

Product Carbon Footprinting: Assessment, standard development and application

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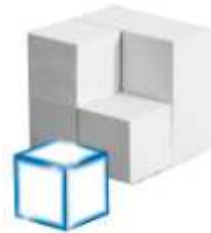
The Carbon Trust



- Established by the UK government as independent, not-for-dividend company
- We help organisations reduce carbon emissions and develop low carbon technologies



Insights



Solutions



Innovations



Enterprises



Investments

Last year we:

- Worked with >5,000 companies
- Identified savings of 4.6 million tCO₂ per year worth £500million

Agenda



- Global emissions and emissions assessment
- PAS 2050: Development
- The benefits of a single standard
- Next steps: International
- Working with companies

Global GHG emissions and emissions assessment



- Current international discussion centres around a *production* view of emissions
 - Global emissions are sum of emissions **produced** by all countries
 - The Kyoto Protocol focuses on emissions **produced** inside national borders
 - In Europe, the EU Emissions Trading Scheme seeks to cap the **production** of CO₂ emissions within Europe
 - similar for J-VETS in Japan, and CPRS in Australia

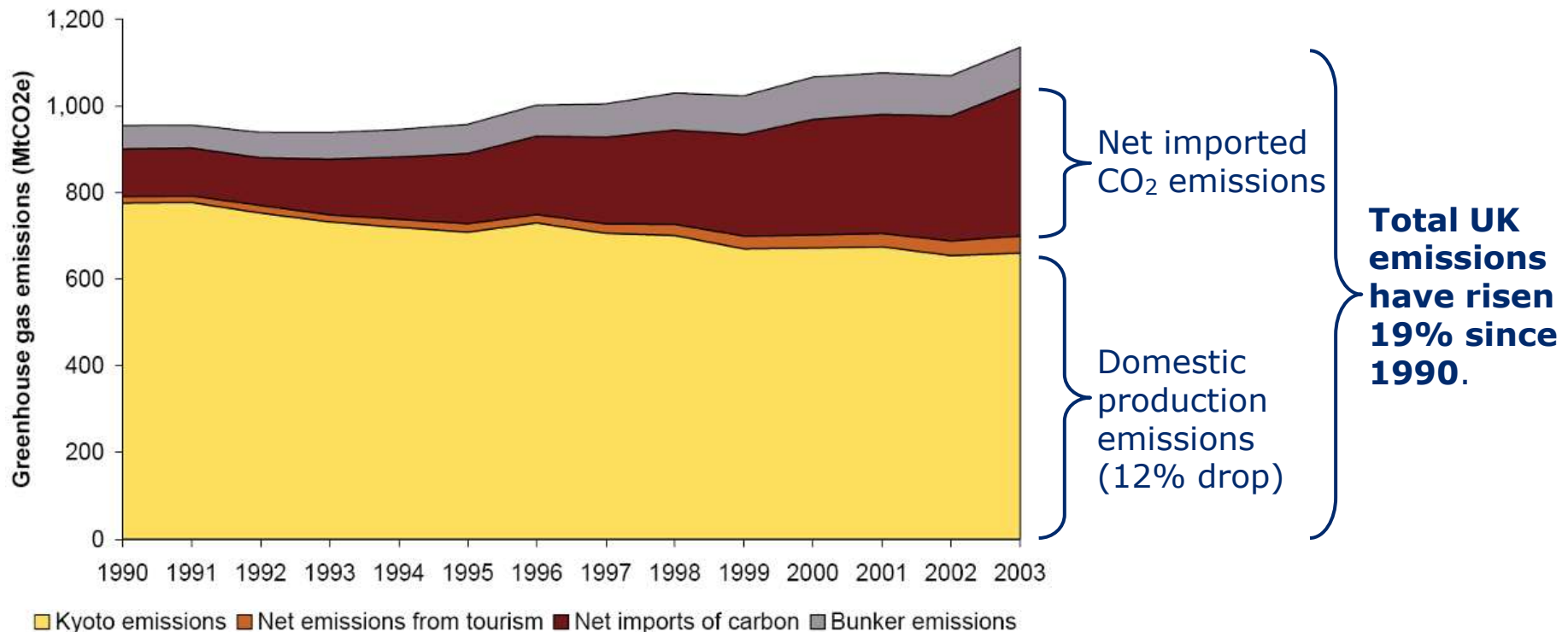
- By establishing a “cost of carbon” on GHG emissions arising from *production* within a country:
 - Consumption of domestic production will have a cost of carbon included
 - Consumption of foreign production will not be affected by a carbon cost

- However, a “cost of carbon” may also result in perverse outcomes:
 - The relocation of emissions intensive industries outside of carbon-valuation zones such as the EU ETS (“leakage”)
 - Relocation of industry may have competitive, economic and security impacts
 - Total global emissions may *increase*
 - Poorer regulation in leakage countries; and
 - Potential overall increase in consumption through lower prices in importing countries
 - Leakage may result in the *appearance* of GHG emission reductions

Production, consumption and emissions assessment in the UK



- When measured on a domestic **production** basis, UK emissions **appear** to have fallen
 - However, on a domestic consumption basis, emissions have risen



Source: Helm, Smale & Phillips (2007) – Too good to be true; the UK's climate change record

Emissions assessment and supply chain carbon footprinting (I)

- Emissions have the same impact on the atmosphere, irrespective of country of origin
 - However, a production view of GHG emissions can be very deceptive for both net producer, and net consumer, countries

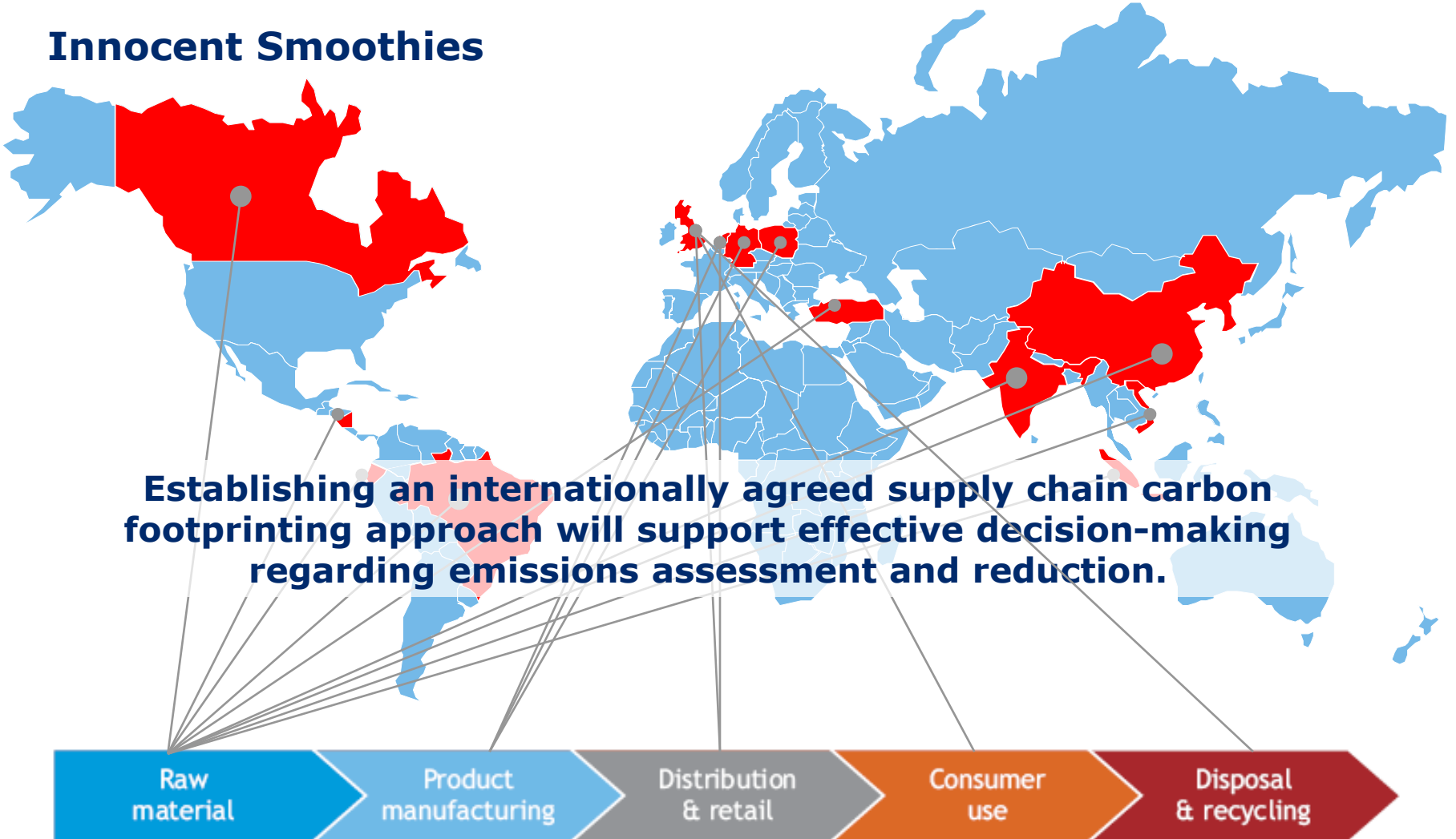
- Supply chain carbon footprinting addresses this issue
 - Whole of life cycle assessment
 - All emissions, irrespective of
 - Country of origin
 - Country of use
 - Country of end-of-life

- Supply chains are complex, and the products arising from them are often the result of inputs from many countries.
 - Supply chain carbon assessment takes a *consumption* view of emissions, including emissions from the whole life cycle.

Emissions assessment and supply chain carbon footprinting (II)



Innocent Smoothies



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How we went about it

Standards setting



- Method for assessment
 - PAS 2050
- Supporting documentation
 - Code of good practice
 - Guide to PAS 2050
 - Business Case

Carbon Trust Insights

Company engagement



- Product footprinting
- Comparability & Certification
- Reduction planning
- Communication (including Carbon Reduction Label)

Carbon Label Company

PAS 2050: 2008

Background and development (I)



PAS 2050: Specification for the assessment of the life cycle greenhouse gas emissions of goods and services

- Provides an agreed method of assessing product GHG emissions
 - Common approach to supply chain carbon assessment
 - Links to existing (ISO14040-44, 14064 & 14025) standards, IPCC, etc

- PAS 2050 was co-sponsored by the Carbon Trust (author) and the UK Department for Environment, Food and Rural Affairs (Defra)
 - A Steering Group was established (decision-making authority); workgroups established
 - The Carbon Trust and Defra had joint sign-off; BSI was the project manager

- The Carbon Trust supported additional activities aimed at consistency
 - Code of Good Practice for Reduction and Communication
 - Further guidance for reduction (eg force majeure & banking) and communication (eg rounding)
 - Guidance for PAS implementation (with BSI and Defra)
 - Aimed at the non-expert; Facilitates implementation of the PAS

- The Carbon Trust is sponsoring a pilot accreditation for six verifiers through UKAS.

PAS 2050: 2008

Background and development (II)



- Background work by the Carbon Trust
 - Publication on consumption and emissions in 2006
 - First draft method launched in March 2007

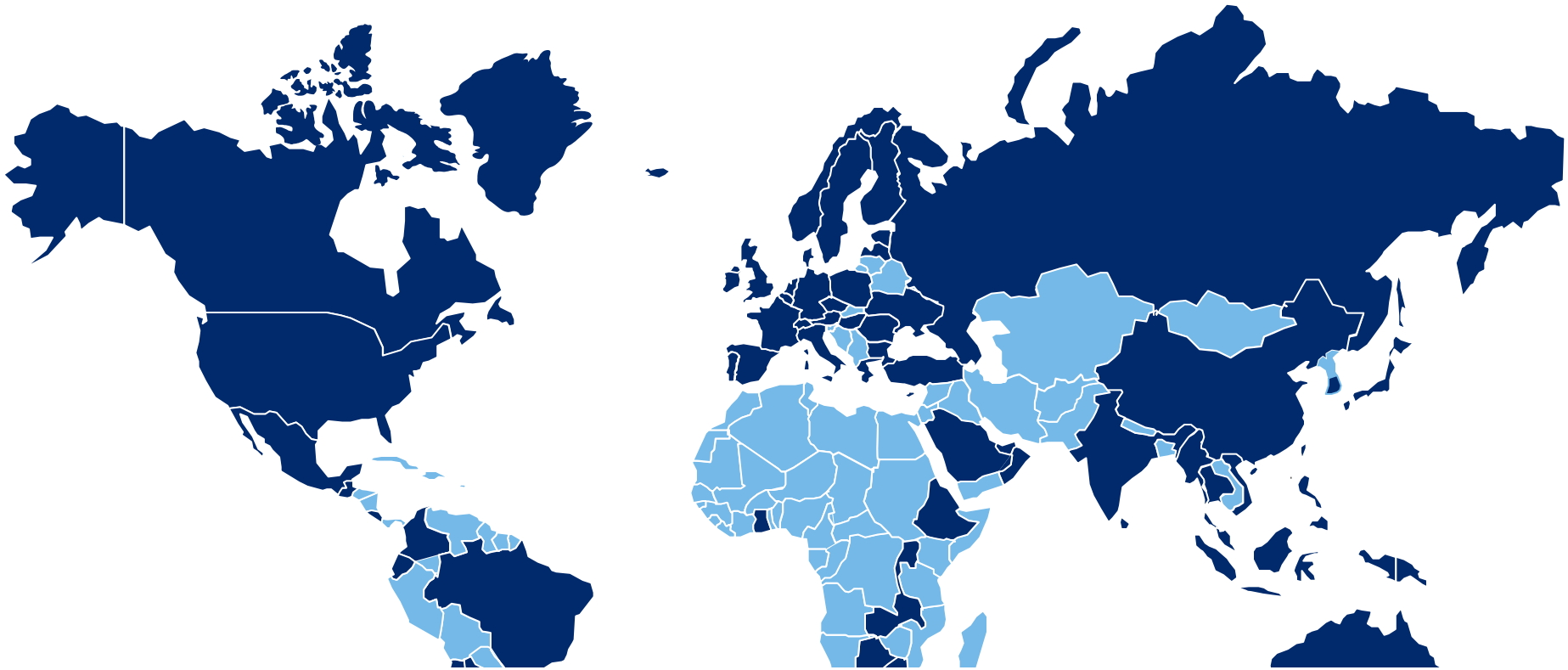
- Relationship with Defra & BSI to develop PAS 2050 established June 2007

- Series of workgroups established (e.g. data, agriculture, services, etc)

- Key stakeholder and review panel consultation:
 - September-October '07: 1st Consultation
 - Around 180 participants (academic, business, government, NGO, etc)
 - International engagement
 - February-March '08: 2nd Consultation
 - Around 980 participants (Similar spread of sectors)
 - Greater international engagement, including key experts

- Three rounds of pilot partners that represent a wide range of products
 - Worked with ~20 companies trialling the implementation of draft PAS 2050 methods
 - Provide feedback on practicality of implementing PAS 2050

Overall international exposure (consultation, download and supply chain)



PAS 2050 received input and experience from over 40 countries, across six continents, during its development.

**PAS 2050 has been downloaded over 15,000 times in over 110 countries.
(Direct downloads only; does not include informal distribution: to August 2009)**

Reduction & Communication Guidance



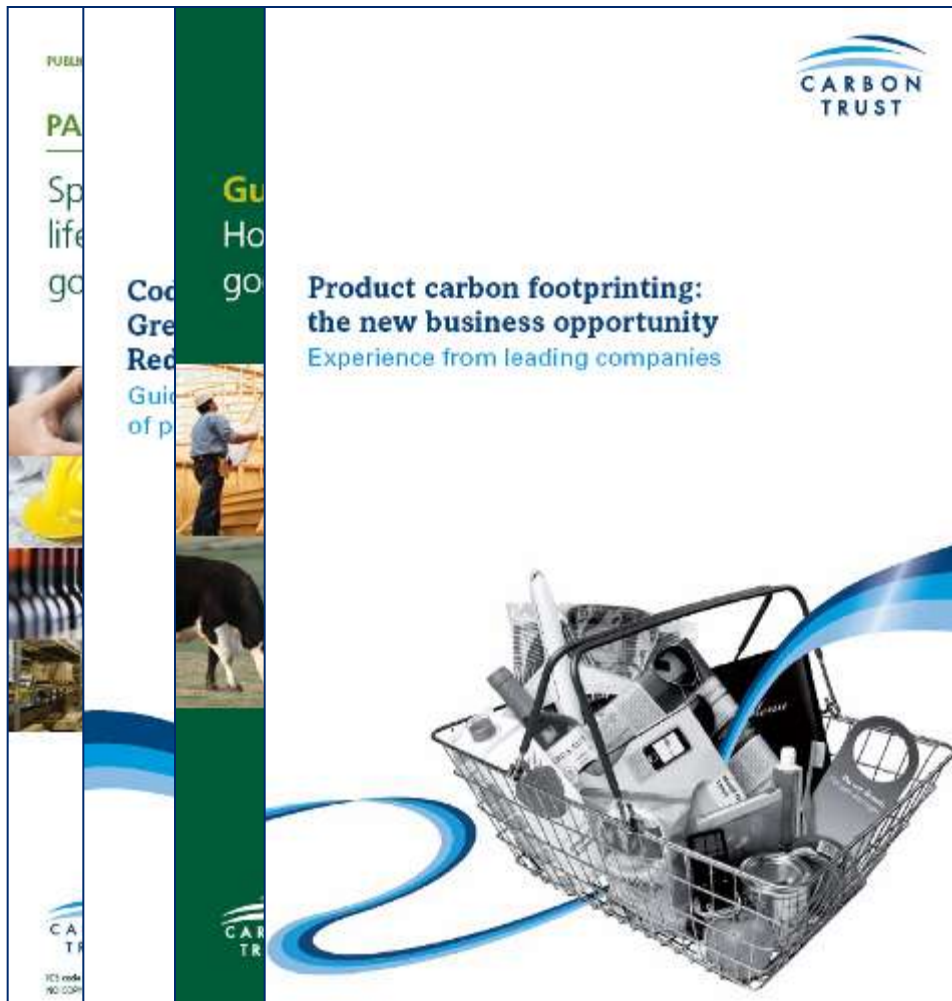
- Development of Code of Best Practice for Reduction and Communication
 - Developed to promote further consistency in carbon footprinting
 - Details reporting requirements and viable claims
 - Requirements for demonstrating reduction over time, including banking

- What does a meaningful carbon footprint reduction look like?
 - Absolute targets: XgCO₂e or X%
 - Business systems & management

- How should the information be communicated?
 - Where?: On pack, point of sale, website, annual report, other..
 - What?: Current footprint, historical reduction, intent to reduce, other..
 - How?: numbers, rounded numbers, traffic lights, A-G, ...

- Guidance for PAS implementation
 - Aimed at the non-expert; Facilitates implementation of the PAS

Standards and supporting information



- PAS 2050: Product carbon footprint measurement standard
- Carbon Trust Code of Good Practice for Product GHG Emission and Reduction Claims: Guidance for communicating carbon footprint results, and for setting and assessing GHG reductions over time
- PAS Guide: Implementation of PAS 2050, written for non-experts
- Business Opportunity: Highlights our experience with carbon footprinting, including six case studies.

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The benefits of a single standard



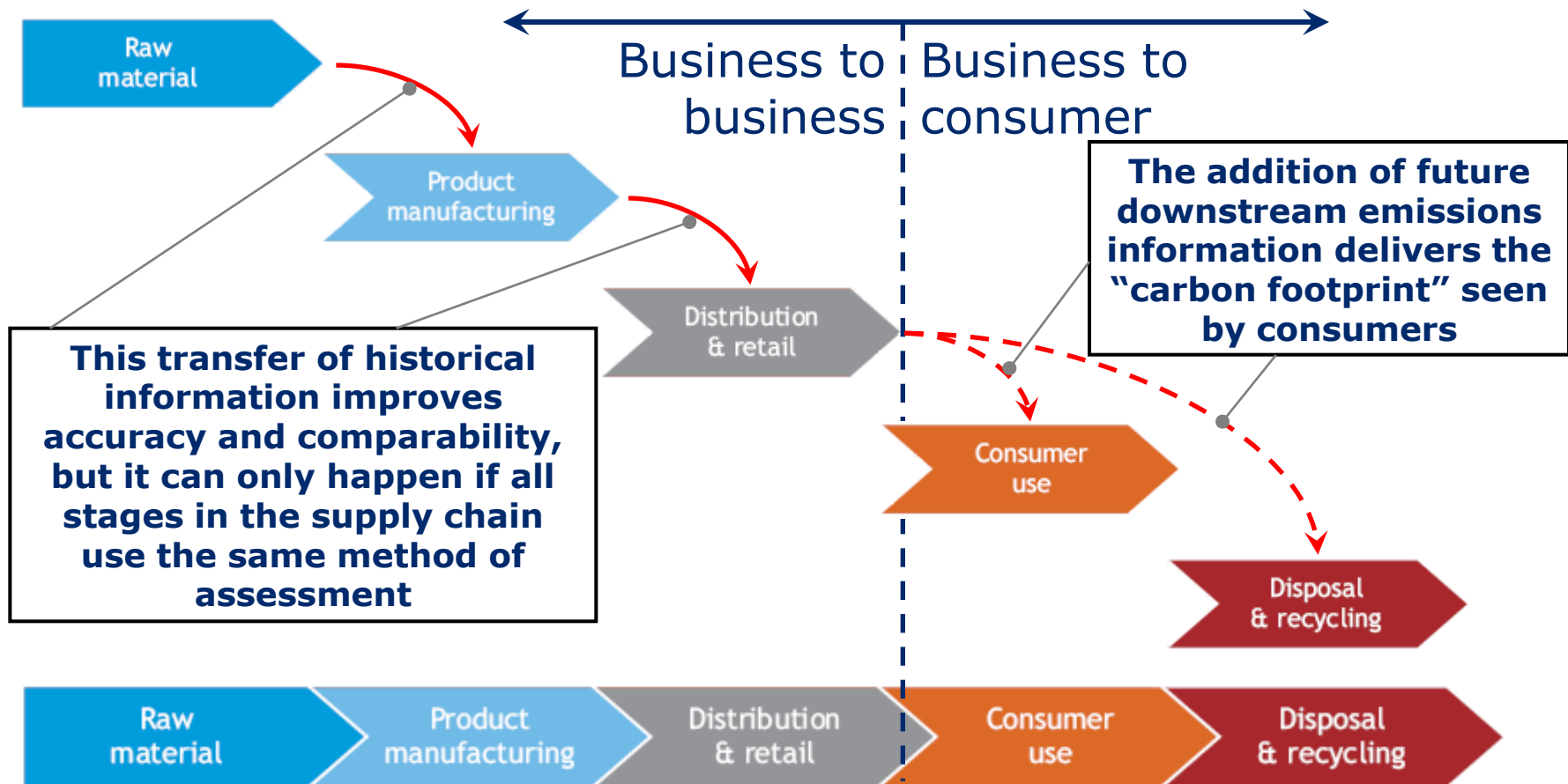
- Standardisation means common approaches to key questions in product GHG assessment. For example: which greenhouse gasses should be included?
 - This may appear trivial, but different decisions will fundamentally alter the results for similar products
 - Where results are disclosed publicly, such an approach would result in confusion

- Standardisation delivers benefits for organisations
 - Simplified implementation
 - Common assumptions and boundaries
 - Supports data transfer though the supply chain
 - Clearer understanding and improved comparability when publicly disclosed

- The beginnings of international harmonisation towards a common approach can already be seen
 - Innocent smoothies example
 - Chinese manufactured products sold in Europe
 - Multinational companies evaluating implementation
 - Other export-led countries looking for a single solution

Consistency simplifies information transfer and comparability

An internationally accepted method for assessment will support the transfer of information between businesses



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Existing approaches to product carbon footprinting

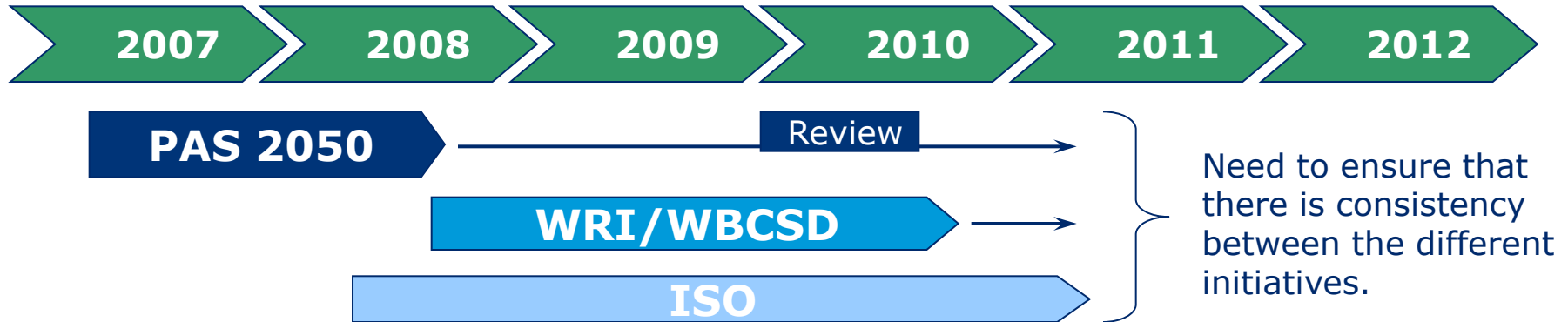


- Existing LCA standards (ISO 14040 and 14044) provide the starting point for supply chain carbon footprinting
 - Guidance on implementation of LCA
 - Adaptable approach

- However, there is recognition that these standards do not adequately address the needs of supply chain carbon footprinting
 - Further specification is required in key areas of greenhouse gas assessment
 - Consistency between results will be enhanced with clearer requirements
 - Allows for simplification of implementation (eg supply chain data transfer)

- There are three main initiatives currently being pursued in relation to supply chain carbon emissions
 - PAS 2050, the product carbon footprinting standard, has already been published
 - World Resources Institute is in the process of developing new standards/guidance
 - ISO has agreed to develop a new international standard

International standard development: Timing



- Differing time scales create the opportunity to ensure comparability
 - PAS 2050 published, and its review will co-inside with the completion of the World Resources Institute and World Business Council for Sustainable Development's (WRI/WBCSD) work
 - ISO process has the opportunity to incorporate the experience of both the PAS 2050 and WRI/WBCSD development processes, and the experience of companies implementing PAS 2050 in practice, in its drafting of a new standard.
- Other country-specific action taking place in Japan, New Zealand, France, etc

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Carbon Label Company

Companies have a menu of options



Measurement

- PAS2050 published in October: WRI & ISO
- UK & International projects (75 product types)
- "CT Footprint Expert" Starter Pack

Certification

- Independent certification using PAS, Templates, Comparability Rules & Data & Calculators
- Separate team gives impartial decision

Reduction

- Support advice using models (e.g. Innocent)
- Baselineing: Showing reductions over time (when other things are changing too e.g. PAS & data)

Communication

- Range of options and channels
- Use of the Carbon Reduction Label
Assurance: independent & authoritative body
Public commitment to reduction
- Marketing & Awareness

External communications of carbon footprints



reducing with
the Carbon Trust



We have committed to
reduce the carbon footprint
of this product

carbon-label.com

On Pack



Point of
Sale



Brochure /
Consumer
Education



Transforming Britain's Landscapes



CONTINENTAL®

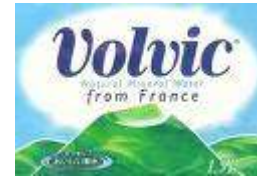
Website



CSR Report
or Press



We have developed comparable carbon footprints in many different industries



Transforming Britain's Landscapes



PepsiCo and Walkers Product Footprinting & Labeling Project



Products Analyzed:

- Walkers Crisps (Potato Chips) and Tropicana Orange Juice
- Plans to analyze other brands (Quaker)

Walkers' Carbon Results & Opportunities Identified:

- Majority of carbon footprint outside of operational control (in raw materials production).
 - Led Walkers to work across supply chain with suppliers to reduce footprint.
- Focused reduction efforts on manufacturing.
 - Reduced energy use per kg chips by 33% from 2000-2007.
- As an early adopter, became first company to carry Carbon Reduction Label in 2007.

Key Outcomes for Walkers:

- Product labeling exercise helped Walkers and suppliers identify ways to reduce their carbon footprint – and achieve operational efficiencies along the way.
- Walkers cut carbon footprint of potato crisps by 7% which resulted in savings of **\$600K**
- Labeling has had positive consumer impact: 10% increase in positive reaction to label; 44% of consumers reacted more positively to the company due to label.



Tesco Product Footprinting & Labeling Project



Products Analyzed:

- 20 different consumer products in four categories: Potatoes, Light Bulbs, Detergents, and Orange Juice

Carbon Results and Opportunities Identified:

- Laundry Example: 80% of carbon emissions occur during the use phase of product life cycle.
 - Educate consumers on their role in carbon footprint—washing in cold water reduces carbon footprint, lowers electricity costs, and saves money.
 - Work with suppliers to provide effective cold-water detergents.
 - Concentrated liquid detergent had a smaller carbon footprint (600g CO₂e per wash) than washing powder or tablets (850g CO₂e per wash)

Key Outcomes for Tesco:

- Helped Tesco and its suppliers identify ways to reduce their carbon footprint – and achieve operational efficiencies.
- Identified and creatively communicated ways for consumers to reduce their carbon footprint and save money.
- As a “first mover” in the carbon labeling market, Tesco seen as a leader in environmental responsibility.



Continental Clothing Product Footprinting & Labeling Project



Products Analyzed:

- "Earth Positive" Clothing Line

Carbon Results and Opportunities Identified:

- Cotton farming contributed to largest carbon impact across the product life cycle.
- Using renewable energy in farming and spinning reduced CO₂ emissions by 90%.
- Identified carbon reduction strategies for processes within spinning, water treatment, dyeing, and finishing, to reduce footprint by an additional 15-20%.

Key Outcomes for Continental:

- Carbon label adds credibility to company's existing sustainability efforts.
- Label gives certified footprint up to point of delivery - makes it easier for customers to conduct their own labeling efforts for finished products.
- As first B2B company to pursue product labeling, have first mover advantage in market.



working with
the Carbon Trust



We have committed
to reduce this
carbon footprint

The carbon footprint of this product is **2.8kg**. This is the total carbon dioxide (CO₂) and other greenhouse gases emitted from the raw materials, production and transport to the UK

This compares to the carbon footprint of an identical product manufactured without the use of renewable electricity which is **28kg** per garment



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