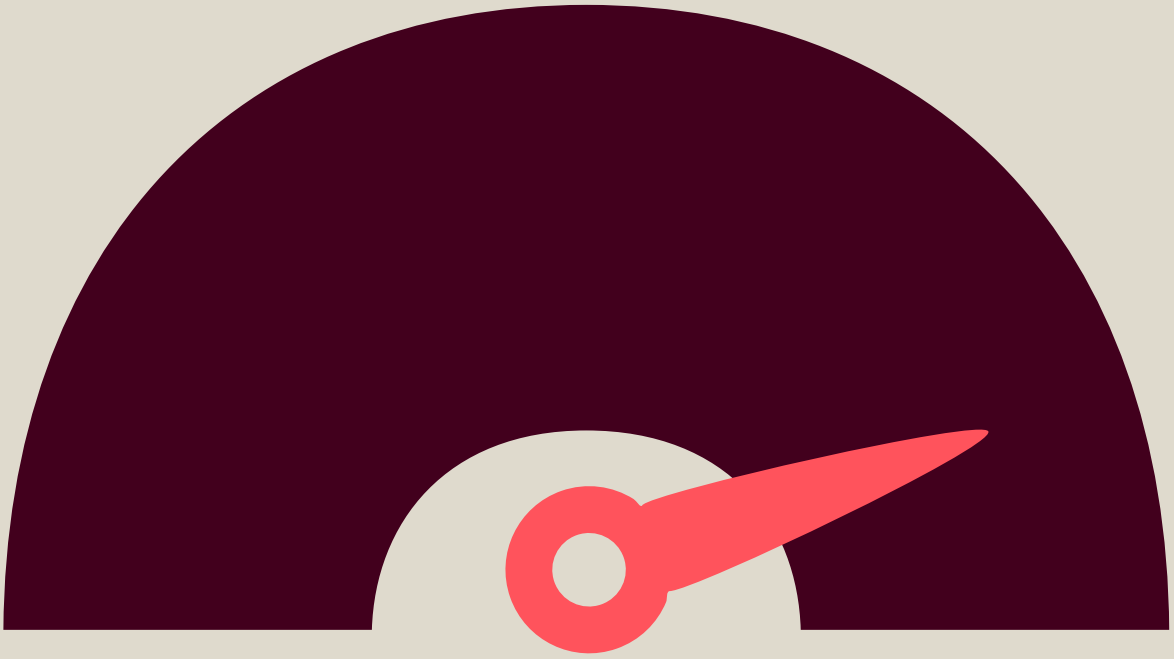
IPOINT

GOOD MADE POSSIBLE



Sustainability Intelligence.

Transparency, Speed, and Scalability
as Keys to Sustainable Value Creation

01. Executive Summary

Sustainability becomes effective where decisions are made—in development, procurement, production, and along the supply chain. This is precisely where Sustainability Intelligence comes in. The approach integrates product, process, and supply-chain data, making origin and quality transparent and converting them into decision-ready metrics. Transparency thus becomes not a documentation burden, but an advantage in speed, accuracy, and scalability.

One stack, one logic: Umberto provides modeling and assessment capabilities (graphical modeling, LCA/PCF, scenario analysis, EPD, MFCA). IPOINT Product Sustainability provides the application layer (workflows, data quality, automation, exports) and integration into business processes. Both come from a single source and grow with evolving requirements — from a rapid start with reliable PCFs to portfolio-wide calculations at defined intervals. The same data foundation supports not only PCF/LCA but also DPP, ESRS/CSRD reporting, EPDs, and chemical-related compliance—without starting from scratch each time.

What matters: Transparency, speed, and scalability are the levers of sustainable value creation. Organizations that understand their products down to the component and process level respond faster to price fluctuations, supply shortages, or regulatory changes. Those that systematically build primary data earn trust from customers, auditors, and financial markets. Sustainability Intelligence makes this level of data sovereignty routine

Starting Point—From Reporting Obligations to Steering Capability

The old pattern is familiar: a request arrives, Excel sheets are filled manually, and at the end, a report appears. Between these steps lie shadow processes, assumptions, and heterogeneous sources. That costs time, creates inconsistencies, and offers little guidance for sound decision-making.

At the same time, the regulatory landscape is tightening: In the automotive industry, Product Carbon Footprints (PCFs) are being standardized through the Catena-X PCF Rulebook and embedded into IMDS workflows.

The Digital Product Passport (DPP) is emerging as a trusted data object that consolidates sustainability and compliance information at bill-of-materials and process level.

EPD programs are professionalizing external sustainability communication. Chemical regulations (e.g., PFAS, REACH, TSCA) increasingly penetrate BOMs and production processes, requiring higher data quality.

The answer cannot be yet another spreadsheet. The answer is a new data logic—connected instead of fragmented, reproducible instead of one-off, and interoperable instead of proprietary. A logic designed for strategic business decisions.

That is what Sustainability Intelligence delivers: data are collected where they originate, assessed with methodological rigor, and reintegrated into development, procurement, and production processes.

→ **Takeaway:** The report as an endpoint is obsolete. What is needed is systemic, transparent management that natively leverages standards such as Catena-X/IMDS and the Digital Product Passport.

02. This Is What Sustainability Intelligence Does

Sustainability Intelligence (SI) is not another reporting tool—it is a management and control model. It consolidates product- and process-related data, evaluates them with sound methodology, and embeds the results where decisions are made—in product development, sourcing, and strategy.

IPOINT Product Sustainability is designed precisely for this purpose: LCA / PCF results are embedded into business decisions so that hotspots and corrective measures can be managed across the entire product life cycle.

1. Connect Data Instead of Replacing Systems

Data originate from ERP and PLM systems, Bills of Materials (BOMs), and supplier portals — in automotive especially from IMDS. With the Smart Connector (IMDS integration) and machine-learning-based Smart Mapping, PCFs can be automatically derived from IMDS BOMs. This forms the foundation for reproducible calculations and portfolio-wide computation cycles. For supply-chain-wide use, the Digital Product Passport (DPP) establishes a single source of trusted information for sustainability and compliance data, interoperable with EU initiatives such as CIRPASS.

2. Ensure Methodological Rigor

The Umberto Engine provides modeling and evaluation capabilities—graphical modeling, standards-compliant LCA / PCF and EPD generation—plus integrated life-cycle-inventory (LCI) databases such as ecoinvent, cm.chemicals (carbon minds), and USLCI. This capability enables robust entry points and transparent scenarios.

3. Make Governance Reproducible

Defined standards, roles and permissions, rule sets, and recurring calculation cycles ensure traceable and repeatable results—from pilot projects to portfolio operations. The IPOINT Engine platform logic provides modular orchestration via apps and modules instead of enforcing monolithic systems.

The result is strategic impact. Outcomes emerge on a portfolio cadence and feed metrics directly into design approvals, sourcing alternatives, or design sprints. Transparency thus becomes operational control—not a reporting endpoint.

→ **Takeaway:** Sustainability Intelligence is neither a monolithic replacement nor a shortcut that trades precision for speed. It connects, standardizes, and makes results reproducible.

03. One Stack, One Logic: From Model to Impact

This is what it's really about: The stack composed of Umberto and IPOINT Product Sustainability exists to create sustainability impact, not to collect numbers. Models reveal causes and levers; the application layer brings this evidence into decision-making and implementation.

The Roles in Interaction

Umberto provides deep modeling capabilities—robust PCF/LCA models, scenario analysis (materials, energy, logistics), EPD readiness, and, where appropriate, integration with MFCA. This allows environmental and economic effects to be viewed together.

IPOINT Product Sustainability ensures operational impact.
Data quality remains transparent; results are used in approvals, sourcing decisions, and design workflows. Standardized exports support EPD, DPP, and ESRS/CSRD.
The system integrates with existing IT, connecting IMDS, supplier, and process data—without rip-and-replace

Sustainability Intelligence Creates Measurable Impact Paths

1. **Design and material selection—PCF deltas through variants**
   Hotspots within models show where material substitution, geometry, or manufacturing processes have the greatest leverage. Scenarios compare the "as-is" and "to-be" states, delivering PCF deltas and effects on circularity (e.g., share of recycled content).

2. **Sourcing and supplier development—primary data as negotiation advantage**
   Supplier values (e.g., from IMDS or DPP) replace approximations. This enables comparable PCFs per material group, makes price/CO_2 trade-offs transparent, and helps prioritize supplier-related improvement work.

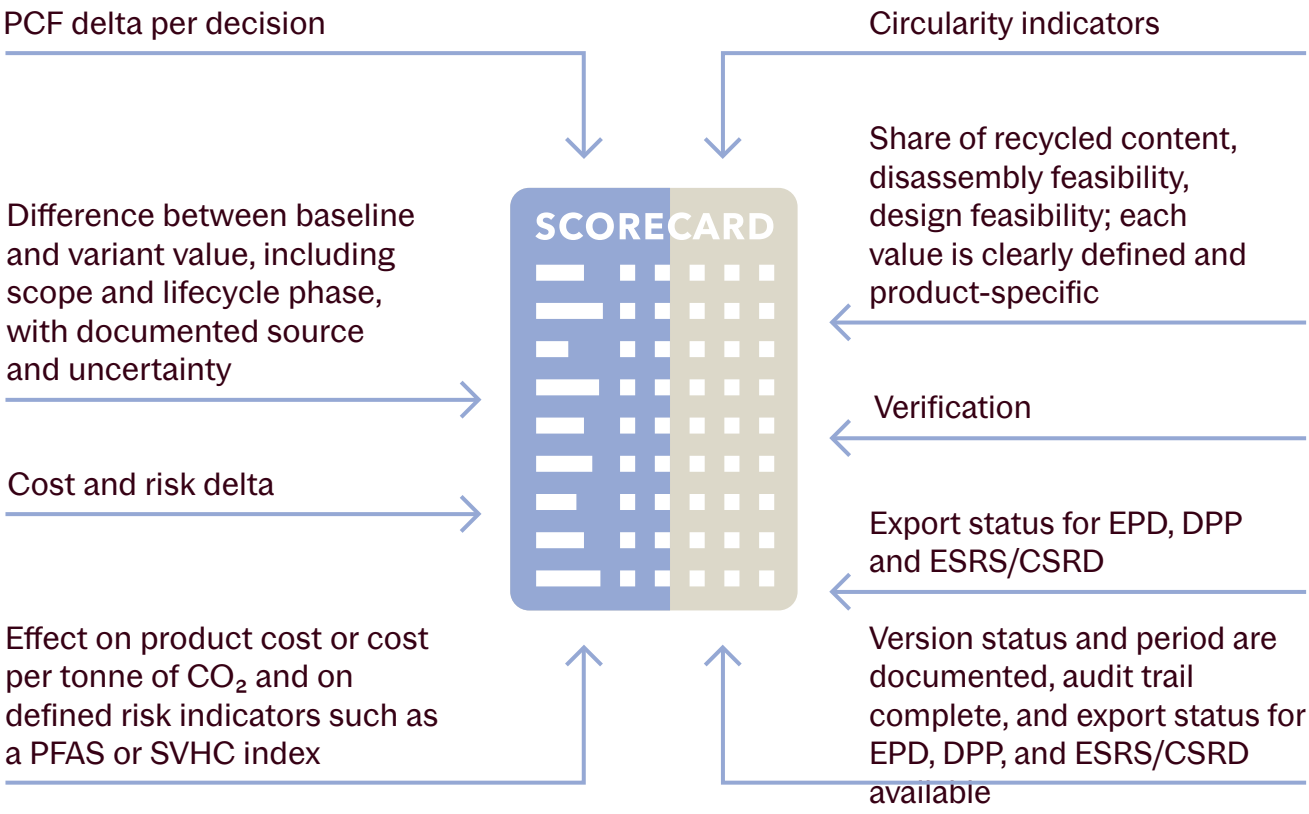
3. **Production and energy—optimizing process paths**
   Process inventories and energy mixes are modeled to assess measures (e.g., furnace modernization, electricity mix, route changes) before investment, including cost impact via MFCA

4. **Product communication and market access—verifiable externally**
   EPDs and DPPs are generated from the same data core rather than derived later. This reduces contradictions, accelerates tenders, and increases credibility in sales.

Measuring and Maintaining Impact

Impact only counts when it is visible, accountable, and stable. Therefore, results are tracked in a scorecard that links each major decision to a measurable effect—for product, procurement, and operations.

What Is Measured



How the Scorecard Is Read

Each line represents a decision with five fields: target, actual, trend, responsible person, and next step. Teams can see not only a product's footprint but also which action had which effect—and whether the effect is sustained

Why it Works

The scorecard connects ecology and economy. The PCF delta shows environmental improvement; the cost delta, economic impact. Together they help prioritize next steps—from material substitution and supplier development to process change.

→ **Takeaway:** Model + Orchestration = Impact. Umberto reveals the levers; IPOINT Product Sustainability embeds them into decisions and evidence. Thus, transparency becomes a competitive advantage in product, procurement, and market

04. Primary Data: The Promise of Precision

Why Primary Data?

- **Accuracy:** Representing real processes and supply chains instead of averages.
- **Multiple use:** Serving as a common data foundation for PCF/LCA, EPD, DPP, and ESRS/CSRD without repeated data collection.
- **Future readiness:** Once collected, data can be reused multiple times without restarting for each report.

Primary data go beyond accuracy—they are a trust anchor, because they reflect real processes and supply chains. Organizations that work with primary data make better product decisions, communicate more efficiently externally, and strengthen credibility with customers and auditors.

How Primary Data Start Flowing

In the automotive industry, material and structural information from IMDS can be directly used for PCFs. The Smart Connector and machine-learning-based Smart Mapping automatically generate reliable PCFs from IMDS Bills of Materials (BOMs)—fast, consistent, and scalable.

For supply-chain-wide use, the Digital Product Passport (DPP) provides a trusted, shared source for sustainability and compliance data. It is designed to connect with EU initiatives such as CIRPASS.

When no primary data are yet available, start hybrid—with secondary data from curated life-cycle inventory (LCI) databases, and gradually add your own measurement, process, and procurement data. Umberto provides integrated, versioned, and auditable databases such as ecoinvent, cm.chemicals (carbon minds), and USLCI. This enables reliable entry points and transparent scenario building

Data Quality Remains Visible

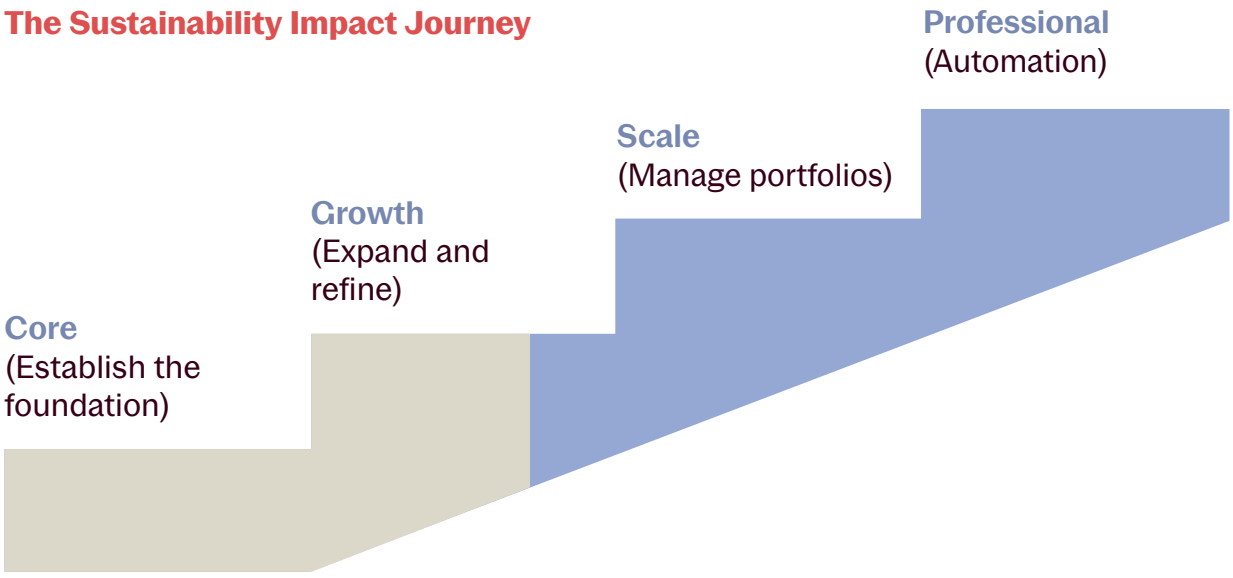
Every data point carries its origin and validity. This makes it clear where primary data make the greatest difference and where secondary data are sufficient for now. This perspective on data quality is part of the CARE principle: Collect, Analyze, Report, Evolve.

→ **Takeaway:** Primary data transform transparency into trust and analytics into decisions. IMDS integration and the DPP bring real supply-chain data into play; Umberto provides verified LCI foundations until primary data become available.

05. Sustainability Impact Journey in Four Steps

The Sustainability Impact Journey is a model for implementation and scaling—not a product edition. It describes a clear development path: a quick start, measurable improvement in data quality, and ultimately scalable, verifiable results. Each stage delivers tangible outcomes and defines the next steps.

The Sustainability Impact Journey



1. Core – Establish the foundation

You start with what already exists: Bills of Materials (BOMs), material information, weights, transport data, energy data, etc. From these, the first reliable PCFs are calculated for selected products; sources and assumptions are documented, and data quality is visible.

Result: a dependable baseline with actionable quick wins.
Exit criteria: repeatable calculations for pilot products, defined system boundaries, and an active data-quality overview.

2. Growth – Expand and refine

Additional data sources are added—made possible by using internal BOMs and efficient import options such as process data, transport profiles, and supplier values. This means greater detail in analysis through the granular BOM data from source systems.

Result: fewer manual steps, first standardized exports.
Exit criteria: significantly increased share of primary data, stable processes, clear roles.

3. Scale – Manage portfolios

What began as individual cases becomes routine. Hundreds or thousands of products are recalculated regularly; deviations are actively managed: Where does the PCF change? Where are supplier values missing? Where are new risks emerging? Management dashboards link KPIs with responsibilities and deadlines.

Result: portfolio-wide transparency with reliable trends and measurable progress.
Exit criteria: consistent results across product lines and sites, active deviation management, and broad adoption across development, procurement, and operations.

4. Professional – Automation becomes achievable and scalable

Systems are seamlessly connected: ERP, PLM, supplier portals, and IMDS. Data quality is continuously checked, and standardized workflows generate verifiable exports for EPD, DPP, and ESRS/CSRD—without copy-and-paste. KPIs flow directly into approvals, sourcing, and design.

Result: steering capability from a unified data core—auditable and traceable at any time.
Exit criteria: end-to-end integration, continuous quality assurance, and audit-proof documentation available on demand.

→ **Takeaway:** How to secure your progress:
Quality before scope: Start with depth in pilots, then broaden across the portfolio.
One data core, many purposes: The same data foundation supports PCF/LCA, EPD, DPP, and ESRS.
Make accountability visible: Each KPI has an owner, a threshold, and a next action step.

06. From Data to Decisions: Care Rhythm

CARE is the operating rhythm behind Impact Intelligence. You collect relevant data (Collect), analyze their interrelationships and effects (Analyze), report the right information to the right audience (Report), and evolve your organization and supply chain with clear actions (Evolve).

C – Collect

Capture data where they originate: Bills of Materials (BOMs) and material data, process and energy values, transport information, and supplier inputs. This works through defined interfaces such as those used in Catena-X. The goal is a consistent data core, including sources and validity.

A – Analyze

Calculate Product Carbon Footprints (PCFs) and Life Cycle Assessments (LCAs), reveal relationships, identify hotspots, and test scenarios—for example, material choices, energy paths, or logistics routes. Decisions are thus based on transparent methodologies and integrated LCI (Life-Cycle Inventory) databases.

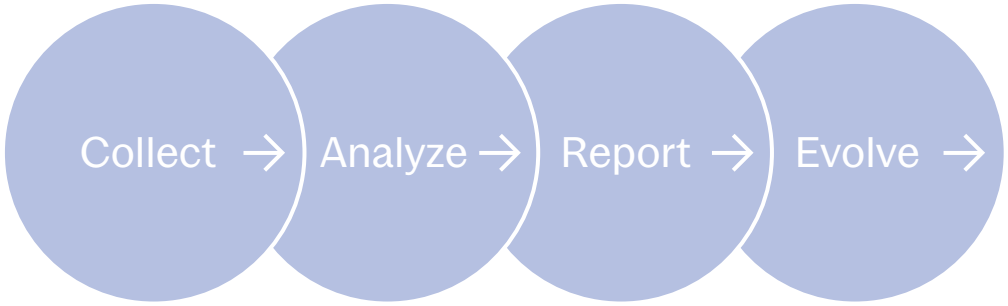
R – Report

Provide audit-ready results and communicate them to the right stakeholders—e.g., internal KPI dashboards for teams and management, or standardized exports for EPD, DPP, and ESRS. One data core serves multiple purposes.

E – Evolve

Set goals, define thresholds, assign responsibilities. Implement measures, track their effects, and plan the next iteration. CARE is not a project closure, but a continuous learning process.

CARE Understood Correctly



Collect, Analyze, Report, Evolve—a rhythm that connects data collection, evaluation, reporting, and organizational learning into one coherent loop.

07. Architecture. Integration, Not a Substitute.

Sustainability impact does not require new monolithic IT systems—it needs open integration points. IPOINT Product Sustainability connects existing systems such as ERP and PLM, and in the automotive context, IMDS.

Using the Smart Connector and Smart Mapping, PCFs can be directly derived from Bills of Materials (BOMs); the results feed into reports and decision-making. The Digital Product Passport (DPP) consolidates sustainability and compliance data into a trusted product object and is aligned with EU initiatives such as CIRPASS. This ensures that the architecture remains updatable. Standards will continue to evolve, but the foundational system remains stable. Together, we advance the level of maturity—from initial approaches to fully integrated solutions.

→ **Takeaway:** You continue to use your existing systems—they are not replaced. Your results become interoperable, verifiable, and reusable, from PCF/EPD to DPP and ESRS.

08. Making Data Quality Visible

Transparency Without Quality is Deceptive.

For numbers to truly guide decisions, every dataset must have a quality profile. This ensures that the basis of each decision is traceable and that opportunities for improvement can be identified. Both data quality and completeness are essential

What Must Be Visible

- **Primary Data Source:** Primary data from in-house production or suppliers, clearly distinguished from secondary data sourced from verified LCI databases.
- **Completeness:** Share of populated values per product and site, including the status of open gaps in the supply chain. Automated supplier requests significantly improve data quality.
- **Validity:** Time period, version, and applicable scope are documented and verifiable at any time. The Digital Product Passport (DPP), as a single source of trusted information, creates a reliable reference.
- **Uncertainty:** Ranges and sensitivities are specified, allowing risks and actions to be properly weighted. Methodological reliability is based on clean LCI data and transparent assumptions.

How This Is Implemented

The quality profile is maintained directly where data are generated and used—for example, in BOM flows such as IMDS and in the resulting calculations. IMDS automation reduces manual errors and improves the accuracy of material data—the basis for reliable PCFs.

For external use, standardized exports and the DPP provide a consistent audit trail. Internally, one dataset serves multiple purposes: EPD, DPP, and ESRS—without ambiguity.

The Impact

- Decisions are based on traceable sources rather than assumptions.
- Data gaps become visible early and can be closed systematically—especially regarding supplier values.
- Audit security increases, as validity and versioning are clearly documented.

→ **Takeaway:** Data quality is a manageable variable, defined by origin, completeness, validity, and uncertainty. This transforms transparency into actionable transparency.

09. Roles, Responsibilities, Operations

To ensure that results do not end in a report but instead drive decisions in development or procurement, clear roles are essential.

Product Sustainability Analyst

Operates the models, evaluates hotspots, and conducts scenarios for materials, energy, and logistics. From the results, the analyst derives clear KPIs and concrete proposals for next steps—structured so that they can be integrated into approval and sourcing decisions.

Data Steward

Is responsible for data sources, quality, and access. Data origin, version, validity, and uncertainties are clearly labeled. The data-quality overview shows where gaps exist and what must be resolved by when.

Business Owner (Procurement, Development, Operations)

Makes decisions based on KPIs, prioritizes measures, and ensures implementation and results. The scorecard links target, actual, trend, responsible person, and next step—making progress visible and accountable.

Operations that Sustain the System

A simple framework keeps everything together: a RACI matrix for responsibilities, a timeline for external submissions and internal routines, and clear change rules—ensuring that product or variant changes are automatically included in calculations. This creates a reliable ongoing operation that replaces one-off activities.

Enablement and Adoption

Getting started is easy: training for Umberto and Product Sustainability provides method and usage know-how. Demo videos show real examples, and a time-limited test environment with tutorials and sample data enables pilot projects without barriers. Competence and confidence grow in parallel with the expansion of content.

→ **Takeaway: Why it works**—roles and enablement reinforce each other. The right people see the right data at the right time—and act on them. Sustainability evolves from an additional task to a management discipline in daily operations: reliable, reproducible, audit-proof.

10. Practical Examples

Electronics: PCF Portfolios for CSRD and Visibility into CBAM Costs

Initial situation: Many product lines and heterogeneous data sources; CSRD reporting obligations approaching.

Approach: ERP systems, energy data, and supplier portals are integrated. Portfolio-wide PCFs are recalculated regularly; a management dashboard shows cost effects, including potential CBAM (Carbon Border Adjustment Mechanism) charges by material group.

Impact: CSRD-compliant metrics at portfolio level, selective EPDs generated through standardized workflows, and a roadmap for increasing the share of primary data and onboarding prioritized suppliers.

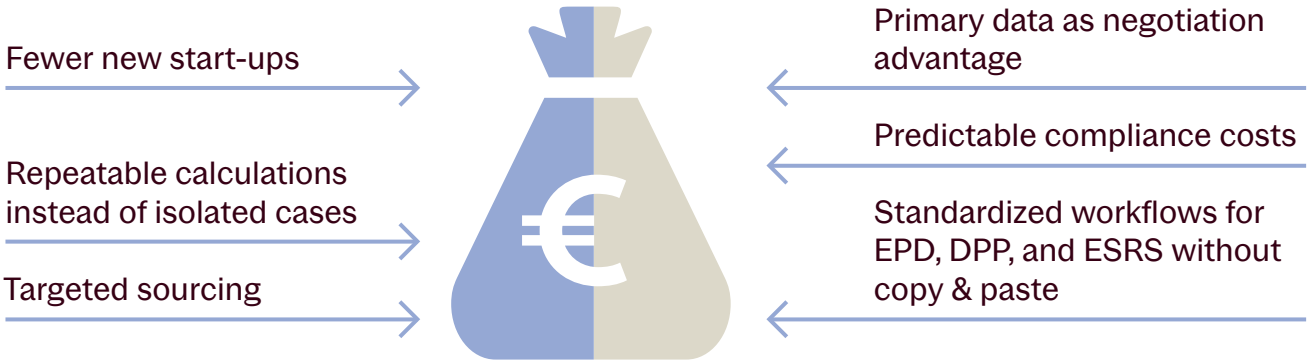
Mechanical Engineering: Redesign for Circularity

Initial situation: High material consumption, increasing recycling requirements, and multiple nodes in the supply chain.

Approach: Disassembly and recycling pathways are modeled; alternative materials and production options are evaluated as scenarios—including circularity indicators and economic effects (via MFCA, Material Flow Cost Accounting).

Impact: Reduction of PCF through material and process changes, improved circularity score, and reduced substance risk. Decisions are based on reproducible data; updates are visible in the next calculation cycle.

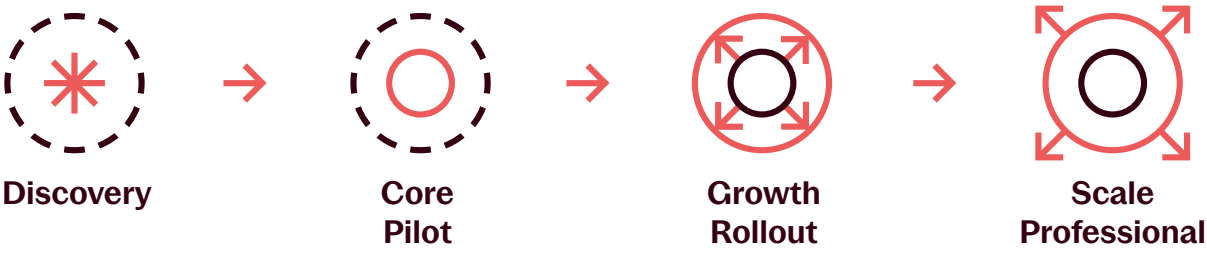
What Pays Off Economically



→ **Takeaway: Effective across industries.** Several suppliers serve automotive, electronics, and mechanical engineering sectors. The requirements differ—the data logic does not. Sustainability Intelligence makes metrics comparable, highlights risks early, and leverages opportunities such as secondary materials or reuse.

11. Introduction with a Plan: From Pilot to Resilient Operation

Four Phases to Measurable Impact



The goal is clear: start quickly, visibly improve data quality, and anchor results in a way that they trigger real decisions. The path to achieving this consists of four phases.

Discovery

Define a shared target picture, review system landscape and data situation, and select three to five pilot products. This creates a data map showing sources and owners, along with a streamlined governance setup including roles and deadlines.

Result: an agreed target picture and prioritized to-dos for project initiation.
Exit criteria: pilot scope fixed, data sources identified, roles confirmed.

Core

Using existing data sources such as BOMs, IMDS, ERP, and energy data, reliable PCFs are created for the pilot products. Assumptions and sources are documented.

Result: trustworthy baselines and concrete quick wins.
Exit criteria: repeatable calculations for all pilots, active quality profile, approval for expansion.

Growth

Additional sources are connected—enabled by working with internal BOMs and efficient import options for process data, transport profiles, and supplier values. This allows deeper analyses using granular data from source systems. Within IPOINT Product Sustainability, workflows are standardized and made usable for teams.

Result: fewer manual steps and first standardized exports
Exit criteria: significantly higher share of primary data, stable processes, clear responsibilities.

Scale

Individual cases evolve into an operational process. Product lines and sites are recalculated regularly; deviations are actively managed, and decisions are documented in scorecards. Systems are seamlessly connected; data quality is continuously validated, and exports are audit-ready.

Result: steering capability from a unified data core — reliable, auditable, and traceable.
Exit criteria: end-to-end integration, continuous quality assurance, and verifiable documentation available anytime.

→ **Takeaway:** From pilot to routine — a structured implementation plan ensures measurable progress, reliability, and readiness for scaling

12. KPIs that Drive Decisions

KPIs only guide effectively when they are clear and trigger the next action. Experience shows that they should be grouped into four categories.

Product Impact

PCF per product and variant: Displayed per product number with trend and cause of change. The goal is a traceable reduction of the product's carbon footprint.
Circularity score: Evaluates the share of recycled content, disassembly capability, and reusability—making circular improvements visible.

Risk and Compliance

CBAM cost projection: Estimates potential charges across affected material groups, supporting price negotiations and make-or-buy decisions.

Data and Process Maturity

Data-quality index: Combines share of primary data, completeness, validity, and uncertainty into a single score. Highlights where data improvements are needed.
Supplier transparency level: Measures the share of confirmed supplier data and on-time responses—guiding supplier onboarding and escalation.
Automation rate: Ratio of automated runs to manual interventions—fewer errors, lower effort.

Operational Steering

Each KPI is linked to a responsible role, a target value, and an intervention threshold.
In the scorecard, each entry includes five fields: target, actual, trend, responsible, next step.
This makes it visible which decision had which effect—and where corrective action is needed next.

→ **Takeaway:** KPIs lead when they combine transparency, accountability, and actionable thresholds—turning metrics into management control

13. Conclusion: Impact Becomes a Leadership Discipline

Sustainability delivers real value when it guides decisions, not when it is only reported. Sustainability Intelligence integrates data from products, processes, and the supply chain into a single, consistent core. It evaluates them using sound methodologies and channels results to where they matter most—development, procurement, and operations.

The foundation lies in modeling depth with Umberto and process speed with IPOINT Product Sustainability. Primary data provide precision and trust; CARE defines the working rhythm; and the Sustainability Impact Journey outlines the path from first implementation to full scalability. In this way, transparency evolves into controllability—verifiable, reusable, and interoperable.

What Changes

Speed, quality, and comparability. Calculations become predictable, results consistent, and scenario analysis part of daily operations. Decisions are based on verifiable metrics rather than assumptions.

What Remains

Accountability stays within the business. Teams in procurement, development, and operations make better decisions grounded in a reliable data foundation.

→ **Takeaway: The foundation.** IPOINT has been developing solutions for product sustainability since 2001. Umberto has supported companies in LCA and PCF for over 25 years. This combined experience, supported by primary data and open technology, leads to three outcomes

Faster decisions, reliable reporting, and targeted improvement—measurable, effective, scalable.

Publisher Information

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