



Making Credible Carbon & Environmental Reduction Claims Using Life Cycle Assessments

Dr Craig Jones & Joe Rouse

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Your Presenters Today



Dr Craig Jones

Managing Director

- *20 years experience product footprints & LCA*
- *Original author ICE Database*



Joe Rouse

Senior Consultant

- *Experience in Life Cycle Assessments and Product Carbon Footprinting*
- *Project Manager on ICE*

Circular Ecology – Introduction



Environmental consultancy, founded in 2013

Offer a range environmental services:

- Whole Life Carbon Assessments for Construction Projects
- Organisational Carbon Footprints, Scope 1, 2 & 3
- Product Carbon Footprints
- Environmental Product Declarations
- Life Cycle Assessments (LCA)
- Net Zero Carbon Strategy
- Carbon Footprint Database (library) Development
- Verification and Peer Review
- Online E-Learning Training Courses
- Carbon Offsetting and Tree Planting





Evidencing Lower Environmental Impact Claims: What to Consider

Why Environmental Reduction Claims Matter?

Environmental reduction claims can be a powerful tool for demonstrating credibility and winning business, but they are facing increasing scrutiny from regulators, clients and the public.



Why organisations want to make claims: Procurement requirements, net zero commitments, supply chain pressure, brand differentiation, investor and client expectations



Why it matters to get them right: Greenwashing accusations, regulatory scrutiny, loss of client trust, reputational and commercial damage

Organisations that invest in credible, well-evidenced claims are better placed commercially, but those that overstate them face serious consequences

The Challenge of Environmental Claims

Evidencing a lower environmental impact claim is not straightforward. Knowing what is required, and why, is the essential first step.

The Challenge:

- Products have complex supply chains
- Comparisons between products are rarely straightforward
- Different methodologies can produce different outcomes
- Poorly framed claims can easily mislead

What's Needed:

- A recognised and appropriate methodology
- Clear and consistently applied system boundaries
- A fair and transparent basis for comparison
- Claims that reflect the scope and strength of the evidence

This is where high-quality Life Cycle Assessments (LCAs) or Product Carbon Footprints (PCFs) become essential tools for environmental claims



The Role of Product Carbon Footprints (PCFs) and Life Cycle Assessments (LCAs) in Environmental Claims

What are PCFs and LCAs

A Product Carbon Footprint (PCF) measures the total greenhouse gas (GHG) emissions associated with a product throughout its life cycle.

- Measures total GHG emissions associated with a product across its life cycle, expressed in kg CO₂e per unit
- **Carbon only scope** that quantifies all GHGs weighted by global warming potential

A Life Cycle Assessment (LCA) is a systematic method for evaluating the environmental impacts of a product, process, or service throughout its entire life cycle, from raw material extraction to disposal

- Measures total environmental impacts associated with a product across its life cycle
- Can cover **over 20 different environmental indicators** outside of carbon



Making a claim of lower carbon or broader environmental impacts requires a robust, evidence-based assessment. PCFs and LCAs are the tools to conduct this.

Uses of PCFs and LCAs

Internal Carbon Tracking

- **Typical Approach:** Internal PCF or LCA
- **Typical Use:** Hotspot analysis, procurement decisions, internal carbon tracking



Public Non-Comparative Environmental & Carbon Reporting

- **Typical Approach:** PCF or full LCA aligned to recognised standard
- **Typical Use:** Product disclosures, Environmental Product Declarations, Scope 3 Reporting



Public Comparative Claims

- **Typical Approach:** Full comparative LCA or PCF with aligned methodology and system boundaries
- **Typical Use:** Direct comparisons with other products or solutions



Setting a Fair Comparison

Is This a Fair Comparison?

Consider the following statement:

“Our insulation product has a 40% lower carbon footprint than mineral wool insulation”

On the surface, this sounds compelling. But is it a fair comparison?

Is This a Fair Comparison?

Product A

- Cradle-to-gate
- Primary data
- Excludes packaging
- Includes manufacturing waste

Product B

- Cradle-to-grave
- Industry average data
- Includes packaging
- Neglects manufacturing waste

Each of these studies may be technically sound in isolation, the problem is that they were never set up to be compared.

Environmental claims can become misleading through inconsistent scope and methodology

Defining a Fair System Boundary

- The system boundary defines which life cycle stages are included in the assessment
- Both products must be assessed to the same system boundary, a headline figure without context is not a defensible statement



Functional and Declared Units

Functional Unit:

*The quantified performance of a product system for comparison
(e.g., “1 m² of external wall achieving a U-value of 0.18 W/m²K
over a 60-year building life”)*

Declared Unit:

*The quantity of product without reference to performance
(e.g., “1 tonne of concrete”)*

Functional Units: Comparing Like for Like?

- A declared unit describes **quantity only**, it makes no reference to performance equivalence
- Two products assessed per kg may look very different in carbon terms if one requires twice the thickness to do the same job
- A functional unit anchors the comparison to a **shared performance outcome**, making it the appropriate basis for any comparative claim

A fair comparison measures the same outcome, not just the same quantity

Assumptions and Scenarios

- Assumptions can significantly influence outcomes
- They must be applied consistently across studies
- Key assumptions should be transparently disclosed
- Sensitivity analysis helps test robustness of assumptions

Transport Distances



Product Lifetimes



Electricity Mix



Maintenance Rate



End-of-Life Treatment

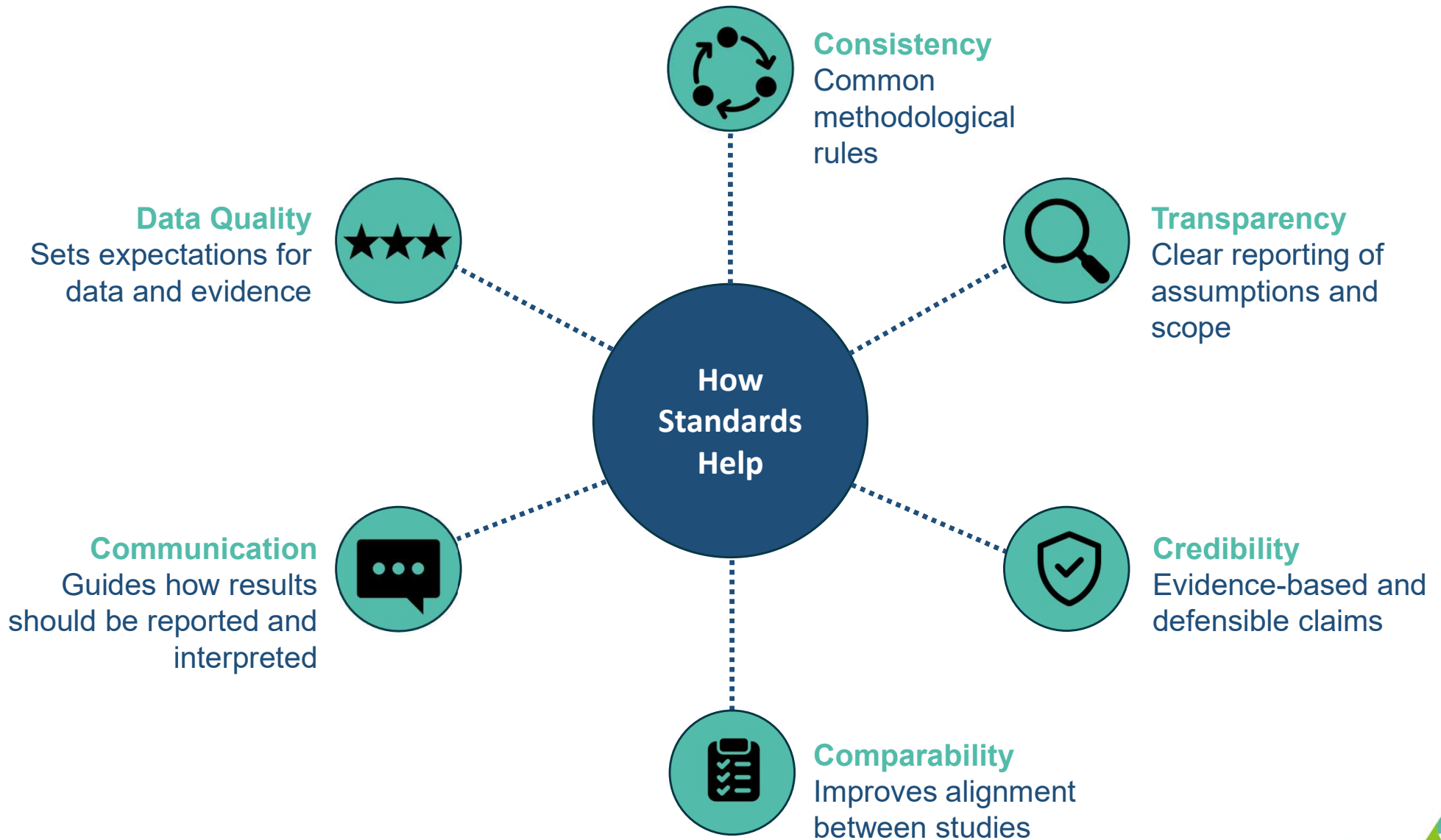


Inconsistent modelling choices can create large differences in reported impacts



Why Standards Matter

How Standards Help



Key Standards

Standard	Description
ISO 14040/14044	The foundational international standards for Life Cycle Assessment, covering methodology, data quality and reporting requirements
ISO 14067	Specific to Product Carbon Footprints, sets out requirements for the quantification and communication of emissions from products and aligns with LCA principles
EN 15804 (+A2)	The European standard governing Environmental Product Declarations (EPDs) in the construction sector

- There is no standard specifically designed for comparative LCA which means **comparative studies** require additional care in fairness, method, scope alignment and assurance
- Selecting and adhering to a recognised standard is **essential to a defensible claim**



Considering Wider Environmental Impacts

Thinking Beyond Carbon

Carbon is often the primary focus of environmental reporting, but it represents only one dimension of environmental performance.



- **Lower Carbon does not always equal Lower Overall Environmental Impact:** Products with lower greenhouse gas emissions may have higher impacts elsewhere.



- **Risk of Burden Shifting:** Actions taken to reduce carbon emissions can unintentionally increase impacts elsewhere in the life cycle.



- **Broader Claims Require Broader Assessment:** If you wish to make wider environmental claims, an LCA is required over a PCF.

Example LCA Impact Categories

- Climate change
- Ozone depletion
- Terrestrial acidification
- Freshwater eutrophication
- Marine eutrophication
- Human toxicity
- Photochemical oxidant formation
- Particulate matter formation
- Terrestrial ecotoxicity
- Freshwater ecotoxicity
- Marine ecotoxicity
- Ionising radiation
- Agricultural land occupation
- Urban land occupation
- Natural land transformation
- Water depletion
- Metal depletion
- Fossil depletion

Why Multi-Indicator Comparison Is Difficult

Unlike carbon, which can be expressed as a single metric (kg CO₂e), different environmental indicators are measured in fundamentally different units, making direct comparison far from straightforward.

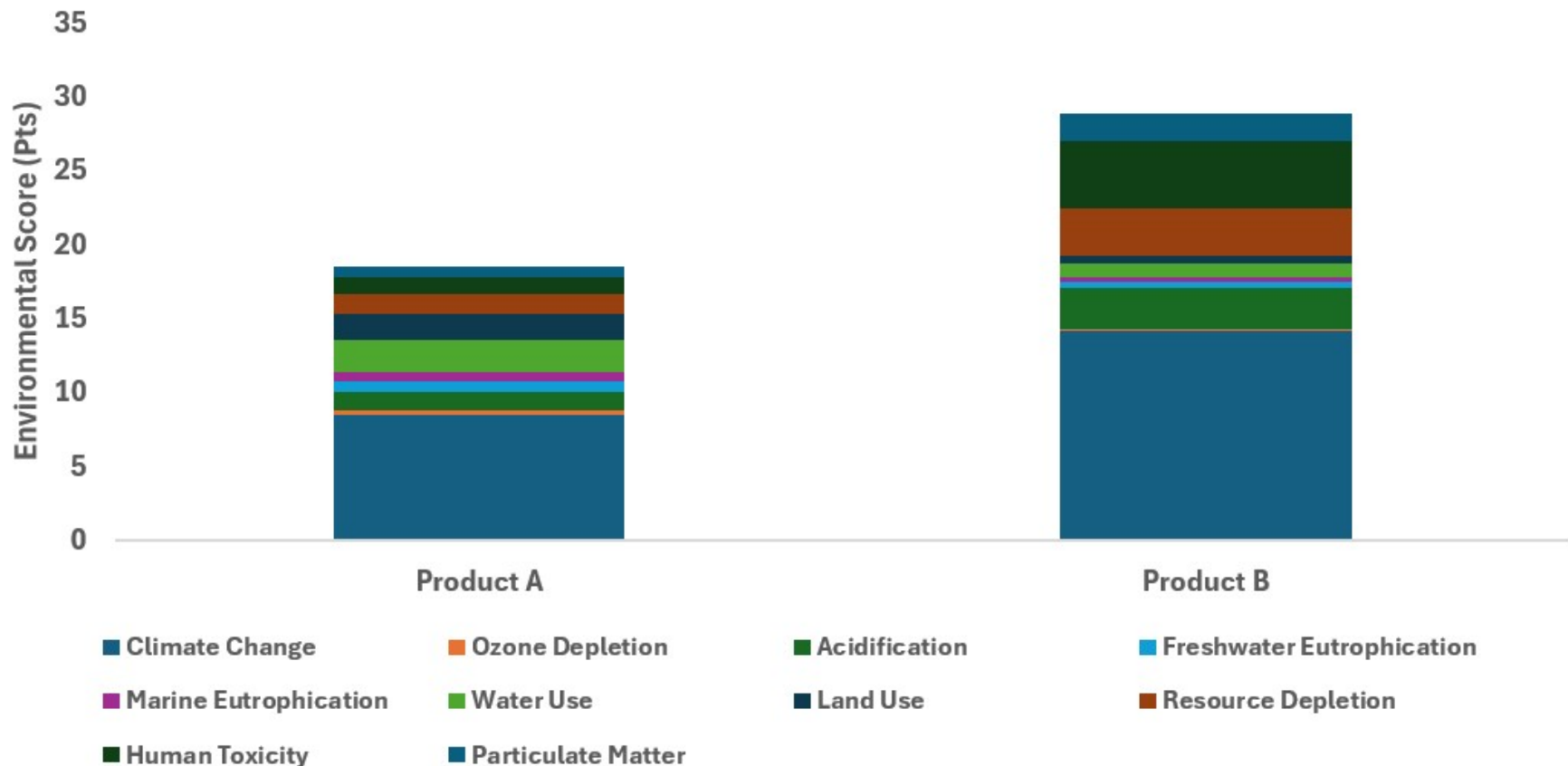
Impact Category	Unit
Climate Change	kg CO ₂ e
Water Use	m ³
Acidification	mol H ⁺ eq
Eutrophication	kg P eq or kg N eq
Ozone Depletion	kg CFC-11 eq
Resource Depletion	MJ or kg Sb eq
Toxicity	CTUh

There is no common currency. You cannot simply add these together without making subjective choices about their relative importance.

Weighting Into a Single Score: Ecopoints

One approach to multi-indicator comparison is to weight each impact category and aggregate them into a single environmental score, known as ecopoints or a single score method.

Product A vs B Weighted Score



Single Scores and Their Limitations



- Weighting aggregates all indicators into a single score (Pt), but the weightings applied are **inherently subjective**, and different schemes can produce different winners.



- ISO 14040/14044 **explicitly prohibits single-score weighting** in comparative assertions intended for public communication.



- A credible multi-indicator comparison requires a **detailed, fully scoped LCA** with consistent methodology and appropriate assurance.



Improving Credibility Through Assurance

Why Assurance Matters



Objective

To improve the **credibility, robustness and defensibility** of environmental claims through **independent review**.



Complexity

Environmental studies often involve **complex assumptions, datasets and methodological choices** that are not always visible to external audiences.



Risk

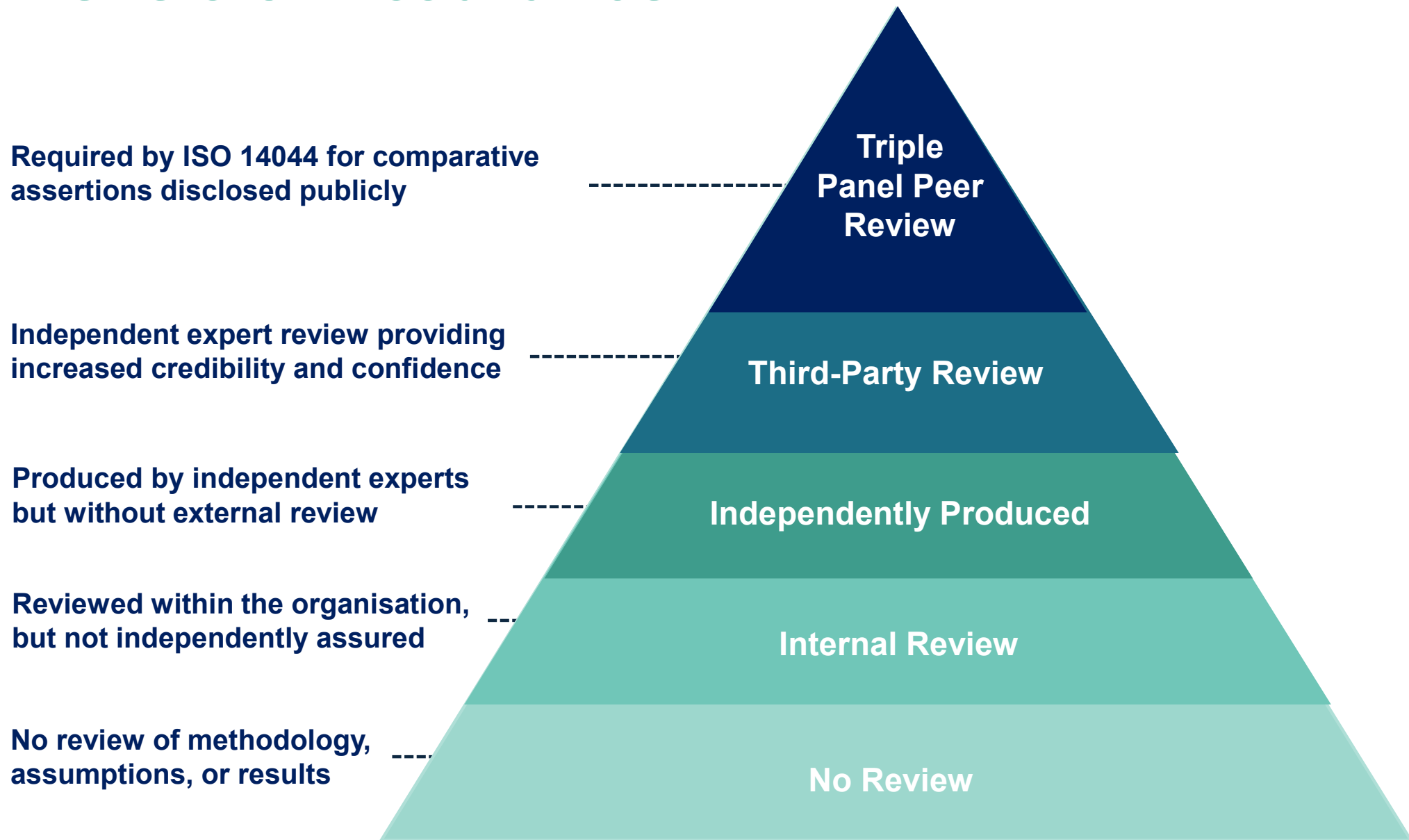
Errors, inconsistencies, or inappropriate assumptions may go unnoticed without independent scrutiny, leading to **misleading or non-comparable** claims.



Impact

Weakly assured claims can create **reputational, commercial and regulatory risk**, while robust assurance increases confidence from clients, procurement bodies and wider stakeholders.

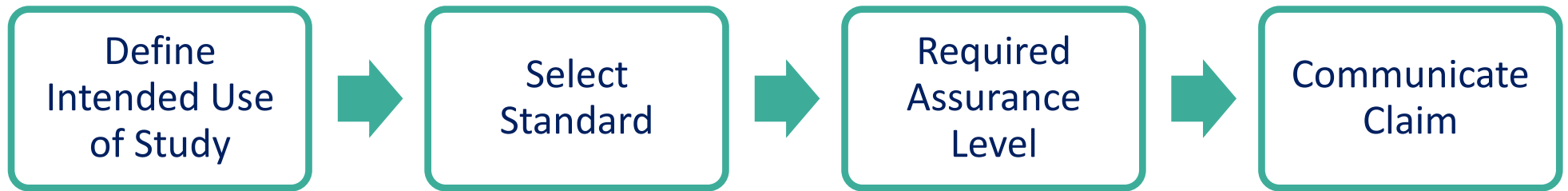
Levels of Assurance



Hierarchy of Assurance Level

*relative to organisation making the claim

Assurance Must Be Considered Early



- The intended use of the study should determine the assurance approach **before work begins**
- Assurance expectations influence **methodology, data quality, transparency and documentation** from the outset
- Comparative public claims require a **triple panel peer review**



Communicating Environmental Reductions Responsibly

Slide 31

CJ1

Handover slide

Craig Jones, 2026-06-10T09:47:39.534

Why is Effective Communication Important?

Environmental claims are increasingly expected to be evidence-based, transparent, and capable of withstanding regulatory and public challenge.



Regulation: DEFRA Green Claims Code and the emerging EU Green Claims Directive are increasing expectations around substantiation, transparency and evidence.



Market Pressure: Clients, procurement frameworks and investors increasingly expect verified environmental data rather than broad sustainability statements.



Public Scrutiny: Environmental claims are now routinely challenged by NGOs, media, competitors and consumers.

Environmental claims are moving beyond marketing language and toward evidence-backed technical communication.

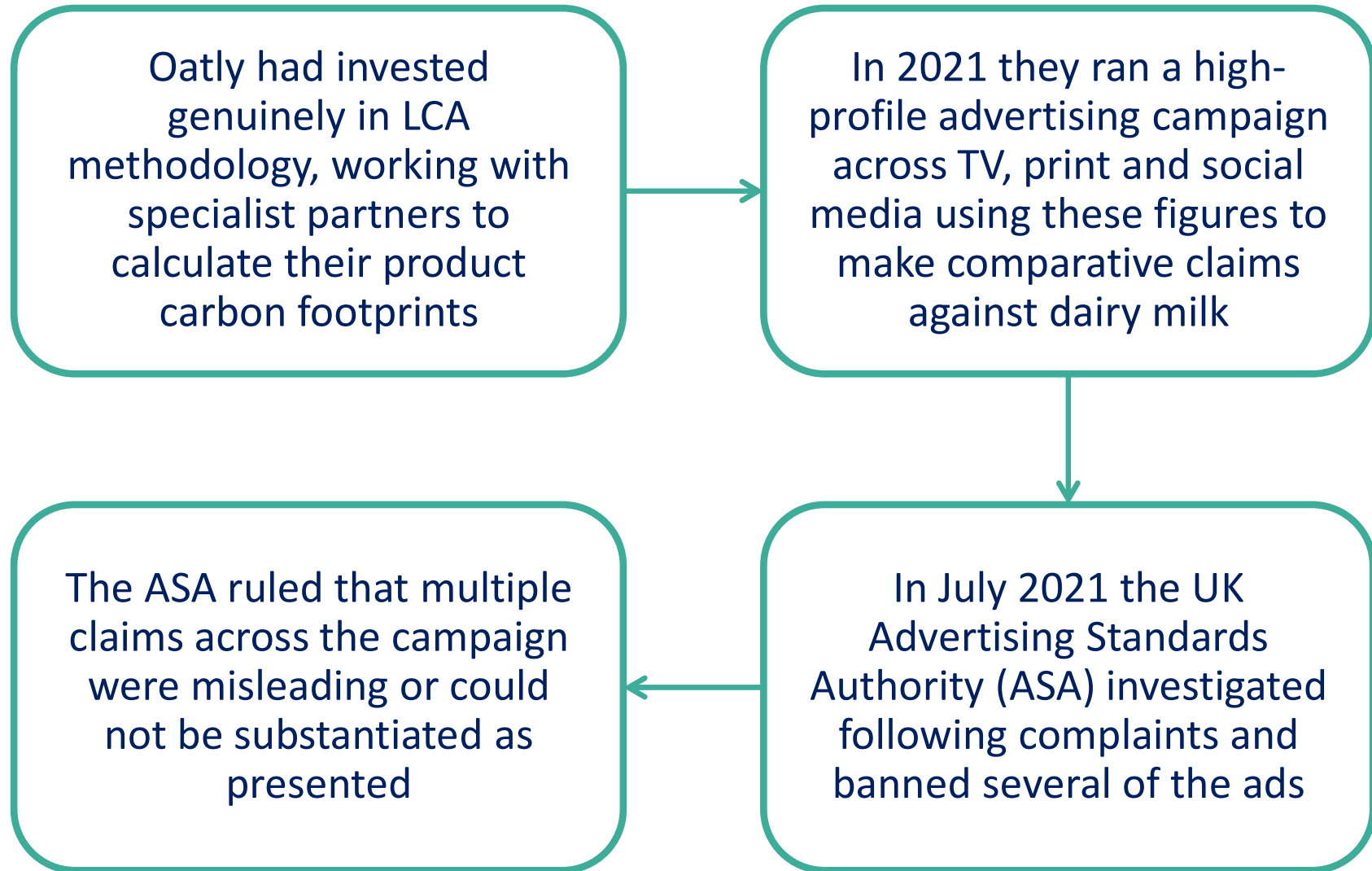
When Communication Goes Wrong

Consider the following claims made by Oatly, a plant-based milk producer, in 2021:

“Oatly generates 73% less CO₂e vs. milk, calculated from grower to grocer”

“The dairy and meat industries emit more CO₂e than all the world's planes, trains, cars, boats etc., combined”

What Happened



What Went Wrong?

- 1. Limited System Boundary:** Cradle-to-grocer excluded consumer use and end-of-life; a full cradle-to-grave scope would be expected for a broad public claim
- 2. Claim broader than the evidence:** The study compared a specific Oatly product to a specific type of milk, but advertising implied it applied to all Oatly and all dairy
- 3. Comparisons Were Not Like-for-Like:** Food system and transport emissions were compared using different methodologies and boundaries
- 4. The Communication Simplified Scientific Uncertainty:** Nuanced findings were presented as clear-cut conclusions, obscuring the limitations behind the figures

How Could It Be Improved?

Use Appropriate System Boundaries

- Broad public comparisons should use a full cradle-to-grave boundary and clearly state any exclusions that apply to the study

Ensure Claims Reflect the Evidence

- The wording of any claim, including how it is presented in marketing materials, should accurately reflect the scope, comparator and scenario that was assessed

Communicate the Limitations of the Study

- Every study has boundaries and assumptions and claims should acknowledge these rather than presenting findings as absolute conclusions

Consider Further Assurance Level

- Independent review significantly strengthens the credibility of any public facing environmental claim and reduces the risk of challenge



Where to Start Your Journey

Where to Start

Define the Purpose:

What are you trying to communicate? Who is it for?



Select Methodology:

PCF or Full LCA? Which Standard?



Determine Assurance:

Internal review, third-party or triple panel?



Assess Resources & Capability:

Do you have the in-house expertise and capacity, or the budget to bring in external support?

What to Consider

Internal or Limited-Scope Studies:

- PCFs and internal LCAs can often be completed more **quickly and at lower cost**
- These studies can still provide valuable insights for **hotspot analysis, procurement and internal decision-making**
- They are **not suitable** as the basis for public-facing environmental claims and any external communication based on these studies should be approached with caution

Public Comparative Claims:

- Full comparative LCAs with triple-panel peer review are **detailed projects**
- Typical timelines can range from **6-9 months** from initiation to assured outputs
- The full process, including study production and triple-panel peer review, represents a **five-figure investment**

Communication, Assurance and Support

Communication & Assurance:

- The wording of claims should accurately reflect the **scope and strength** of the underlying evidence
- Independent consultants can help improve the **credibility and rigour** of both the study and any claims derived from it
- Strong communication and assurance is not just good practice, it protects **organisations from challenge**

Working with Experts:

- As studies increase in complexity and public visibility, **specialist expertise becomes essential**
- This might mean **commissioning an expert** to produce the study, having an independent party assure it, or both
- Circular Ecology works with organisations across all of these stages, feel free to **get in touch** if you would like to discuss your needs



Summary

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Next Webinars

Next Webinar:

- The ICE Database: Status Update & Upcoming Changes – Thursday 2nd July

Watch our 2026 webinars on-demand on our website:

- Carbon Reduction Plans: PPN 006 & NHS Net Zero Supplier Roadmap
- An Overview of Carbon Neutrality: Measure, Manage, Offset, Improve
- Whole Life Carbon Assessments of Buildings: What You Need to Know
- An Introduction to Bespoke Carbon Datasets

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- Website - circularecology.com
- LinkedIn - [linkedin.com/company/circular-ecology](https://www.linkedin.com/company/circular-ecology)

Q&A

Please use the Q&A interface to ask any questions....

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