, sustainability and risk management.**

Connecting product life cycle data, trusted regulatory content, deep domain expertise,
and AI-driven automation and analytics

ULTRUS Solutions: Built for today. Ready for tomorrow.

PRODUCT STEWARDSHIP

Decrease time to market and reduce risk with compliant, sustainable products.

Chemical compliance • PFAS management • SDS authoring

SUPPLY CHAIN INSIGHTS

Enable end-to-end supply chain visibility and proactive supplier collaboration to support compliance, improve transparency, and drive data-informed decisions at scale.

Supplier collaboration • Product transparency • Chemical compliance

ENTERPRISE SUSTAINABILITY

Achieve enterprise sustainability goals faster with powerful reporting and data management tools.

Carbon management • Sustainability reporting • Scope 1-3

IT BENCHMARKING

Accelerate technology performance and product innovation with our comprehensive benchmarking solutions.

IT benchmarking • Procurement • Hardware Performance

PRODUCT INSIGHTS

Simplify material/component selection and data analysis to accelerate time to market and product innovation.

Materials database • Supplier identification • Data services

COMPLIANCEWIRE

Drive FDA compliance with our Learning and Qualification Management System. Streamline training, automate processes, and proactively manage risk to deliver safer, more effective products.

GxP Workforce Competency

Professional Services

Innovation & Co-Innovation

26x higher

— that's how much larger Scope 3 emissions are than Scope 1 & 2, yet only 15% of companies set supplier engagement targets.

Source: CDP Global Supply Chain Report, "Scoping out: Tracking nature across the supply chain"

70% of sustainability leaders

report poor data quality and fragmented supplier responses as the main barriers to meeting their 2025 decarbonization milestones.

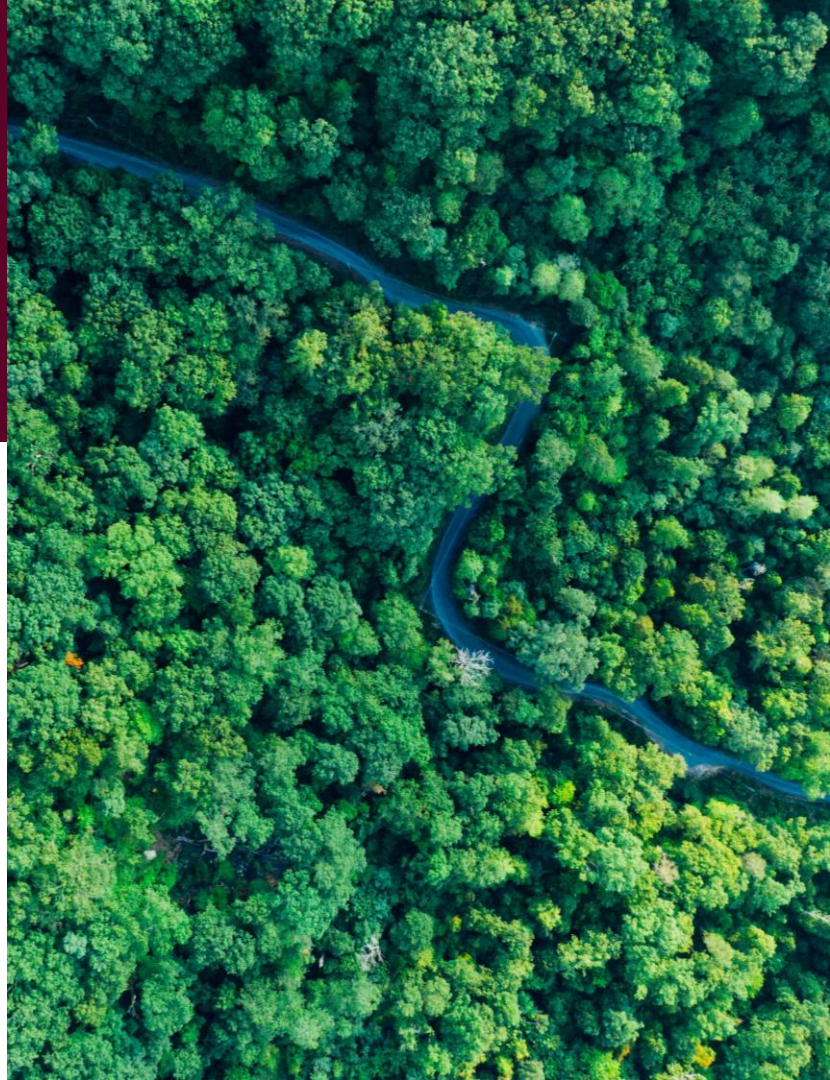
IBM Institute for Business Value, "Business & Technology Trends for 2026"

30% increase in costs

— that is the risk companies face if they don't address data fragmentation before the 2026 CSRD reporting deadlines.

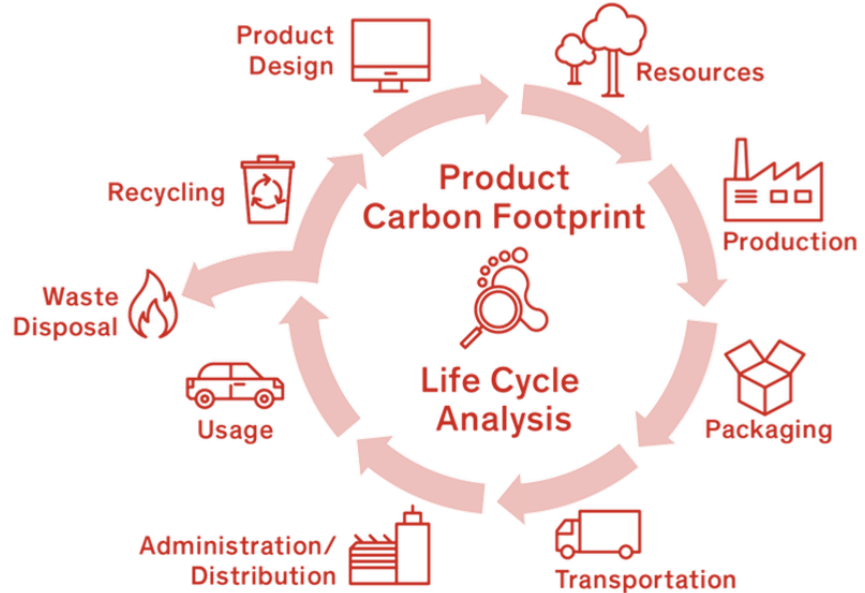
Gartner Strategic Technology Trends & Data Management Forecasts (2025–2026)

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What is a Product Carbon Footprint?

- Product Carbon Footprint (PCF) refers to the total greenhouse gas (GHG) emissions tied to one product across its **entire lifecycle**, from raw material extraction through production, distribution, use, and end-of-life.
- PCF translates complex supply chain emissions into a **single, quantifiable metric per product**, making emissions actionable at the decision level.
- It is measured in units called CO2 equivalents (CO2e).



Where PCF Data Fits Across Scope 3

Cat. 1

Purchased goods & services

Primary use case;
replace generic factors with supplier product intensities.

Cat. 2

Capital goods

Useful for equipment, machinery, and major construction inputs.

Cat. 4 & 9

Upstream & downstream transportation

Can complement logistics activity data for packaged or delivered products.

Cat. 11

Use of sold products

Informs baseline assumptions for energy-using products and scenarios.

Cat. 12

End-of-Life (...) of Sold Products

Supports downstream assumptions where product composition matters.

The PCF imperative

83%

of companies

struggle to get accurate
emissions data from their
supply chains

— GHG Protocol

34%

of CEOs

trust the accuracy of their
company's emissions
data

— PwC

70%

of total carbon

comes from Scope 3 -
meaning purchased
goods and services

— Verdantix

Tracking supplier-specific PCF data is becoming critical

Evolving Customer Requirements

- Emissions data embedded in commercial relationships
- Net-zero commitments cascading through value chains
- Competitive differentiation in supplier selection
- Stakeholder and market pressure

Alignment with International Regulatory Trends

- Expansion of mandatory climate disclosure regimes
- Product-level transparency becoming regulatory norm
- Regulatory “cascade effect” through supply chains
- Carbon pricing and trade mechanisms

Increasing Importance of Product-Level Emissions Data in Procurement

- Scope 3 dominance and procurement leverage
- Shift from spend-based to primary data
- Product Carbon Footprints (PCFs) as decision tools
- Integration into procurement processes + risk management

→ Product-level emissions data is rapidly becoming a **“license to operate” in procurement**, transitioning from a differentiator to a **baseline requirement**.

PCF as a key enabler of robust CDP disclosures & supply chain transparency

Improves Scope 3 Accuracy

- PCFs replace generic estimates with product-level, supplier-specific emissions data, addressing the largest emissions category (often 70-90% of total footprint).

Enhances Data Quality & Credibility

- Standardized, verifiable and auditable PCF metrics align with CDP's emphasis on transparency and high-quality disclosures.

Links Climate Targets to Procurement Action

- Enables companies to translate Scope 3 targets into sourcing decisions and track emissions performance at product and supplier level.

Strengthens Upstream Visibility & Supplier Accountability

- Provides granular visibility into upstream emissions, supports supplier comparison, and incentivizes disclosure through integration into RFPs, contracts, and scorecards.

Where PCF data appears in the CDP Climate Change Questionnaire

If your customer is requesting data through CDP, these are the key sections where your PCF data is specifically needed:

Product-Level GHG Emissions

7.73 Are you providing product level data for your organization's goods or services?

7.73.1 Give the overall percentage of total emissions, for all Scopes, that are covered by these products.

7.73.2 Complete a table for the goods/services for which you want to provide data - this is the core data point CDP requests from suppliers.

Scope 3 Emissions Data

7.8

Your customer reports Scope 3 Category 1 (Purchased Goods & Services) here. Your PCF directly improves the quality of their answer.

Data quality & methodology - customers must justify whether they used spend-based estimates or primary PCF data. Providing your PCF upgrades their disclosure quality score.

Supplier Engagement & Actions

7.73.4 Emissions reduction initiatives completed or planned to reduce product emissions - PCF data enables product-specific, verifiable reduction commitments.

7.73.5 Have any of the initiatives been driven by requesting CDP Supply Chain members?

Across all modules, **a calculated PCF in kg CO₂e per unit is the core data point CDP expects.** Without it, your customer's disclosure defaults to spend-based estimates - which CDP flags as lower quality.

Methodological Guidance & Standards for PCF

- PCFs are calculated using globally recognized frameworks:

GHG Protocol Product Standard

→ lifecycle accounting & reporting guidance

ISO 14067

→ requirements for quantification and reporting of product carbon footprints

LCA (ISO 14040/44)

→ underlying methodology for assessing impacts across the product lifecycle

These standards ensure **consistency, comparability, and credibility**, aligning with CDP Supply Chain expectations for high-quality, supplier-level data and standardized disclosure.

How to Calculate a PCF: Step-by-Step

STEP 1

Define Scope & Functional Unit

Choose system boundary (cradle-to-gate, cradle-to-grave) and define the functional unit (e.g., 1 unit of product).

STEP 2

Map Life Cycle Stages

List each stage that falls within your boundary: raw materials, manufacturing, packaging, transport, use, end-of-life.

STEP 3

Collect Activity Data

Gather data for each stage: bill of materials (BOM), energy use (kWh), transport distances, waste volumes.

STEP 4

Apply Emission Factors

Match each activity to an emission factor (kg CO₂e/unit) from recognised databases: ecoinvent, IPCC, IEA, or supplier-specific data.

STEP 5

Calculate & Aggregate

Multiply activity data × emission factor for each stage. Sum all stages to get total PCF in kg CO₂e per functional unit.

STEP 6

Document, Review & Share

Record methodology, data sources, and assumptions. Have results peer-reviewed. Share with customers via CDP, RFP, or your preferred channel.

Tools like ULTRUS UL360 automate Steps 3-5 via BOM upload, significantly reducing time and expertise required.

Challenges We're Hearing...



**Corporate
Sustainability**

"How do we operationalize PCF without overwhelming suppliers and internal teams?"



Procurement

"How can product carbon intelligence be embedded into sourcing and cost decisions, in a commercially aligned and operationally feasible way?"

A practical Scope 3 progression aligned with organizational maturity and designed to unlock value

Foundation

“Can we measure with confidence?”

- Build a credible scope 3 baseline
- Prioritize hotspots and material suppliers
- Improve data quality through better supplier data collection

Scale

“Can we use data to drive better decisions?”

- Move from generic factors toward activity-based and product-level insight
- Identify reduction levers across purchased goods and suppliers
- Strengthen procurement decision-making

Impact

“Can we scale decarbonization without losing consistency?”

- Standardize methodologies and controls
- Streamline supplier engagement across varying maturity levels
- Integrate carbon data into reporting, sourcing and governance processes

Each stage addresses a different scope 3 challenge and builds toward more decision-useful, scalable value chain decarbonization.

Integration Pathway: From Data Collection to Execution

1

Prioritize

Target categories, suppliers, and products with highest emissions, spend, or sourcing relevance.

2

Request

Define the PCF ask: product scope, data template, methodology, refresh cycle, and evidence expectations.

3

Validate

Check completeness, methodology consistency, reasonableness, and potential gaps.

4

Integrate

Map approved PCFs into reporting, supplier dashboards, and procurement workflows.

5

Act

Use insights for supplier prioritization, sourcing decisions, reduction planning, and customer response.

The critical design principle is **operational continuity**: PCF should not remain a one-time data request. It should become a **repeatable process with recurring intake, validation, refresh, and use**.

Supplier onboarding is the make-or-break step

Why some supplier programs stall

- Suppliers vary widely in readiness, carbon literacy, and available resources.
- Manual outreach often means emails, spreadsheet chasing, and repeated clarifications.
- Different customers ask for similar data in different formats, creating response fatigue.
- If the request is too complex, companies get low participation or low-quality data.

What UL Solutions is simplifying

- Suppliers can share PCFs they already have or generate a PCF through BOM upload.
- UL 360 uses AI to extract key BOM data and calculate an actionable PCF for sharing.
- The workflow centralizes supplier responses, reducing email back-and-forth and manual tracking.
- This makes supplier participation more feasible even when expertise is limited.

Effective PCF integration requires clear governance

Clear Ownership

- Establish a single accountable PCF owner with decision authority, and clearly define cross-functional governance roles to avoid overlap or gaps.

Governance Structures

Create cross-functional governance to align standards and decisions, with clear escalation and change controls.

Data Governance, Policies, and Controls

Document PCF data intake and updates, with enforced controls for validation, versioning, traceability, and escalation.

Integration Governance

Define how PCF data drives business decisions beyond reporting, and align its governance with broader ESG, financial, and risk frameworks.

Demonstration



Meet Emma, Sustainable Procurement Manager *Gadget Stop - Electronics Retailer*

Emma leads sustainable procurement for an electronics manufacturer. She focuses on supplier collaboration and embedding product-level carbon footprint data into sourcing decisions to drive measurable emissions reductions.

Emma's priorities include

- Building a detailed understanding of **Scope 3 Category 1 (Purchased Goods & Services) emissions**.
- Leveraging **Product Carbon Footprints (PCFs)** to improve PG&S emissions accuracy and enable decision-ready sustainable sourcing.
- Identifying **supply-chain emission hotspots** to focus action on the highest-impact products and suppliers.



Meet Robert, a supplier to Emma's company

Robert's company also wants to meet Net Zero and is on board with supplying the necessary data to their customers support the goal.

What Robert needs

- Easily understand and manage requests for data in one location
- Data confidence and transparency
- Manage sharing of data
- Benchmark products against competitors
- Understanding of complex and dynamic regulatory landscape
- Easy to use software that leverages familiar patterns and advanced technology



Emma invites her supplier, Robert Stephens, who accepts the invitation and quickly registers on UL360 PCF using his email address—making the PCF data request and submission process simple and scalable.



Emma via ULTRUS <important@notification.ultrus.com>
To: Robert Stephens

ULTRUS

Emma Smith has invited you to submit product data for Acme



Emma Smith
Sustainability Manager at Gadget Stop

” Hey Robert, Hope you’re well. Could you provide product data for BFG QLED 8K 55” Smart TV to help with the tracking of emissions

Accept Invitation

By accepting this invitation, you agree to our [Terms of Use](#) and [Privacy Policy](#)

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From PCF data to business value

Reporting value

Better baseline quality, stronger hotspot precision, and more confidence in reported progress.

Operational value

Supplier segmentation, targeted engagement, and product-level emissions intelligence inside procurement.

Strategic value

More credible customer responses, a stronger decarbonization story, and better prioritization of reduction effort.

→ Scope 3 inventory that is transparently hybrid but shows a clear trajectory: increasing coverage of supplier-specific PCFs in material categories, embedded in governance and systems, with evidence of real emission reductions over time.

→ PCF being integrated seamlessly into category strategies, sourcing guidelines, and supplier scorecards, without adding unsustainable manual workload, and delivering tangible commercial and risk advantages.

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Questions?

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Contact UL Solutions to
learn more about
Scope 3 and PCF
software and services:

**UL.com/enterprise-
sustainability**

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