This technical report summarises research undertaken on the environmental footprinting methodologies used by UK business sectors. Over 80 companies completed a stakeholder survey covering which and how many methodologies are used, and what are their costs and benefits. The evidence collected will be used to inform Defra policy at UK and European level.

For Defra, March 2015
UK Assessment of Footprinting Methods
Project ID EV0552

Written by: Peter Willis, Dan Skinner and Adrian Chapman
Final check by: Katie Deegan
Approved by: Paul Vaughan and David Fitzsimons
Date: 3rd March 2015
Contact: peter.willis@oakdenehollins.co.uk
Reference: DEFR01 372 Final Technical Reportv2.docx

Disclaimer:
This disclaimer, together with any limitations specified in the report, applies to use of this report. This report was prepared in accordance with the contracted scope of services for the specific purpose stated and subject to the applicable cost, time and other constraints. In preparing this report, Oakdene Hollins Ltd relied on (1) client/third party information which was not verified by Oakdene Hollins except to the extent required in the scope of services (and Oakdene Hollins does not accept responsibility for omissions or inaccuracies in the client/third party information) and (2) information taken at or under the particular times and conditions specified (and Oakdene Hollins does not accept responsibility for any subsequent changes). This report has been prepared solely for use by and is confidential to the client, and Oakdene Hollins accepts no responsibility for its use by other persons. This report is subject to copyright protection and the copyright owner reserves its rights. This report does not constitute legal advice.

Oakdene Hollins is certified to ISO 9001:2008 and ISO 14001:2004

We print our reports on Ecolabel / recycled paper
Contents

1 Executive Summary ........................................................................................................... 1
2 Conclusions and Recommendations .................................................................................. 4
3 Introduction ......................................................................................................................... 6
  3.1 Aims, Objectives and Scope .......................................................................................... 6
  3.2 Policy and Research Context ......................................................................................... 7
  3.3 Development of Harmonised Methodologies ............................................................... 11
4 Research Methodology ...................................................................................................... 17
5 Survey Participation .......................................................................................................... 20
  5.1 Sector participation ...................................................................................................... 20
  5.2 Company size ............................................................................................................... 21
  5.3 Operations .................................................................................................................... 22
6 Headline Survey Results .................................................................................................... 23
  6.1 Footprinting – Level of Uptake ..................................................................................... 23
  6.2 Costs and Benefits of Footprinting .............................................................................. 37
  6.3 General Comments ...................................................................................................... 50
7 Survey Results by Sector .................................................................................................... 54
  7.1 Footprinting – Level of Uptake ..................................................................................... 55
  7.2 Costs and Benefits of Footprinting .............................................................................. 60
Annexe A: Industry Survey Template .................................................................................... 64
Annexe B: Exploratory Literature Review ............................................................................ 84
Annexe C: Workshop Agenda and Invitation ....................................................................... 106

Contents amendment record

This report has been amended and issued as follows:

<table>
<thead>
<tr>
<th>Version</th>
<th>Date</th>
<th>Description</th>
<th>Authors</th>
<th>Editor</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>21/03/14</td>
<td>First Interim Report</td>
<td>DS/PW</td>
<td>DF</td>
</tr>
<tr>
<td>2</td>
<td>23/05/14</td>
<td>Second Interim Report</td>
<td>DS</td>
<td>DF</td>
</tr>
<tr>
<td>3</td>
<td>04/07/14</td>
<td>Third Interim Report</td>
<td>DS</td>
<td>PV</td>
</tr>
<tr>
<td>4</td>
<td>13/10/14</td>
<td>Draft Technical Report (1)</td>
<td>PW/D5</td>
<td>PV</td>
</tr>
<tr>
<td>5</td>
<td>18/12/14</td>
<td>Draft Technical Report (2)</td>
<td>PW/AC</td>
<td>PV/DF</td>
</tr>
<tr>
<td>6</td>
<td>31/01/15</td>
<td>Revised Technical Report</td>
<td>PW</td>
<td>DF</td>
</tr>
<tr>
<td>7</td>
<td>04/02/15</td>
<td>Final Technical Report</td>
<td>PW</td>
<td>DF</td>
</tr>
<tr>
<td>8</td>
<td>25/02/15</td>
<td>Final Technical Report v2</td>
<td>PW</td>
<td>PV</td>
</tr>
<tr>
<td>9</td>
<td>03/03/15</td>
<td>Final Technical Report v3</td>
<td>PW</td>
<td>PV</td>
</tr>
</tbody>
</table>
# Glossary of Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACEA</td>
<td>European Automobile Manufacturers Association</td>
</tr>
<tr>
<td>ADEME</td>
<td>the French Environment and Energy Management Agency</td>
</tr>
<tr>
<td>AFNOR</td>
<td>the French Standardisation Organisation</td>
</tr>
<tr>
<td>ASBCI</td>
<td>Association of Suppliers to the British Clothing Industry</td>
</tr>
<tr>
<td>B2B</td>
<td>business to business</td>
</tr>
<tr>
<td>B2C</td>
<td>business to customer</td>
</tr>
<tr>
<td>BATA</td>
<td>British Air Transport Association</td>
</tr>
<tr>
<td>BBA</td>
<td>British Bankers’ Association</td>
</tr>
<tr>
<td>BHA</td>
<td>British Hospitality Association</td>
</tr>
<tr>
<td>BHETA</td>
<td>British Home Enhancement Trade Association</td>
</tr>
<tr>
<td>BIS</td>
<td>UK Government Department for Business Innovation and Skills</td>
</tr>
<tr>
<td>BRE</td>
<td>Building Research Establishment</td>
</tr>
<tr>
<td>BREEAM</td>
<td>Building Research Establishment Environmental Assessment Method</td>
</tr>
<tr>
<td>BSA</td>
<td>Building Society Association</td>
</tr>
<tr>
<td>CCA</td>
<td>Climate Change Agreement</td>
</tr>
<tr>
<td>CDP</td>
<td>Carbon Disclosure Project</td>
</tr>
<tr>
<td>CEMARS</td>
<td>Certified Emissions Measurement and Reduction Scheme</td>
</tr>
<tr>
<td>CEN</td>
<td>European Committee for Standardization</td>
</tr>
<tr>
<td>CO₂</td>
<td>carbon dioxide</td>
</tr>
<tr>
<td>CSA</td>
<td>Corporate Sustainability Assessment</td>
</tr>
<tr>
<td>CTPA</td>
<td>Cosmetic Toiletry &amp; Perfumery Association</td>
</tr>
<tr>
<td>Defra</td>
<td>UK Government Department for Environment, Food and Rural Affairs</td>
</tr>
<tr>
<td>DG ENV</td>
<td>European Commission Directorate-General for the Environment</td>
</tr>
<tr>
<td>EC</td>
<td>European Commission</td>
</tr>
<tr>
<td>EDRA</td>
<td>European DIY-Retail Association</td>
</tr>
<tr>
<td>EPD</td>
<td>Environmental Product Declaration</td>
</tr>
<tr>
<td>EP&amp;L</td>
<td>Environmental Profit and Loss</td>
</tr>
<tr>
<td>ETSI</td>
<td>European Telecommunications Standards Institute</td>
</tr>
<tr>
<td>EU</td>
<td>European Union</td>
</tr>
<tr>
<td>EUA</td>
<td>Energy and Utilities Alliance</td>
</tr>
<tr>
<td>EMAS</td>
<td>European Eco-Management and Audit Scheme</td>
</tr>
<tr>
<td>EU ETS</td>
<td>EU Emissions Trading System</td>
</tr>
<tr>
<td>FDF</td>
<td>Food and Drink Federation</td>
</tr>
<tr>
<td>GDP</td>
<td>gross domestic product</td>
</tr>
<tr>
<td>GHG</td>
<td>greenhouse gas</td>
</tr>
<tr>
<td>ICT</td>
<td>information and communication technology</td>
</tr>
<tr>
<td>ILCD</td>
<td>International Reference Life Cycle Data System</td>
</tr>
</tbody>
</table>
ISO International Standards Organization
ITU International Telecommunication Union
JRC-IES Joint Research Council Institute for Environment and Sustainability
KPI key performance indicator
LCA lifecycle assessment
LCEB low carbon emission buses
LWG Leather Working Group
OEF Organisation Environmental Footprint
OEFSR Organisation Environmental Footprint Sector Rules
NFU National Farmers Union
PAS Publicly Available Specification
PCRs Product Category Rules
PEF Product Environmental Footprint
PEFCR Product Environmental Footprint Category Rules
ROC Renewables Obligation Certificate
SAC Sustainable Apparel Coalition
SAP Standard Assessment Procedure
SME small to medium sized enterprise
UKFT UK Fashion and Textile Association
WRAP Waste & Resources Action Programme

**Units**

Conventional SI units and prefixes used throughout: {k, kilo, 1,000} {M, mega, 1,000,000} {G, giga, $10^9$} {kg, kilogramme, unit mass} {t, metric tonne, 1,000 kg}
Acknowledgements

Government Stakeholders

We would like to thank the efforts of the steering committee at Defra, namely Ruth Coward, Sue Proudman, Lee Davies, Clare Southworth, John Walsh and Adam Lavis; Peter Cottrell (BIS) and Keith James (WRAP) for their organisation, contributions at the stakeholder workshop and feedback on the draft reports.

Industry Stakeholders

We would like to thank the large number of industry stakeholders who have generously participated in this project. The list below includes those organisations that participated in the industry survey or attended the stakeholder workshop:

<table>
<thead>
<tr>
<th>Company</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 Sisters Food Group</td>
<td>Andrew Edlin</td>
</tr>
<tr>
<td>Abaca</td>
<td>Rhiannon Rowley</td>
</tr>
<tr>
<td>Adnams</td>
<td>Benedict Orchard</td>
</tr>
<tr>
<td>Advanced Supply Chain</td>
<td>Caroline Ellis</td>
</tr>
<tr>
<td>Alcatel Lucent</td>
<td>Tom Okrasinski</td>
</tr>
<tr>
<td>AMD</td>
<td>Donna Sadowy</td>
</tr>
<tr>
<td>BAE Systems</td>
<td>Scott Goldsbridge</td>
</tr>
<tr>
<td>BAE Systems</td>
<td>Bill Walby</td>
</tr>
<tr>
<td>BAE Systems Maritime</td>
<td>Jayne Rogers</td>
</tr>
<tr>
<td>Bag it Up</td>
<td>Mark Gray</td>
</tr>
<tr>
<td>BASF</td>
<td>Geoff Mackey</td>
</tr>
<tr>
<td>Bath Building Society</td>
<td>Steve Carpenter</td>
</tr>
<tr>
<td>Becketts Foods</td>
<td>Phil Shelley</td>
</tr>
<tr>
<td>Bettys &amp; Taylors</td>
<td>Jamie Hutchinson</td>
</tr>
<tr>
<td>BMB Clothing</td>
<td>Mark Lancaster</td>
</tr>
<tr>
<td>Boots</td>
<td>Andrew Jenkins</td>
</tr>
<tr>
<td>Bosch Lawn and Garden</td>
<td>Thomas Bomberg</td>
</tr>
<tr>
<td>Braskem</td>
<td>Onda Kabe</td>
</tr>
<tr>
<td>Braskem</td>
<td>Yuki Hamilton</td>
</tr>
<tr>
<td>Building Research Establishment (BRE)</td>
<td>Victoria Blake</td>
</tr>
<tr>
<td>Bristol Textile Recyclers</td>
<td>Haydn Piper</td>
</tr>
<tr>
<td>Bristol Water</td>
<td>Patric Bulmer</td>
</tr>
<tr>
<td>BT</td>
<td>Gabrielle Giner</td>
</tr>
<tr>
<td>Canon (UK)</td>
<td>Megan Welch</td>
</tr>
<tr>
<td>Carbon Trust</td>
<td>Andie Stephens</td>
</tr>
<tr>
<td>Carbon Trust</td>
<td>Martin Barrow</td>
</tr>
<tr>
<td>Company</td>
<td>Name</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>-----------------------</td>
</tr>
<tr>
<td>Carnival UK</td>
<td>Richard Catt</td>
</tr>
<tr>
<td>Carrington Career and Workwear</td>
<td>Sean Moore</td>
</tr>
<tr>
<td>Croda</td>
<td>Sarah Millns</td>
</tr>
<tr>
<td>Doosan Babcock</td>
<td>Lee Gardner</td>
</tr>
<tr>
<td>EDANA</td>
<td>Pierre Conrath</td>
</tr>
<tr>
<td>EDF Energy</td>
<td>Jon Foot</td>
</tr>
<tr>
<td>EE</td>
<td>John Ponter</td>
</tr>
<tr>
<td>Elddis Transport (Consett)</td>
<td>Nigel Cook</td>
</tr>
<tr>
<td>Emile’s Restaurant</td>
<td>Emil Fahmy</td>
</tr>
<tr>
<td>Energenics</td>
<td>Mike Attfield</td>
</tr>
<tr>
<td>Environmental Consultant</td>
<td>Nigel Youd</td>
</tr>
<tr>
<td>Ericsson AB</td>
<td>Pernilla Bergmark</td>
</tr>
<tr>
<td>F&amp;F</td>
<td>Dan Baker</td>
</tr>
<tr>
<td>Faiveley Transport</td>
<td>Kevin Smith</td>
</tr>
<tr>
<td>Fujitsu</td>
<td>Andy Lewis</td>
</tr>
<tr>
<td>H IRWIN</td>
<td>Anna Rountree</td>
</tr>
<tr>
<td>H&amp;M</td>
<td>Erik Karlsson</td>
</tr>
<tr>
<td>H.W. Hoffman &amp; Associates</td>
<td>Bill Hoffman</td>
</tr>
<tr>
<td>Heineken UK</td>
<td>Richard Naylor</td>
</tr>
<tr>
<td>Hewlett-Packard</td>
<td>Tom Etheridge</td>
</tr>
<tr>
<td>Hitachi</td>
<td>Grayson Dyas</td>
</tr>
<tr>
<td>Hunter Apparel Solutions</td>
<td>Eamon O’leary</td>
</tr>
<tr>
<td>IKEA Services</td>
<td>Per Stoltz</td>
</tr>
<tr>
<td>INEOS ChlorVinyls</td>
<td>Jason Leadbitter</td>
</tr>
<tr>
<td>Inghelhurst Foods</td>
<td>Mike Saltmarsh</td>
</tr>
<tr>
<td>Innocent Drinks</td>
<td>Louise Stevens</td>
</tr>
<tr>
<td>INVISTA</td>
<td>Francis Mason</td>
</tr>
<tr>
<td>INVISTA</td>
<td>Les Jacques</td>
</tr>
<tr>
<td>Jacobs UK</td>
<td>Mike Herbert</td>
</tr>
<tr>
<td>KBR FTX logistics</td>
<td>Robert Paul Kerry</td>
</tr>
<tr>
<td>LeanPath</td>
<td>Andrew Shakman</td>
</tr>
<tr>
<td>Marks and Spencer</td>
<td>Rowland Hill</td>
</tr>
<tr>
<td>Milliken Mats</td>
<td>Leah Higgins</td>
</tr>
<tr>
<td>Moy Park</td>
<td>John Kennedy</td>
</tr>
<tr>
<td>Muntons</td>
<td>Nigel Davies</td>
</tr>
<tr>
<td>Murphy &amp; Son</td>
<td>Richard Hutchinson</td>
</tr>
<tr>
<td>MWUK Ltd</td>
<td>Victoria Maxted</td>
</tr>
<tr>
<td>Nandos</td>
<td>Bob Gordon</td>
</tr>
<tr>
<td>National Grid</td>
<td>Ian Glover</td>
</tr>
<tr>
<td>National Farmers Union (NFU)</td>
<td>Ceris Jones</td>
</tr>
<tr>
<td>Nokia</td>
<td>Salla Ahonen</td>
</tr>
</tbody>
</table>
We would also like to thank the industry association representatives who kindly distributed the survey among their membership.
Executive Summary

Footprinting is an approach for measuring the environmental performance of a product or organisation. There are many different footprinting methods currently being used: some target particular environmental impacts (e.g. carbon footprinting, water footprinting), whereas others are adapted for particular products and organisations.

This study has investigated the level of uptake of environmental footprinting methods by UK businesses to see which and how many they use, and to assess the costs and benefits of using them. The wider context of this study relates to the European Commission (EC) trials aimed at developing a common approach for conducting product and organisational footprints (PEFs and OEFs). This report examines the evidence base for this initiative.

A survey – in which more than 80 businesses participated across a range of sectors – provides most of the evidence gathered in this study. A project workshop was also held. The study has shown that there is a high level of support amongst UK businesses of the usefulness of footprinting methods, especially to identify environmental hotspots along the supply chain and within the business and to prioritise action to mitigate these impacts.

Take-up of environmental footprinting methods

The survey findings showed that nearly 60% of those participating in the survey are currently using footprinting methods. Most of these are using footprinting methods to assess the environmental impact of both their products and organisation (Figure 1).

Figure 1: Does your business use footprinting methods to assess the environmental impacts of your products or services and/or your wider organisation?
The results also clearly showed that the larger the business the more likely it is to use a footprinting method: around 30% of small and medium sized enterprises (SMEs) currently use footprinting methods, compared to more than half of large enterprises (Figure 2). This is unsurprising given the skills and costs involved in conducting footprinting.

Figure 2: Does your business use one or more environmental footprinting methods to assess impacts associated with products or wider organisation? – Company size (UK staff numbers)

Use of multiple environmental footprinting methods

The research also examined which and how many footprinting methods are used. One of the key research questions was to investigate the extent to which companies are using more than one footprinting method to assess the environmental performance of their products or organisation, such as to comply with country-specific regulations. From a policy perspective, this raises some concern that lack of harmonisation and standardisation of methodologies may be imposing an additional burden of cost to UK businesses.

The research found that some businesses are applying multiple footprinting methods, particularly to assess the environmental impact of their products. The survey revealed that 30% of businesses use more than one method for assessing the environmental performance of their products, while around 10% use more than one method to measure the environmental impact of their organisation (Figure 3). Some companies even reported using more than one footprinting method to assess the environmental impact of a single product.

The reasons for using multiple environmental methods were varied. Businesses commented that each of the different methodologies had advantages and disadvantages, and the choice of method depended upon the question of interest, and the company’s overall objectives. The methods were then often tailored to meet their own needs.

However, the cost of undertaking multiple methods was considered to be relatively small compared to that of gathering the necessary data. The survey also found a much greater emphasis on carbon footprinting, rather than on more holistic environmental footprinting approaches in which other impact categories are considered.
What footprinting methods do you use?

![Bar chart showing the distribution of footprinting methods used by businesses for both product and organisation levels.](image)

<table>
<thead>
<tr>
<th>Method</th>
<th>Product</th>
<th>Organisation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiple</td>
<td>16%</td>
<td>11%</td>
</tr>
<tr>
<td>Single</td>
<td>30%</td>
<td>34%</td>
</tr>
<tr>
<td>None</td>
<td>54%</td>
<td>55%</td>
</tr>
</tbody>
</table>

**Costs and benefits to business of environmental footprinting**

Businesses were next asked about the main costs and benefits to environmental footprinting. Most of the businesses surveyed do not formally quantify the costs and benefits of using footprinting methods. This study indirectly made an assessment:

- **Staff**: Nearly 90% of the companies indicated that they have fewer than 10 members of staff - or even none - responsible for footprinting within the UK.
- **Trade**: None of the companies surveyed identified any markets or regions where trade had been affected by not using a relevant footprinting method or label.
- **Clarity of choice**: The survey provided some evidence that using environmental footprinting provided improved clarity of choice to business-to-business (B2B) customers in particular, but also to business-to-consumer (B2C) customers.
- **Resource efficiency**: Over 80% of the companies using footprinting methods felt that this had an impact on their resource efficiency efforts.

The major benefits for environmental footprinting included: identifying the environmental hotspots and bringing companies together along supply chains. This allows companies to target their resource efficiency efforts and deliver improvements. Intangible benefits from footprinting include enhanced brand reputation and greater staff retention.

**Opinions of future policy direction for environmental footprinting**

Finally, businesses were asked whether the UK should transition to using only the European Commission’s product and organisational environmental footprint methodologies. At the workshop it was clear that there was a range of opinion on this.

Most of the companies surveyed were not in favour, and those companies that did support having a single methodology wanted to make the transition on a voluntary basis. However, those companies participating in the EU footprinting pilots were more supportive.
2 Conclusions and Recommendations

Context
The context of this research is the European Commission’s trials of a methodology for the life cycle assessment of product and organisational environmental footprints (PEFs and OEFs). The original stated aim of the EC is for these methodologies to replace the numerous approaches currently used across Europe with a single methodology.

The benefits stated by the EC Impact Assessment for a single footprinting methodology are:

- costs/savings to business on applying multiple footprinting methodologies
- improved opportunities for cross border trading of green products
- clarity of consumer choice
- improved resource efficiency.

In light of this, Defra commissioned this research study to test some of the premises behind the EC pilot initiative and to improve the existing evidence base on the use, costs and benefits of footprinting methods in the UK.

Take-up of footprinting
A survey – in which more than 80 businesses participated – provides most of the evidence presented in this study. The scope of this research extends to the UK business sectors that fall within Defra’s sustainability policy remit. The survey results showed that most of companies participating in the survey, nearly 60%, currently use footprinting methods.

The results clearly showed that the larger the business the more likely it is to use a footprinting method: around 30% of SMEs currently use footprinting methods, compared to more than half of large enterprises (Figure 2). This is not surprising given the skills and costs involved in conducting footprinting.

The research found some businesses are applying multiple footprinting methods, particularly to assess the environmental impact of their products (30%). Furthermore, some companies even use multiple footprinting methods to assess the environmental impact of the same product (13%) or of their organisation (11%). Companies noted that the objectives and purpose of the different methodologies varies, leading to multiple methods being used.

The take-up of environmental footprinting methods was identified to be highest in the chemicals, electronics and utilities sectors, with over 80% of the companies in these sectors using footprinting methods. This is in contrast to the less than 50% of businesses in the food and drink, textiles and services sectors that currently use footprinting methods.

The survey also found a much greater business interest for carbon footprinting methods, notably PAS 2050 and the GHG Protocol. Fewer companies seem to be using more holistic environmental footprinting approaches in which several impact categories are considered.

Other research in the literature found comparable estimates for the take-up of footprinting-type initiatives. However, we note that there may be differences in how industry, government and academics define footprinting.
**Costs and benefits**

In most sectors footprinting is conducted on a voluntary basis, although many companies do not formally quantify the costs and benefits of using footprinting methods. This is in part due to the many intangible benefits offered, such as brand reputation and staff retention.

Companies reported that the major cost associated with environmental footprinting was in gathering the necessary data. This includes staff time and data licence costs. In contrast, the cost of undertaking multiple methods was considered to be relatively small, as this essentially involves re-analysing the data in a slightly different way. Companies supplying intermediate goods to multiple industries (with differing footprinting requirements) appear to have more to gain from harmonised methods than those supplying finished products.

The major benefit for footprinting was identified as highlighting the environmental hotspots and bringing companies together along supply chains. This allowed companies to target their resource efficiency efforts and deliver improvements. Over 80% of the companies using footprinting methods felt that this had an impact on their resource efficiency efforts.

Strikingly, with the exception of a few anecdotal examples, none of the companies surveyed identified any markets or regions where trade had been affected by not using a relevant footprinting method or label. This finding was somewhat surprising, although the prospect of fragmented EU member state requirements seems to be receding, and international companies have always had to deal with some difference in consumer preferences in the EU.

**Policy implications**

The companies surveyed recognised, in principle, some of the benefits that might arise from having harmonised footprinting methods, although they also recognised the challenges in achieving this. Some sectors are already undertaking this work e.g. the Sustainability Consortium, Sustainable Clothing Action Plan and ITU Telecommunication Standardization.

The study finds limited evidence for the benefits purported by the EC including for cross-border trade and the savings to businesses applying multiple methods. In addition, companies were sceptical about the added value of a single EC method, and whether this would lead to any further resource efficiency savings to those already been achieved.

Some key benefits that might be achievable from harmonisation include:

- Expanding the coverage of environmental footprinting to further companies, by bringing sectors together and to realise additional resource efficiency savings.
- Improving consumer choice, especially for B2B customers, by allowing better comparability of products and organisations, with agreed category rules.
- Reducing the cost of footprinting, (thereby boosting the demand from businesses), through providing access to free secondary lifecycle data and harmonising differing reporting requirements, e.g. regulatory and public procurement.

**Research limitations**

We recognise that the survey may be slightly skewed by the sample of the participants. In particular, the target sectors are primarily end-user sectors, and the focus of the survey was entirely on businesses rather than consumer or environmental groups. It is also thought that companies most interested in footprinting were more likely to participate. In addition, there was notably more emphasis placed on footprinting products than organisations.
3 Introduction

Footprinting is an approach for measuring the environmental performance of a product or organisation. There are many different footprinting methods currently being used: some target particular environmental impacts (e.g. carbon footprinting, water footprinting), whereas others are adapted for particular products and organisations.

The European Commission (EC) is currently trialling a methodology for the life cycle assessment of product and organisational environmental footprints (PEFs and OEFs). The EC intends these methodologies to replace and harmonise the numerous approaches currently used across Europe. Additionally, there are UN/global efforts seeking to harmonise the approaches used for environmental hotspot analysis.

The UK uses a number of environmental footprinting methodologies, with businesses also subscribing to numerous UK- and European-level labelling systems. However, little research has been undertaken regarding the potential costs and benefits to UK industry of a single, European-level methodology. This project aims to address the outlined knowledge gap; outputs are expected to help inform future UK policy initiatives.

3.1 Aims, Objectives and Scope

The aims and objectives of this research are: to investigate the environmental footprinting methodologies being used by a range of important business sectors.

Key research questions in this study include:
- Are UK businesses using footprinting methodologies?
- What benefits do companies realise from footprinting?
- Which footprinting methodologies are being used?
- Are UK businesses using multiple footprinting methods?
- What potential benefits would a single methodology offer?

The scope of this research extends to the UK business sectors that fall within Defra’s sustainability policy remit, and include: food and drink, transport, buildings, clothing, tourism, utilities, banking, and pharmaceuticals.

Among the costs and benefits considered in the study are:
- costs/savings to business on applying multiple footprinting methodologies
- improved opportunities for cross border trading of green products
- clarity of consumer choice
- improved resource efficiency.

These were the main benefits that the EC expects will come from harmonised methodologies, as identified by their impact assessment.¹

---

3.2 Policy and Research Context

3.2.1 Background to footprinting and LCA

Environmental footprinting involves measuring the absolute environmental impact(s) of an organisation or a product (good or service) in a specified application over its full life cycle.

These environmental impacts include carbon footprinting, by which the aggregated impact on climate change is measured. However, more generally environmental footprinting involves measuring a wider range of environmental impacts, such as:

- Emissions into water, air or soil leading to environmental impacts:
  - carbon/CO₂ equivalent emissions leading to global warming / climate change
  - chlorofluorocarbon equivalent emissions leading to ozone depletion
  - toxic substances leading to effects in health, acidification, eutrophication.
- Use/depletion of resources (e.g. energy, water, minerals, soil, land, biodiversity etc.).
- Other possible environmental impacts of products e.g. noise and land-use.

Life cycle assessment (LCA) is the main process that underpins environment footprinting which, in turn, may underpin an environmental labelling or certification scheme. LCA provides a comprehensive evaluation of the environmental impacts associated with the existence and use of a product or service. In an LCA all phases of a product’s life are taken into account including manufacturing, use and disposal, i.e. cradle-to-grave. Figure 4 (over) provides a simple graphical schematic of a product’s full lifecycle and the environmental impacts that are commonly measured during an LCA.

The following steps are necessary to derive an environmental footprint core:

1. **System definition** – define scope, functional unit, system boundaries.
2. **Inventory analysis** – model the system and collect appropriate data.
3. **Impact assessment** – use model and data to evaluate the potential environmental impacts in chosen categories (e.g. CO₂e, energy and eco-toxicity etc...).
4. **Interpretation** – analyse major contributions and assess of sensitivities.

In an additional step, the different environmental impacts may be aggregated to a single ‘score’ or overall ‘impact’ (by weighting the individual environmental impacts). Adherence to specific standards and methods usually requires additional steps for a meaningful assessment; e.g. definition of goals, uncertainty assessment or reporting formats.

The most important output of an LCA is often the value or values generated during the impact assessment stage. These are used to indicate the different environmental impacts for the functional unit modelled in the study. The most commonly reported impacts are the carbon footprint in CO₂e (as a measure of global warming potential) or primary energy, though others may be used in more comprehensive studies.

Detailed LCAs studies also provide data on the individual stages of the lifecycle. This allows users to identify where the largest impacts, or environmental hotspots, occur across each

---

phase of a products’ lifecycle or within an organisation, and helps companies target interventions to mitigate these associated impacts.

Figure 4: Simple lifecycle model of a cradle-to-grave assessment

One criticism of the LCA process is the necessary incorporation of all aspects of a lifecycle into a single, or a small number of, representative values. This may cause certain impacts to be overlooked, or give unfair weighting to impacts of a certain type. Therefore, to give a more comprehensive view, a growing number of indicators - beyond just carbon emissions - are now used to distinguish between different environmental impacts.

Three other points are also worth mentioning regarding LCAs:

- Conducting even a small LCA is a complicated procedure, and different studies may take different approaches, make different assumptions and use slightly different information if primary data are not available. Hence two seemingly identical studies may produce different results, and thus make it hard to directly compare the results to determine which product has an overall lower environmental impact.
- Some studies adopt a streamlined LCAs approach. A full LCA should be as accurate as possible and all processes must be included. However, this is highly time-consuming as the lifecycle may include hundreds of processes, many of which make very minor contributions to the overall impact. Therefore, some studies are ‘streamlined’ by omitting the smaller, less important processes.
- The results of an LCA may also highlight that there may be some trade-offs between different environmental impacts, e.g. carbon versus water footprint. This might mean that one product may perform better than a comparable product on some but not all of the impact categories considered.
3.2.2 Existing environmental footprinting methodologies

There is a growing evidence base highlighting that the production and consumption of products across Europe creates significant impacts on the environment. The 2010 European Environment State and Outlook report indicates that the majority of key environmental pressures are caused by unsustainable consumption patterns, in the sectors of food and drink, housing and infrastructure, and mobility.

At present, purchasers are often not able to make sustainable choices because of a lack of comprehensible, reliable and comparable information on the environmental performance of products or organisations. Such information is essential for actors along the supply chain to improve environmental performance over the lifecycle of products. Without reliable and comparable information it is also a challenge for companies to compete on fair terms.

Over the last few years, several initiatives aiming at measuring environmental performance of products, and based on a lifecycle approach, have been launched by international public and private bodies. The list below is not exhaustive:

- **ISO 14044 (Global):** The International Organisation for Standardisation prepared this standard to cover life cycle assessment and lifecycle inventory studies. It is recognised and applied internationally, and covers the full range of environmental impacts.
- **ISO 14046 (Global):** This recently issued standard measures the amount of water consumed to make a product, provide a service or to complete an activity and provides the principles, requirements and guidelines for undertaking and reporting water footprint assessments.
- **ISO 14067 (Global):** This international standard addresses the single impact category of climate change, and so product footprints based on it do not provide information on the full range of environmental impacts resulting from the manufacture and use of a product.
- **International Reference Lifecycle Data System (Global):** Established to help ensure access to reliable lifecycle inventory data, and therefore to promote consistency of impact studies that use this data.
- **GHG Protocol (Global):** Provides requirements and guidance for companies and other organisations to quantify and communicate the carbon footprint of a product.
- **PAS 2050 (UK):** This publicly available standard provides a framework methodology for product carbon footprinting of goods and services.
- **BPX 30-323 (France):** Developed by AFNOR (French Standardisation Organisation) and ADEME (French Environment and Energy Management Agency), this best practice guide is the French standard providing the general methodology that must be applied for environmental labelling.

In addition, across Europe there are many labelling systems that use one or more of these lifecycle methodologies, including the International EPD System, IBU EPD, EPD Norge, European Ecolabel, Blue Angel and the Nordic Swan. Several lifecycle methodologies aimed

---

3 GHG emissions, acidifying emissions, tropospheric ozone precursor emissions and direct and indirect material input.

at measuring the environmental performance of organisations, and based on a lifecycle approach, have also been launched by international public and private bodies. Again, the list below is not exhaustive:

- **ISO 14064 (Global):** This standard introduces requirements for organisation-level assessment and reporting of GHG emissions.
- **Global Reporting Initiative (Global):** A platform through which companies can report their economic, social and environmental sustainability performance.
- **CDP Water Disclosure Project (Global):** The project contains a questionnaire for companies to complete regarding their water use, management and associated risk.
- **GHG Protocol (Global):** The GHG Protocol Corporate Standard also provides advice for organisations preparing a GHG emissions inventory, focussing on the six GHGs covered by the Kyoto Protocol.
- **International Reference Lifecycle Data System (Global):** Provides access to organisation-level lifecycle data as well as product-level data.
- **Defra ‘Guidance on how to measure and report your greenhouse gas emissions’ (UK):** Largely based on the GHG Protocol, this is a GHG accounting guide for UK corporates, designed to help them in reporting of GHG emissions.
- **Defra ‘Guidance on environmental key performance indicators – reporting guidelines for UK business’ (UK):** The guidelines inform companies about reporting environmental performance using defined key performance indicators (KPIs). The guidance defines 22 KPIs, with significance placed on different ones according to business type and sector.
- **Bilan Carbone (France):** Produced by ADEME, Bilan Carbone is a GHG accounting guide and tool for use by organisations in (and sometime selling into) France. Unlike in the GHG Protocol, all GHGs are considered here.

The development of so many initiatives shows that there is, at different levels, a growing interest and demand for more guidance for the environmental assessment of products and organisations, and that this growing interest is being serviced. However, the development of multiple, uncoordinated initiatives at different geographical and sectoral levels could bring heterogeneity to the field of lifecycle-based environmental assessment, creating confusion, cost or simply inaction for economic operators, NGOs, and other stakeholders. These uncoordinated initiatives have also raised some concern amongst some exporting countries.

Amongst the issues identified are: a lack of experts and databases in southern European countries; the possibility that methodologies would advantage agricultural or industrial production patterns in northern European countries; and the observation that some methodologies (especially those developed by private companies) are not fully transparent.

These concerns have led the EC to plan to introduce common Europe-wide methodologies for assessing the environmental impacts of products and organisations.

---

5 European Commission Communication (2013), Building the Single Market for Green Products Facilitating better information on the environmental performance of products and organisations – COM/2013/0196 final
3.3 Development of Harmonised Methodologies

3.3.1 Background and motivation for EC pilots

The European Commission is currently developing and testing methodologies for measuring and reporting the environmental footprints of products and organisations. The EC published an impact assessment document which assesses and describes the potential benefits and costs of the PEF/OEF initiative. The document, *Building the single market for green products*, covers the landscape of existing lifecycle methodologies, the way in which those methodologies are used, an evaluation of potential policy options, and an analysis of benefits and impacts of a single European-level methodology.

The main issues at stake behind the EC environmental footprinting initiative are:

- **Proliferation** of environmental labels, reporting schemes and certification schemes.
- **Internal market**: to avoid national “tailor-made” legislations.
- **Competitiveness**: avoid increases of costs due to multiple requirements and restricted access to markets or unfair competition/misleading claims.
- **Consumers**: prevent mistrust in company driven green marketing.

A key concern is the need and growing expectation to provide consumers with information on the environmental credentials of products. However, there is sometimes a gap between consumers’ beliefs and actual environmental practices, especially for food products. According to a Eurobarometer, 48 % of European consumers are confused by the stream of environmental information they receive, which affects their readiness to make green purchases. Other evidence shows strong growth for sales of ‘responsible products’ (organic, natural ecological, Fairtrade etc.). These products are on average 20-25 % more expensive and so bring greater revenues to companies. Companies, therefore, have strong motives for sustainability programmes, although 95 % of contested Green Claims cannot be proven.7

From a business perspective, the EC comments that a company wishing to market its product as ‘green’ in several Member State markets may face a confusing range of choices of methods and initiatives, and might find it needs to apply several of them in order to prove the product’s green credentials. This could become a significant cost for companies and a barrier for the circulation of green products in the Single Market.

For example: the company may need to apply different schemes in order to compete based on environmental performance in the different national markets:

- **France**: the environmental assessment may need to be in line with method BPX 30-323.
- **UK**: the company may wish to apply the PAS 2050 or the WRI GHG Protocol.
- **Switzerland**: the company may need to apply the Swiss approach (under development).
- **Italy**: it may need to join the governmentally recognised carbon footprint scheme.
- **Sweden**: it may need an Environmental Product Declaration (EPD) based on ISO 14025.
- The company may need to undertake multiple EPDs as there are at least six competing EPD systems each with its own specificities, even if they are all based on ISO 14025.

---

6 European Commission Communication (2013), Building the Single Market for Green Products Facilitating better information on the environmental performance of products and organisations – COM/2013/0196 final

7 European Commission DG ENV Presentation (Nov 2014), Update on the Environmental Footprint pilot phase
In December 2008, the European Council invited the EC to develop methodologies to facilitate the establishment of carbon audits for organisations and carbon footprints for products. In response to the Council’s conclusions, the EC performed studies on Product Carbon Footprinting and corporate GHG reporting to analyse existing leading methodologies and initiatives and to report on how they might relate to future policies. It was concluded that, in addition to GHG emissions, other environmental impacts of products and organisations should be taken into account where relevant. Consequently, the EC decided to extend the work to other environmental aspects and initiated, via its Joint Research Council Institute for Environment and Sustainability (JRC-IES), the development of two harmonised methodologies based on a lifecycle approach; namely the Product Environmental Footprint (PEF) and the Organisation Environmental Footprint (OEF).

In 2011 the EC, via JRC-IES, produced two sets of draft guidelines as a basis for the future European methodology for PEFs and OEFs. Following publication of these guidelines, in 2011/12 the EC organised a testing phase of product and corporate footprint methodologies involving a limited number of volunteering industries from various sectors aiming to provide lessons and feedback about the implementation of the draft methodology (added value, implementation barriers, costs, accessibility to SMEs, data confidentiality issues, etc.).

After the testing phase JRC-IES carried out an in-depth analysis of the pilot studies findings (referred to as ‘pilots’), which led to revised versions of the technical guidelines. These technical guidelines provide requirements on how to calculate a PEF or an OEF, as well as on how to create product- or sector-specific methodological rules called Product Environmental Footprint Category Rules (PEFCRs) or Organisation Environmental Footprint Sector Rules (OEFSRs) to be used for comparisons between products or between organisations. The overall organisation of the PEF/OEF pilots is presented in Figure 5.

The package of proposals included in the communication Building the Single Market for Green Products can be seen as a first phase of a new policy direction. The purpose is to ‘level the playing field’ for companies by having the same calculation rules, verification process for footprinting and similar requirements and communication. In particular, the EC wishes to test the implementation of the environmental footprint methods with the participation of volunteering stakeholders and has commenced a three-year pilot.

The pilots will go into the practical deployment of the methods. The main objectives are to:

- Set up and validate the process of the development of PEFCRs and OEFSRs, including the development of environmental benchmarks for each of them.
- Identify appropriate compliance systems for PEFs and OEFs, including ex-ante verification (i.e. before public release of the declaration) and ex-post verification (i.e. after public release of the declaration, market surveillance).
- Test, in collaboration with stakeholders, different approaches and channels for business-to-business (B2B) and business-to-consumer (B2C) communication.

---

Council of the EU, 2008, Sustainable Consumption and Production and Sustainable Industrial Policy Action Plan
Food, feed and drinks, Retailers, Public Administrations, ICT, Water services, Energy production, Paper, Mining, Chemicals, Footwear, Televisions were the products/sectors for which the draft PEF/OEF methods have been tested.
Setting a benchmark involves the identification of the average model available in the market, and the definition of classes of environmental performance based on this analysis.
**UK Assessment of Footprinting Methods**

Figure 5: Organisation of the EC’s PEF/OEF Pilot Studies

- **Technical advisory board**
  - Involved actors: Experts appointed by the Pilot Steering Committee
  - Key responsibilities: Provide technical advice to the Steering Committee, guarantee overall consistency among pilots, express an opinion on the final draft of a PEF/OFER

- **Pilot Steering committee**
  - Involved actors: Commission, Product Group/Sectoral Coordinator, Consumer/environmental NGOs, SME European association, Member States
  - Key responsibilities: Monitor the progress in each PEF/OFER pilot, communicate about challenges and lessons learnt in each pilot, approve the final draft of a PEF/OFER

- **PEFCR/OEFSR Pilots**
  - Involved actors: Best option — mix of companies, industrial association, NGO, Member State, institution, universities or research institutes
  - Key responsibilities: Develop PEF/OFER proposal, organise consultations, physical meetings, virtual forum

- **Technical secretariat 1**
  - Involved actors: Participants to pilot 1, involved actors
  - Key responsibilities: Technical assistance, information provision, management of the EF virtual consultation forum

- **Technical secretariat 2**
  - Involved actors: Participants to pilot 2

- **Technical secretariat n**
  - Involved actors: Participants to pilot n

- **EF Technical helpdesk**
  - Involved actor: Contractor
  - Key responsibilities: Technical assistance related to the PEF/OEF Guides, support on the PEF/OFER development process, training sessions for the pilots, management of the EF virtual consultation forum, data management

- **PEF/OFER guidelines**

- **Screening study**
  - PEFCR or OEFSR

- **Existing PCR / Sectorial pilots**

- **Case study 1**
  - 1
  - 2
  - 3

- **EF virtual consultation Forum**
  - Web commenting
  - Store all documents related to the pilot
  - Consultation platform
  - Information on pilots’ progress

- **Stakeholders**
  - Material suppliers, manufacturers, trade associations, purchasers, users, consumers, government representatives, non-governmental organisations (NGOs), public agencies and, where relevant, independent parties and certification bodies

* ILCD Handbook, ISO 14040-44, ISO 14064, PAS 2060, WRI/WBCSD/WWF protocol, ISO 14025, Ecological Footprint, CIIT Water Footprint, etc.
It is also crucial for the successful uptake of these methodologies to make their application easier, especially for SMEs, by testing innovative ways of managing the process and through the development of tools. Ultimately, the whole scheme aims to allow the differentiation of products or organisations at a reduced cost, with reliable tools to be applied in the market.

Guidance documents for the implementation of the EC OEF/PEF Pilot Projects have been published by the EC\textsuperscript{12}, together with a call for volunteers to undertake pilots for product or organisational footprinting methodologies. These documents establish the general operating framework for the pilots including the roles and responsibilities of the various stakeholders and the PEFCR/OEFSR development procedure.

Pilots should seek to develop sector and product category rules, represent more than 51\% of the market and focus on the 3-4 most important areas where the major environmental impacts ‘hotspots’ occur. For the non-focus areas, free and standardised secondary data should be used. The next phase of the pilots includes creating a tool for SMEs, and testing different methods for communicating footprinting results to consumers and businesses.

<table>
<thead>
<tr>
<th>1st wave of pilots</th>
<th>2nd wave of pilots</th>
</tr>
</thead>
<tbody>
<tr>
<td>Batteries and accumulators</td>
<td>Leather</td>
</tr>
<tr>
<td>Decorative paints</td>
<td>Thermal insulation</td>
</tr>
<tr>
<td>Hot &amp; cold water pipe systems</td>
<td>Beer</td>
</tr>
<tr>
<td>Liquid household detergents</td>
<td>Coffee</td>
</tr>
<tr>
<td>IT equipment</td>
<td>Fish</td>
</tr>
<tr>
<td>Metal sheets</td>
<td>Dairy products</td>
</tr>
<tr>
<td>Non-leather shoes</td>
<td>Feed</td>
</tr>
<tr>
<td>Photovoltaic electricity generation</td>
<td>Meat</td>
</tr>
<tr>
<td>Stationery</td>
<td>Pet food</td>
</tr>
<tr>
<td>Intermediate paper products</td>
<td>Olive oil</td>
</tr>
<tr>
<td>T-shirts</td>
<td>Pasta</td>
</tr>
<tr>
<td>Uninterrupted power supplies</td>
<td>Wine</td>
</tr>
<tr>
<td>Retailer sector (OEF)</td>
<td>Packed water</td>
</tr>
<tr>
<td>Copper sector (OEF)</td>
<td></td>
</tr>
</tbody>
</table>

Source: EC DG ENV Presentation (Nov 2014), Update on the Environmental Footprint pilot phase

After the pilots are completed, the EC will evaluate the results of the testing phase in 2017. If the outcome of the different pilots is positive, a second phase could consist of integrating PEF/OEF in (existing or new) voluntary and/or mandatory policy instruments. The EC will produce appropriate proposals that will be accompanied by a new impact assessment.

\textsuperscript{12} Guidance for implementation of the EC Product Environmental Footprint (PEF) during the Environmental footprint (EF) pilot phase, version 3, available at: \url{http://ec.europa.eu/environment/eussd/smgpp/pdf/Guidance_products_3.0.pdf}
3.3.2 Update on the European Commission footprinting pilots

An update on the EU product and organisation environmental footprinting pilots was given at a workshop co-organised by Defra and BIS on 24 November 2014.

There are 27 pilots ongoing: 25 product environmental footprint (11 for food and drink products) and 2 organisational environmental footprint pilots, across two waves (see list in Table 1). These pilots involve nearly 800 individual stakeholders (10% SMEs, 30% large companies and nearly 20% sector associations).13

Some current challenges include: horizontal consistency, by-/co-products, end-of-life formulae, significance thresholds, identification of independent reviewers and secondary datasets. On data availability, the EC notes that a European policy might help drive better data production. The intention is that the pilots reconcile with other footprinting initiatives rather than replace them.

In the resulting question and answer session the following issues were raised:

- Complex products are challenging – need to have data on all the ingredients.
- Methods will aim to achieve reproducible and comparable results, even if there are limitations to current methods on what characterisation factors are included.
- B2B is probably more important for footprinting, as it can move the market.
- A voluntary process is envisaged in the first instance. Mandatory schemes would only be considered if the initial voluntary approaches were unsuccessful.
- There is a not a link to any current intended policy use at this stage.

Presentations were also given by four of the participating pilots:

- Metal sheets (Nick Avery, TATA Steel). Mr Avery welcomed having one approach, as Tata sells to many different end-markets, each of which uses its own methodology. The pilot focuses on a generic metal sheet, which is a semi-finished/intermediate product. The end-of-life recycling will be recognised, although Tata is still working out which is the best formula to use for this (recycled content vs. recycling rate).14
- Household detergents (Liz Colson, McBride). This pilot focuses on the functional unit of 4.5 kg of dry fabric washed clean during one cycle. The pilot is currently drafting PCRs. Assessment tools will be developed for detergent characterisation and hazard/risk.15
- Coffee (Fabien Guilmineau, Mondelez International). This pilot covers over 80% of the European coffee industry and has international links (the Colombia Coffee Federation). A key challenge is in collecting primary data for the agricultural footprint of coffee.16
- Non-leather shoes (Karin Ekberg, PE International). This pilot is sponsored by the Sustainable Apparel Coalition (SAC). Originally five categories of shoes were being examined, but this has been condensed to three, due to the lack of readily available data. PCRs are being drafted – a key hotspot is the location of manufacture.17

---

13 European Commission DG ENV Presentation (Nov 2014), Update on the Environmental Footprint pilot phase
14 Tata Steel (Nov 2014), Experiences in the Metal Sheet PEF Pilot; Nick Avery Presentation
15 McBride (Nov 2014), AISE PEF Pilot: Household Liquid Laundry Detergents; Liz Colson Presentation
16 Mondelez (Nov 2014) The PEF pilot project for coffee based beverages; Fabien Guilmineau Presentation
17 PE International (Nov 2014), PEF –Update from the non-leather shoe pilot; Karin Ekberg Presentation
3.3.3 **Global hotspots initiatives**

Finally, at a global level it is worth mentioning an ongoing lifecycle initiative by the United Nations Environment Programme (UNEP) and the Society of Environmental Toxicology and Chemistry (SETAC). In particular, Flagship Project 3a focuses on the methods, tools and guidance used for the analysis of environmental hotspots.

This UNEP/SETAC flagship project aims to produce:

- A common methodological framework and global guidance for sustainability hotspots analysis.
- A protocol for the appropriate use and communication of sustainability information derived from hotspots analysis.
- To evaluate and, if possible, implement a range of options to bring together the findings from existing hotspots studies to provide a richer, global picture of sustainability hotspots in the economy and society.

This project has clear contextual relevance for this study, and for the European Commission’s initiative to develop harmonised methodologies for product and organisation environmental footprints. However, there are also some significant differences. In particular, the UNEP/SETAC project focuses on hotspots analysis, rather than the underpinning footprinting and LCA methodologies themselves. Nonetheless, given that identifying environmental hotspots is one of the main uses of footprinting, there are synergies.

The Phase 1 project report identifies the growing number of different analytical disciplines that are using a prioritisation method called ‘hotspots analysis’, which is being used to filter and distil large volumes of information to identify and prioritise environmental hotspots for further investigation or action by industry, governments and other stakeholders.

The report comments that there is not currently a common approach to hotspots analysis; nor have there been efforts to bring together or share best practice amongst organisations or initiatives currently developing and using ‘hotspot’ methods. Nor is there any accepted guidance on how to translate and apply the results of hotspots analysis into meaningful sustainability information for use by industry, governments and other stakeholders.

The primary focus of the project is to identify existing methodologies, tools and resources that can or could be applied at three scales or levels of detail; whether at the national, sectoral or product category level. However, the use of these methodologies at the organisational or project level is out of the scope of the project. An initial list of 42 hotspots analysis methodologies was identified, which was characterised by their scale of application. Next, 28 methodologies were shortlisted for further review, 7 of which were considered very similar to each other – including several methods for carbon/environmental footprinting.

The next steps will consider the further stakeholder feedback as recommendations for the development of global guidance for hotspots analysis.

---

18 UNEP/SETAC Life Cycle Initiative – Flagship Project 3a (Phase 1) (Dec 2014), Hotspots Analysis: mapping of existing methodologies, tools and guidance and initial recommendations for the development of global guidance
4 Research Methodology

This section summarises the research methodology undertaken in this project. The project was conducted over a one-year period (January to December 2014). There were several distinct stages in the research undertaken:

Figure 6: Overview of the research methodology stages

4.1.1 Exploration

The project began with an exploratory stage, including a literature review and structured stakeholder interviews with business representatives from the target sectors. The purpose was to understand the quantity and quality of existing data relating to the research questions, and to help to identify the gaps that might exist in the evidence.

One of Defra’s initial project objectives was to use the data collected to construct a robust UK-relevant (econometric) model of the costs and benefits that might be associated to UK businesses resulting from a single footprinting methodology. However, it was not clear whether enough data of sufficient quality would be uncovered.

- The exploratory literature review involved gathering information from industry associations, with a search for information from relevant labelling schemes. This was viewed as the most efficient way to collect relevant, centralised data. The information was presented by sector, geography and type of method; with similarities and differences summarised between the UK and the EU. The full results from the literature review can be found in Annexe B.

- Stakeholder interviews were held with senior individuals working in sustainability, environmental or corporate responsibility roles. Participants were selected from contacts held by the project consultants, based on their relevance to the project. Around 20 interviews were conducted by telephone, with UK and international businesses in the target sectors. The conversations lasted between 30 and 60 minutes and followed a pre-defined set of questions.

At the end of the exploratory stage of the project it was clear that, although some useful information had been gathered, there just was not enough evidence on the key research questions, and businesses did not necessarily have the answers to many of the questions asked in the research/stakeholder interviews (e.g. cost of footprinting).

The decision was made that no further literature review would be required in the next phase. The main priority would be to widen participation in the survey to a greater number of UK businesses in order to get a more robust sample size to reflect the overall UK situation.
Links to relevant literature – Pure Strategies Report

Towards the end of the project, a relevant report from Pure Strategies: *The Path to Product Sustainability*, was identified. Pure Strategies surveyed 100 executives from global food and beverage, apparel and footwear, home and personal care, toy, and electronics companies involved in product sustainability.

Pure Strategies talked to heads, directors and managers of sustainability from leading companies about their efforts to uncover best practices. In some ways the report can be considered comparable to this study, although the questions asked are more general. Nonetheless, it does provide a benchmark for some of the key findings.

Product sustainability was defined as “encompassing initiatives that measure, improve, and disclose environmental and social impacts of products across their lifecycle, from raw materials, packaging, and manufacture through to product use and end-of-life disposal”.

Adoption of sustainability product assessments

Companies were asked about their adoption of ‘Sustainability product assessments’. These are quite broadly defined and include: supplier engagement, customer scorecards and requirements, custom-developed lifecycle tools, and chemicals/materials of concern assessments. This therefore clearly includes, but is not exclusive to, footprinting methods.

The study found that over 70% of the companies have product sustainability goals, with over 60% of the companies conducting sustainability product assessments. For the best performing companies, the survey showed that 90% of these companies use sustainability product assessments to inform decision-making towards their overall product sustainability goals, including having sustainability embedded within product development.

The major drivers behind the adoption of product sustainability were both internal vision and external pressure from retailers’ sustainability programmes.

Use of LCA tools

Further information is recorded on the types of tools used by companies to inform their decision-making for product sustainability, including LCAs.

The report comments that: “life cycle assessment (LCA) is not the only option here, or even the primary one. While leading companies use LCAs to identify hotspots and priorities, respondents reported supplier engagement and retailer scorecards provide most value.”

Benefits from product sustainability

Finally, just over 70% of consumer product companies engaging in product sustainability programmes, more generally, had realised business value from their efforts. The key benefits identified by companies include: reduced costs, improved employee engagement and productivity, and increased trust and brand enhancement.

Conclusions

This report from Pure Strategies, whilst being much more general in its focus, i.e. it covers aspects of products sustainability beyond footprinting, does provide some useful comparable and supporting evidence of relevance to this study.

In particular, the level of adoption of sustainability product assessments is quite similar to the estimated take-up of footprinting in this Defra study, and some similar benefits to product sustainability were identified.
4.1.2 **Pilot and full surveys**

A pilot survey then followed to test the survey methodology. The pilot survey largely reflected the questions asked during stakeholder interviews. A few changes were made to make it easier for participants to complete the survey – by providing a range of possible answers to choose from and by limiting the number of open-ended questions asked. The survey was cleared by Defra’s Survey Control team, and created using an online survey platform. An initial five week period was set aside to allow participation.

The survey was primarily distributed through trade associations, with two trade associations contacted in most sectors (Table 2). Most of the trade associations contacted were willing to help disseminate the survey to their respective memberships.

**Table 2: The trade associations contacted to disseminate the survey to their memberships**

<table>
<thead>
<tr>
<th>Sector</th>
<th>Trade association</th>
</tr>
</thead>
<tbody>
<tr>
<td>Banking</td>
<td>British Bankers’ Association (BBA)</td>
</tr>
<tr>
<td>Banking</td>
<td>Building Society Association (BSA)</td>
</tr>
<tr>
<td>Buildings</td>
<td>British Home Enhancement Trade Association (BHETA)</td>
</tr>
<tr>
<td>Buildings</td>
<td>European DIY-Retail Association (EDRA)</td>
</tr>
<tr>
<td>Clothing</td>
<td>Association of Suppliers to the British Clothing Industry (ASBCI)</td>
</tr>
<tr>
<td>Clothing</td>
<td>UK Fashion and Textile Association (UKFT)</td>
</tr>
<tr>
<td>Food and Drink</td>
<td>Food and Drink Federation (FDF)</td>
</tr>
<tr>
<td>Pharmaceuticals</td>
<td>Cosmetic Toiletry &amp; Perfumery Association (CTPA)</td>
</tr>
<tr>
<td>Tourism</td>
<td>British Hospitality Association (BHA)</td>
</tr>
<tr>
<td>Tourism</td>
<td>UKinbound</td>
</tr>
<tr>
<td>Transport</td>
<td>European Automobile Manufacturers Association (ACEA)</td>
</tr>
<tr>
<td>Transport</td>
<td>British Air Transport Association (BATA)</td>
</tr>
<tr>
<td>Utilities</td>
<td>Energy and Utilities Alliance (EUA)</td>
</tr>
<tr>
<td>Utilities</td>
<td>techUK</td>
</tr>
</tbody>
</table>

The response rate to the pilot survey was good, with around 50 businesses participating. It was agreed that the survey process should be continued, with only a few minor adjustments to the questions required (see Annexe A for a copy of the finalised survey).

The full survey involved promotion via more trade associations, company contacts, and business platforms. An additional four weeks was allowed for the completion of the full survey, by which time over 80 businesses had participated in the surveys. Analysis of the survey data took place over the summer period.

4.1.3 **Workshop**

The project culminated with a stakeholder workshop held in November 2014, at which the draft study findings were presented to the 30 participating businesses (a copy of the agenda is included in Annexe C). Table discussion groups were organised to discuss the key findings in order to gain further insights to the research, which are summarised in the green boxes. A plenary discussion summarised the workshop conclusions. A separate afternoon workshop to a wider audience gave participants an update of EC and UK footprinting policy.
5 Survey Participation

This section summarises the stakeholder participation in this study, whether during the stakeholder interviews, pilot or full surveys.

A total of 88 businesses participated during the course of the survey periods. However, six of these submissions came from businesses with no UK operations and were excluded as a result, giving an effective sample size of 82 businesses. Details are given below profiling the sector participation, company size and type of operations.

5.1 Sector participation

The survey initially targeted the following UK business sectors: food and drink, transport, buildings, clothing, tourism, utilities, banking, and pharmaceuticals. However, closer inspection of the participating companies revealed that many had been poorly classified within these target sectors. The decision was made therefore to reclassify the sectors to better reflect the participating businesses and the nature of their operations.

During this process, businesses in the pharma, buildings, and part of the utilities sector were reclassified into chemicals and electronics sectors. A distinction was drawn between transport operations (freight, logistics, travel) and engineering (which included automobile and aerospace manufacture). Retail, banking and hospitality were reclassified to the services sector; and the clothing sector was expanded to include other types of textiles.

Using this revised classification, the three most actively participating sectors were: textiles, food and drink and electronics. These three sectors represented more than half of the survey participants. The other five sectors had around 40 participants, split relatively evenly between them. A full list of participants can be found in the acknowledgement list.

Figure 7: Participation in the survey, classified by sector
5.2 Company size

Over 40% of the companies had a worldwide turnover greater than £1 billion. At the other end of the spectrum, a similar proportion had global turnover below £100 million (Figure 8). This suggests that there was a reasonably good spread across the different company size bands that participated in the survey.

Approximately one third of the companies had fewer than 250 employees, and can thereby be classified as SMEs, whereas around 40% of the sample had more than 1,000 employees (Figure 9). Much of the analysis in this study focuses on three size bands, in order to keep a meaningful sample size within each sub-category. Nonetheless, clear differences soon became apparent between the company size bands during the analysis of the survey data.

A few differences were noticeable between sectors – the companies from the food and drink, textiles and (to a lesser extent) transport sectors tended to be slightly smaller in size. All of the companies from the chemicals sector were very large internationally.

*Figure 8: Participation in the survey, by company turnover*

*Figure 9: Participation in the survey, by number of staff*
5.3 Operations

In terms of the location of their company’s operations, around one quarter of the survey participants stated that they were exclusively UK based, whereas the remainder had international operations in addition to their UK based operations (Figure 10).

As for the number of sites (Figure 11), around half of the companies surveyed had fewer than 10 (UK or internationally). It was noted that the utilities and services sectors had on average many more UK sites than the other sectors. The food and drink, textiles and transport sectors tended to have the fewest international sites.

Figure 10: Participation in the survey, by geographical operations

![Pie chart showing the percentage of operations that are UK only (26%) and international (74%).]

Figure 11: Participation in the survey, by number of sites

![Bar chart showing the distribution of sites by number: fewer than 10, fewer than 100, fewer than 1,000, and greater than 1,000. The chart shows a higher percentage of UK sites compared to worldwide sites.]

6 Headline Survey Results

This section presents the headline results to the specific survey questions. (Further details on cross-sector comparisons can be found in Section 7.) The first part focuses on the level of uptake identified for environmental footprinting in general, and specifically for products and organisations. The survey results then focus on the costs and benefits of footprinting, and consider the level of interest in transitioning to a single EC methodology.

6.1 Footprinting – Level of Uptake

6.1.1 Footprinting – general activity

The first major question of the survey was the most fundamental: do you use environmental footprinting methods at all within your business?

The majority of companies stated that they do use footprinting methodologies within their business: 47 out of 82 businesses surveyed (i.e. 57 %) responded yes to this question. 43 % of the surveyed businesses do not currently use environmental footprinting methods to assess the impact of their products or organisation (Figure 12).

Figure 12: Does your business currently use one or more environmental footprinting methods to assess the impacts associated with your products and/or wider organisation?

Most of the businesses which are using footprinting methods do so for assessing both the environmental impact of their products and organisations (Figure 13). Two thirds of the companies that are footprinting do both product and organisational footprinting (excluding two companies that do footprint, but neither for their products nor for the organisation). A similar number of companies footprint their products only or their organisation only.
**Figure 13:** Does your business use footprinting methods to assess the environmental impacts of your products or services and/or your wider organisation?

As for differences between company sizes, there is a clear trend that larger companies are much more likely to use footprinting methodologies (Figure 14). 80% of companies with more than 1,000 employees reported using footprinting methodologies, compared to around 50% of companies with between 250 and 1,000 employees, versus 30% of small and medium sized enterprises (fewer than 250 employees).

**Figure 14:** Does your business currently use one or more environmental footprinting methods to assess impacts associated with your products and/or wider organisation? – Company size
Companies’ motivations for environmental footprinting

With nearly 60% of companies using environmental footprinting methods, it is useful to briefly explore companies’ main motivations for this. Comments from participants at the stakeholder workshop confirmed comments made in the survey – that there were various different drivers for footprinting. Some of these were regulatory (e.g. energy-using products, energy generation and automotive sector) but in most cases, companies’ environmental footprinting initiatives are voluntary.

The most commonly given reason for footprinting is to gain a better understanding of the environmental hotspots. This can often involve enhancing collaboration across a supply chain. Once the major hotspots have been identified, companies are able to put in place internal targets and continuous improvement plans to mitigate the hotspots, and to realise reductions in the environmental impacts of their products and/or organisation. Usually these resource efficiency benefits are also cost-saving for the business e.g. reductions in energy use or materials consumption. But sometimes footprinting highlights trade-offs between different environmental impacts, e.g. water versus carbon.

However, many intangible benefits from environmental footprinting were also reported. A few companies report that their customers – especially B2B customers – request footprinting information. But for most companies footprinting helps to contribute towards building their brand images and reputation. This helps improve customer loyalty, and mitigate against the risk of loss of future sales and increased marketing costs. Another key benefit from such corporate sustainability activities is company prestige, which helps to improve staff recruitment and retention, and to protect intellectual property rights.

Many of these benefits were also identified in the Pure Strategies Report (see figure below), although that report looked at the benefits of a company’s wider products sustainability programme, rather than specifically environmental footprinting.

What benefits have you achieved from your company’s product sustainability program? (%)

<table>
<thead>
<tr>
<th>Benefit</th>
<th>Achieved, with ongoing efforts</th>
<th>Not yet achieved, work in progress</th>
<th>Not yet achieved, work will be done in future</th>
<th>Achieved, not important/no longer working on</th>
<th>Not achieved, not seeking this/not important</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increased sales</td>
<td>32</td>
<td>32</td>
<td>33</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Supply chain risk reduction</td>
<td>41</td>
<td>37</td>
<td>21</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Future regulatory risk mitigation</td>
<td>50</td>
<td>13</td>
<td>35</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Product material cost savings</td>
<td>50</td>
<td>34</td>
<td>13</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Packaging cost savings</td>
<td>62</td>
<td>25</td>
<td>9</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>Meeting consumer demands</td>
<td>62</td>
<td>32</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Logistics &amp; supply chain cost savings</td>
<td>61</td>
<td>26</td>
<td>8</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Meeting retailer requirements</td>
<td>69</td>
<td>23</td>
<td>1</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Trust and brand enhancement</td>
<td>71</td>
<td>22</td>
<td>6</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Employee engagement/productivity</td>
<td>74</td>
<td>19</td>
<td>6</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Manufacturing cost savings</td>
<td>79</td>
<td>14</td>
<td>5</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

Source: Pure Strategies (2014), The Path to Product Sustainability
The survey asked businesses which stated that they do not currently use environmental footprinting methodologies to identify the main reasons for this. The most commonly identified reason was a lack of demand from customers – half of the businesses surveyed with this question selected this option.

Other common reasons listed for businesses not footprinting were that it was not relevant, too time-consuming or too expensive (Figure 15). A few companies stated that there was no demand from their market/region or that footprinting does not help with their sustainability platform, i.e. in supporting the information included within the company’s external communications such as relating to sustainability/corporate social responsibility.

*Figure 15: Why does your business not use environmental footprinting methods (select all that apply)?*

A few of the businesses provided additional explanatory comments. Specific comments included some perceived barriers: variability of production (e.g. small batches, weekly production runs, and natural feedstocks), large number of different products manufactured, and less relevant for trading and service functions. Other businesses stated that they had a lack of resources in terms of knowledge and key skills and a perception that the methodologies could be unwieldy and time-consuming to use.

Finally, a few businesses stated that although it has never been identified as a priority to spend time doing footprinting, they noted that they are seeing a change in this, with some B2B customers putting pressure on them to make it become more of a priority. Other businesses mentioned that they use their own internal measurement systems.

Some of the reasons given above suggest that reducing the costs to businesses of conducting environmental footprinting could help to increase the demand for footprinting by UK businesses. This potentially has some policy implications, as measures to make footprinting simpler or less costly may help to increase uptake and thereby lead to associated resource efficiency benefits.
6.1.2 Footprinting – products

Do you footprint your products?

Just under half of the surveyed businesses report using footprinting methods to assess the environmental impacts of their products or services (Figure 16).

Again it is the larger organisations that are more likely to use footprinting methodologies for their products (Figure 17). However, there is much less difference apparent between mid-sized and largest companies for the adoption of product footprinting methodologies than for footprinting as a whole.

Figure 16: Does your business use footprinting methods to assess the environmental impacts of your products or services?

Figure 17: Does your business use footprinting methods to assess the environmental impacts of your products or services? – Company size
**Do you use single or multiple product footprinting methodologies?**

Of the businesses surveyed, 30% stated that they use multiple product footprinting methodologies; this was around two thirds of the businesses that use product footprinting methodologies (Figure 18).

As shown by Figure 19, it is the largest businesses that are more likely to use multiple product footprinting methodologies: nearly half of the companies that employ more than 1,000 staff use multiple footprinting methodologies whereas only around 10% of SMEs do.

*Figure 18: Does your business use single or multiple footprinting methods to assess the environmental impacts of your products or services?*

![Do you use single or multiple product footprinting methodologies?](image)

*Figure 19: Does your business use single or multiple footprinting methods to assess the environmental impacts of your products or services? – Company size*

![Do you use single or multiple footprinting methodologies?](image)
How many product footprinting methodologies do you use?

Of the companies that do use product footprinting methodologies, similar proportions use one, two and three or more methodologies (Figure 20). Analysis by company size is shown in Figure 21, which indicates how many methods are being used by different sizes of company.

Figure 20: How many footprinting methods does your business use to assess the environmental impacts of your products or services?

![Pie chart showing distribution of product footprinting methodologies by number of methods used]

Figure 21: How many footprinting methods does your business use to assess the environmental impacts of your products or services? – Company size by numbers of employees

![Bar chart showing distribution of product footprinting methodologies by company size]
Do you use multiple footprinting methodologies for the same product?

Companies were next asked whether they use multiple footprinting methodologies for the same product or service. Only 13% of the companies surveyed stated they do use multiple methods for assessing the environmental impact of an individual product (Figure 22) – this represents less than a third of the businesses that do footprint. The larger companies were more likely to use multiple methodologies for a single product (Figure 23).

Figure 22: Does your business use multiple footprinting methods to assess the environmental impacts associated with individual products and/or services?

Figure 23: Does your business use multiple footprinting methods to assess the environmental impacts associated with individual products and/or services? – Company size
**Why are companies using multiple environmental foot printing methods?**

One of the striking findings of the survey was that 30% of companies are using multiple methods for product environmental footprinting, with 13% of companies using multiple methods to assess the environmental impacts of the same product. 11% of companies use multiple methods to assess the environmental footprint of their organisation.

From a policy perspective, this raises some concern that the lack of harmonisation and standardisation of methodologies may be imposing an additional burden of cost to UK businesses. Another concern is that companies might choose the method which shows them in the best light. Therefore, improving the comparability of the results and reducing the cost to business are key motives behind the EC’s footprinting initiative.

**Differing methods for differing objectives**

The discussion at the stakeholder workshop revealed that each different environmental footprinting methodologies had advantages and disadvantages. The choice of footprinting method depended upon the question of interest, and therefore the company’s objectives. The core methods used are the GHG Protocol and PAS 2050. However, companies will often adapt these or use other methods or sector-specific guidelines.

Firstly, the choice of methodology and the particular input parameters may in part be driven by the requirements of customers for specific business-to-business transactions. Again, this will depend upon the outputs required by the end-user, and may mean that the method and findings will need to be tailored to their needs. One company reported that different methodologies were used to meet the different regulatory requirements associated with energy generation, including EU ETS, CCAs, and ROCs etc.

Alternatively, companies may choose to adapt methods to meet their internal needs, such as adjusting which impact categories to report against or to streamline the approach taken. Companies report a hierarchy of impact categories: carbon/energy, water and materials/waste. However, sometimes other impacts, such as social or eco-toxicity, might be included, as is the case in the methods being developed by Sustainability Consortium.

Some companies admitted that they may use several methods and present the best result or may follow a method that a competitor is using, in order to compare the results or to see whether it is simpler/more useful. Finally, specific methodologies might be used for particular reasons. For example, to make a robust statement of carbon neutrality/offsets, such as for publicity purposes, ISO 14064 will be an appropriate methodology for this.

**What are the cost implications of multiple methods?**

Whilst there are some concerns about the cost implications of applying multiple methods, the workshop participants did not feel that this was a major concern. For some small companies it may still be a challenge to decide which method is best to follow, and there was support for greater harmonisation of methodologies within a sector, although this can take some time and collaboration to establish these industry norms.

However, there was a general agreement that the most significant cost associated with footprinting is getting hold of the right data and conducting the lifecycle assessment. Once the data has been collected, the cost of re-analysing the data or cutting it in a slightly different way to follow another methodology is actually quite small. Therefore, there is the possibility that a shared or common dataset could provide some significant benefits to organisations undertaking this work, by reducing the overall costs of footprinting.
**Which product footprinting methodologies do you use?**

The most commonly used product footprinting methodologies were: ISO 14044, the GHG Protocol and UK PAS 2050 (Figure 24). UK PAS 2050 was most popular amongst mid-sized companies (Figure 20). This suggests that most companies are specifically interested in the carbon footprint of their products, rather than measuring other environmental impacts.

A significant proportion of companies, especially SMEs and large companies, selected ‘other’. These ‘other’ methodologies mostly included specialist or sector methods, and bespoke or manual methods, typically adapted from the more established methodologies.

*Figure 24: Which of the following footprinting methods does your business currently use to assess the environmental impacts of your products and/or services?*

*Figure 25: Which of the following footprinting methods does your business currently use to assess the environmental impacts of your products and/or services? – Company size*
6.1.3 Footprinting – organisations

Do you footprint your organisation?

Just under half of the surveyed businesses report using footprinting methods to assess the environmental impacts of the organisation (Figure 26). The proportion of businesses using organisational footprinting methods is nearly identical to the proportion using product footprinting methods (Figure 16).

However, it is noticeable that the largest businesses, employing more than 1,000 staff, were much more likely to use organisational methods than the smaller companies (Figure 27).

Figure 26: Does your business use footprinting methods to assess the environmental impacts of your organisation?

![Pie chart showing 45% Yes and 55% No.]

Figure 27: Does your business use footprinting methods to assess the environmental impacts of your organisation? – Company size

![Bar chart showing company size categories and percentage footprinting use.]

UK Assessment of Footprinting Methods

33
**Do you use single or multiple organisational footprinting methodologies?**

Only 11% of the businesses surveyed reported that they are using multiple organisational methods (Figure 28). This represents only one quarter of the companies using organisational methods and is noticeably lower than the proportion using multiple product footprinting methodologies.

As shown in Figure 29, it is mostly the largest businesses that use multiple organisation footprinting methodologies.

*Figure 28: Does your business use single or multiple footprinting methods to assess the environmental impacts of your organisation?*

*Figure 29: Does your business use single or multiple footprinting methods to assess the environmental impacts of your organisation? – Company size*
**How many organisational footprinting methodologies do you use?**

As shown in Figure 30, very few of the businesses surveyed use more than one organisational footprinting method. Of those few businesses that do, some use three or more different methods. The spread by company size is shown in Figure 31 which again shows that, by and large, it is the larger companies that use more methods.

*Figure 30: How many footprinting methods does your business use to assess the environmental impacts of your organisation?*

*Figure 31: How many footprinting methods does your business use to assess the environmental impacts of your organisation? – Company size*
Which organisational footprinting methodologies do you use?

Finally, the survey identified the GHG Protocol as being by far the most popular method for organisational footprinting, with 26 out of the 37 businesses conducting organisational footprinting (70%) using this method (Figure 32). Relatively few distinctions in methods can be observed between different sizes of companies (Figure 33).

Figure 32: Which of the following footprinting methods does your business currently use to assess the environmental impacts of your organisation?

![Which organisational footprinting methodologies do you use?](image1)

Figure 33: Which of the following footprinting methods does your business currently use to assess the environmental impacts of your organisation? – Company size

![Which organisation footprinting methodologies do you use?](image2)
6.2 Costs and Benefits of Footprinting

In this section of the analysis, the four key costs and benefits expected from a single EC footprinting methodology have been reviewed to see how they relate to the UK situation. These include: cost in using footprinting methodologies (measured here by staff costs), cross-border trade, improved resource efficiency and clarity of consumer choice.

6.2.1 Quantified costs and benefits

Those businesses currently using footprinting methodologies were asked whether they quantified the costs and benefits. Only one third of the businesses stated that they did (Figure 34), with the most common category being within environmental/sustainability. A few businesses quantified the costs and benefits within the financial, compliance or operation categories (Figure 35).

Figure 34: Does your business quantify the costs/benefits of using footprinting methods?

![Pie chart showing 34% quantify costs/benefits and 66% do not quantify costs/benefits.]

Figure 35: In which of the following categories are the costs/benefits of using footprinting methods quantified?

![Bar chart showing quantification in categories: Financial, Compliance, Environmental/Sustainability, Operations, Other.]

Quantify costs/benefits

- Yes 34%
- No 66%

How quantified?

- Financial
- Compliance
- Environmental/Sustainability
- Operations
- Other
6.2.2 **Staff costs**

Given that around two thirds of the companies using environmental footprinting methodologies do not formally quantify the costs and benefits of doing so (Figure 34), it is necessary to assess this by indirect means.

The first part of this assessment was to quantify the number of staff involved in footprinting. Nearly 90% of the surveyed businesses indicated that zero or fewer than 10 employees are responsible for footprinting within the UK (Figure 36). 60% of the businesses that use footprinting methodologies answered that fewer than 10 staff are responsible for footprinting within the UK.

*Figure 36: How many UK staff (by head count) are responsible for applying footprinting methods to assess product and/or organisational environmental impacts?*

![UK Staff Responsible for Footprinting](chart)

Some variation became evident with company size. Most large companies (70%) stated that fewer than 10 members of staff have responsibility for footprinting within the UK.

Two thirds of businesses with fewer than 250 staff stated that they have no members of staff responsible for footprinting within the UK (Figure 37). This implies that they do not have a specialist member of staff focusing on this issue, and that footprinting represents just part of another person’s job description.

Finally, this part of the survey highlighted that quite a few companies seem to conduct significant parts of their footprinting activities outside the UK.

Nearly 20% of the businesses surveyed indicated that globally they have more than 10 staff responsible for applying footprinting methods. By comparison, just 4% of businesses have more than 10 UK staff responsible for footprinting (Figure 38). Relatively few global businesses had zero staff responsible for footprinting.
Figure 37: How many UK staff (by head count) are responsible for applying footprinting methods to assess product and/or organisational environmental impacts? – Company size

Figure 38: How many UK/global staff (by head count) are responsible for applying footprinting methods to assess product and/or organisational environmental impacts?
What are the costs and benefits for environmental footprinting?

The EC identified four main benefits that could be expected to arise from having a single European environmental footprinting methodology:

- costs/savings to business on applying multiple footprinting methodologies
- improved opportunities for cross border trading of green products
- clarity of consumer choice (both B2C and B2B)
- improved resource efficiency.

Multiple methods

The survey did find evidence that a significant number of companies (30 %) are using multiple (product) footprinting methods. So, in principle, there might be expected to be some cost savings resulting from having harmonised methodologies.

However, the same companies also reported that the most significant costs were not using the different methodologies, but rather in obtaining the data to conduct environmental footprinting. Once the data has been obtained, the companies suggested that cutting the data in a slightly different way is less costly. This suggests that the cost savings to business may not be as large as expected by the European Commission impact assessment.

Cross-border trade

The study has found no evidence whatsoever that by not using a specific environmental footprinting methodology; this has affected cross-border trade. With the exception of just a few anecdotal examples from the stakeholder workshop, none of the companies surveyed had experienced any problems on this issue.

There was some discussion by companies that the prospect of having to follow a mandatory (Grenelle) method to trade in France may have subsided.

Clarity of consumer choice

There is some evidence from this study that footprinting is a useful tool in aiding consumer choice, especially for business-to-business customers. Therefore, if a harmonised methodology could be agreed by sectors, this could promote better clarity of choice.

An important point is that the methodology must be able to allow effective comparability between products and organisations, and it will clearly be a challenge to fully harmonise the data and methodology used. Some sectors are already working towards this goal.

Improved resource efficiency

The survey and workshop discussions showed real evidence of environmental footprinting leading to resource efficiency benefits. 80 % of the survey participants thought this. The reason for this is that footprinting allows companies to identify hotspots of environmental impacts within their supply chain and therefore lead companies to make efforts to mitigate these and set year-on-year improvement plans and targets.

However, the study is inconclusive over whether a harmonised footprinting methodology would lead to additional resource efficiency improvements over-and-above those already offered by companies using one or more footprinting methods. Most companies thought there may not be much additional benefit arising from a single methodology.
6.2.3 Cross-border trade impacts

The businesses were also asked to identify whether the lack of application of a specific footprinting or labelling method had impacted cross-border trade of their products.

The result on this question was resounding, with the exception of a few anecdotal examples given at the workshop, not a single business identified any markets or regions where trade had been affected because a relevant footprinting or labelling methods had not been used (Figure 39). This finding was true for both companies currently using footprinting methodologies and those not currently using footprinting methodologies.

*Figure 39: Are there (or have there been) markets and/or regions that your business cannot trade in because relevant footprinting or labelling methods have not been used?*

This is a very clear finding, and suggests that at present the application and choice of footprinting methodologies and labels is not (yet) a factor at all affecting cross-border trade. This provides direct evidence that this benefit, noted in the EC Impact Assessment, may not be particularly relevant to UK business at present.

This finding is somewhat surprising. In theory, those businesses with greater exposure to international trade would have much more to gain from a single environmental footprinting methodology, if there are indeed currently significant additional costs arising relating to difficulties in the cross-border trade of green products. A company’s exposure to international trade might even be more important for determining its view on having a single harmonised European footprinting methodology.

However, the prospect of fragmented European requirements seems to have receded recently, and companies have always had to deal with some differences in consumer preferences across Europe (e.g. a greater aversion to hazardous chemicals in Northern Europe) and therefore few companies have identified any cross-border trade issues for green products.
6.2.4 Clarity of choice

In terms of customers, 80% of the surveyed businesses stated that they had B2B customers, and 60% had B2C customers. Analysis of the company characteristics revealed that there were no significant differences apparent in customer base between companies applying footprinting methods and those that are not currently footprinting.

However, around 80% of those companies using footprinting methodologies reported that the methods provided improved clarity of choice to both B2B and B2C customers (Figure 40 and Figure 41). Nearer 60% of the non-footprinting companies felt that they were providing sufficient clarity of choice to their customers by not footprinting.

Figure 40: Do your footprinting methods provide your B2B customers with improved clarity of choice regarding the environmental impacts of your products and/or wider organisation?

Figure 41: Do your footprinting methods provide your B2C customers with improved clarity of choice regarding the environmental impacts of your products and/or wider organisation?
It also appears that footprinting may have a slightly greater impact in improving the clarity of choice to B2B customers than B2C (Figure 40 and Figure 41). The survey findings support anecdotal evidence that consumers do want to have better comparability of footprinting results, although ultimately footprinting may have more relevance for B2B transactions.

In terms of effects by company size, it is noticeable that the larger companies thought that footprinting had a much bigger impact on clarity of choice for B2B customers than did the small companies (Figure 42). For B2C customers the impact of footprinting on clarity of choice was thought to be the same by both small and large companies alike (Figure 43).

Figure 42: Do your footprinting methods provide your B2B customers with improved clarity of choice regarding the environmental impacts of your products and/or wider organisation?

Figure 43: Do your footprinting methods provide your B2C customers with improved clarity of choice regarding the environmental impacts of your products and/or wider organisation?
6.2.5 Resource efficiency benefits

The businesses were next asked about whether footprinting has an impact on a business’ resource efficiency efforts. Of those businesses currently using footprinting methodologies, over 80% thought that footprinting did have an impact on resource efficiency (Figure 44).

However, of those businesses not currently using footprinting methods, only 13% thought that this had an impact on the business’ resource efficiency efforts (Figure 45). These findings suggest some split opinions between the footprinting users and non-users regarding its impact on resource efficiency efforts.

**Figure 44: Does the use of footprinting methods have any impact on your business’ resource efficiency efforts (e.g. for materials, carbon, energy, water)?**

```
<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>83%</td>
<td>17%</td>
</tr>
</tbody>
</table>
```

**Figure 45: Do you think your business’ resource efficiency efforts (e.g. for materials, carbon, energy, water) are impacted by not using footprinting methods?**

```
<table>
<thead>
<tr>
<th>Yes</th>
<th>Not sure</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>13%</td>
<td>26%</td>
<td>61%</td>
</tr>
</tbody>
</table>
```
In terms of measuring the impact of using footprinting methods on resource efficiency, the survey results showed that approximately half of businesses do measure this (Figure 46). Larger companies were slightly more likely to measure the impact of footprinting methods upon resource efficiency (Figure 47).

Figure 46: Does your business measure the effect on resource efficiency of using footprinting methods?

![Figure 46: Measure Impact on Resource Efficiency](image)

Figure 47: Does your business measure the effect on resource efficiency of using footprinting methods? – Company size

![Figure 47: Measure Impact on Resource Efficiency](image)
Finally, businesses were asked whether a single common footprinting method might have any impact on their resource efficiency efforts. Only 17% of the surveyed businesses thought that it would. 38% were unsure and 45% thought that it would not have any impact (Figure 48). A similar proportion of small versus large companies thought that a single method would have no impact (Figure 49), although a greater proportion of large companies thought that a single footprinting method would have an impact on their resource efficiency efforts.

*Figure 48: Would a single common footprinting method (i.e., the EC’s PEF/OEF framework) have any impact on your business’ resource efficiency efforts?*

*Figure 49: Would a single common footprinting method (i.e., the EC’s PEF/OEF framework) have any impact on your business’ resource efficiency efforts?*
6.2.6 EC PEF/OEF Methods

Finally, businesses were asked their opinions on the EC PEF/OEF methods. Only 16% of the surveyed businesses felt that the UK should transition to the EC PEF/OEF methods and replace all existing footprinting methods (Figure 50), although quite a number of the participants were unsure (44%), with 40% against the transition.

Interestingly, those companies currently footprinting had a much stronger opinion on this question, with more than half of these companies against transitioning to the EC methods. Most of the non-footprinting companies were unsure (Figure 51).

*Figure 50:* Do you think the UK should transition to using the PEF/OEF methods, and in so doing replace the use of all other existing footprinting methods?

*Figure 51:* Do you think the UK should transition to using the PEF/OEF methods, and in so doing replace the use of all other existing footprinting methods?
What should be the future policy direction for footprinting?

There was some discussion at the stakeholder workshop and in the survey comments on what should be the future policy directions for environmental footprinting, both for the European Commission and for Defra in the UK.

European policy direction

It is fair to say that there was quite some scepticism at the stakeholder workshop relating to the European policy direction on environmental footprinting. Overall, there was a clear consensus that any European scheme should be voluntary, rather than mandatory.

Participants thought that, while a having single footprinting methodology was conceptually attractive; the practical implementation of this could be quite challenging to realise. This would require standardisation not only of the footprinting methodology, but also of the data used and the reporting of the results. It could also stifle future innovation, and there may be some issues relating to confidentiality of data on product performance.

Additionally, due to the differing objectives of companies conducting environmental footprinting, a single method might not fulfil all the possible needs of the users. There was particular concern that either the single method would be too generic to be meaningful or too complex or costly to use. Concern was also raised on what would happen to current methodologies that are already established within an industry. Many felt that there were already adequate tools available, and therefore not a need for a new methodology.

On the other hand, other companies understood the benefits that having agreed and harmonised footprinting methodologies within specific sectors. They felt that this would help level the competitive playing field, allow for greater comparability and collective action to mitigate the identified environmental hotspots, but companies did not identify a role necessarily for the EC in this. However, it was evident that the companies actually participating in the pilots were more supportive of the proposed European policy direction.

Many of these concerns appear to be in the process of being addressed during the pilots, as outlined during the afternoon workshop, e.g. free secondary data, defining appropriate category rules, making the EC methodology voluntary rather than mandatory etc.

Recently, the EC also seems to be more open on testing changes to the methodologies.

UK policy direction

From a UK policy perspective, the companies encouraged Defra to remain actively involved as a stakeholder in the European pilots (UK has active membership of the EU footprinting pilots’ Steering Committee and the Technical Advisory Board through WRAP).

In particular, companies encouraged Defra to keep using its influence at the EC level to ensure that the footprinting initiatives are voluntary for business rather than mandatory.

Two other possible policymaking roles were identified:

- Helping to bring specific sectors and trade bodies together to develop harmonised industry relevant guidelines and reporting for environmental footprinting. (A notable example of this happening is the Sustainable Clothing Action Programme, SCAP).
- Helping to ensure the accurate communication and interpretation of the results of footprinting. This links in with existing work on Defra’s Green Claims Guidance and the Multi-stakeholder Dialogue on Environmental Claims (MDEC).
In terms of the opinion by company size, it was again the largest companies who had the strongest opinions on this question. Half of these companies were against transitioning to the EC methods, although nearly one quarter were in favour (Figure 52). As for the smaller companies, 30 % were against the transition, 10 % were in favour.

*Figure 52: Do you think the UK should transition to using the PEF/OEF methods, and in so doing replace the use of all other existing footprinting methods? – Company size*

The ten businesses in favour of transitioning to EC methods were then asked how the transition should be made. The majority were in favour of voluntary trials (60 %), although a few thought the transition should be permanent. Just 20 % thought the transition should be mandatory (Figure 53).

*Figure 53: On what basis could the transition to the PEF/OEF methods be made?*
6.3 General Comments

A number of the businesses surveyed provided comments and specific recommendations for Defra regarding the use of footprinting methods in the UK. These comments are listed in full below, but have been broadly grouped by their theme.

*Figure 54: A visual word summary of the comments provided (with common words removed)*

6.3.1 Involving stakeholders

“Most important is to involve stakeholders from industry. Focus should be on improving capability in the “designing for sustainability” space – the real value of LCAs is to identify hotspots which help companies improve subsequent versions of the product. Defra needs to provide a clear message on this subject. Industry feels like Defra dips in and out of this when they please. If Defra promote a method, they must pick the impact categories correctly.”

“Hold forums targeted at businesses according to the size of their impact on the environment.”

“Defra needs to have an active and clear voice on this subject. Businesses want to know where they stand re Defra’s plans.”

“Being involved as a stakeholder is more than enough for now. Keep up with goings on in the EC, but do not spend much time or money on this.”

“Defra should be involved actively in the EU PEF/OEF pilots, with the objective to ensure that the PEF/OEF approach remains scientifically sound, practical and most importantly that the PEF scheme will be fit to drive the desired changes in sustainable product design and consumer behaviour changes both at point of sale (buy more sustainable products) at the in-home use phase (use products in most sustainable way). So far very few labelling schemes have been able to drive these needed changes.”

“They need to be consistent, understood and relevant. Currently there is very little understanding in most business and effectively zero understanding in consumers.”
6.3.2 Ease of use

“The methodology needs to be clear and easy to use and how the information is then used needs to be considered to ensure accurate comparisons are made.”

“It is so important for footprinting to be standardised (and this also includes for sector-specific guidance as well) so that accurate comparisons can be made by stakeholders knowing that the scope, methodologies, assumptions etc. are consistent. It seems so opaque and misleading now. It’s also very confusing to practitioners to know what to follow. We are doing our best to adhere to the most up to date best practice.”

“Businesses need simple and quick tools, not a framework that takes excessive time and money to implement and operate. Therefore, a sensible avenue would be to identify the tools that would help businesses (especially SMEs) to compete. Anything that the UK adopt has to be practical and of benefit to businesses.”

“Spend some time assessing whether footprinting in this form is actually of benefit to a company. LCAs need to be simple and efficient, and PEFs/OEFs seem to be taking it further the other way. Better to spend money developing tools that will help business conduct cradle to grave lifecycle reporting.”

“Need to ensure that any methods that are standardised are simple and accessible to business ensuring added value to products.”

“Footprinting methods have to be sufficiently robust to be credible. However, they shouldn’t be unduly burdensome and should also be sufficiently flexible to be tailored to specific industry requirements. Consultation and collaboration with business is paramount.”

“Is detailed environmental evaluation information such as PEF/OEF too complex to customers? To consider what is useful for stakeholders is important.”

“PEF/OEF fails to address the cost, availability and specificity of data. Businesses are concerned by data, not by whether everyone is using the same method. If the PEF/OEF were adopted, how would Defra help SMEs in particular with their data issues? The UK does not have the same kind of pedigree in LCA as other parts of Europe, so any mandatory PEF/OEF programme that the UK enforces would need to be aligned with major education and training programs.”

“Think about the bigger picture for products: “design for sustainability” is so much more important than the EC’s apparent plan. Skip ahead of this if you can. General consumers don’t really know what we are talking about when we state “X tonnes of CO₂”, and very few actually care. Businesses have to care, due to CSR reporting. Wouldn’t it make sense to ask consumers what they care about, and what would influence their buying habits, then devise a program to educate the wider consumer base?”

“Our industry is very specific and required us to develop our own carbon calculator. Others were either too complex or didn’t include the necessary infrastructure aspects”

“The PEF is not applicable for complex products such as passenger vehicle. There must be flexibility to achieve a maximum environmental performance over the entire lifecycle such as accountability for efforts in the recycling phase. We use ISO 14040/44 successfully since many years to show internal decision makers very specifically improvement potential and to inform our customers about our environmental progress.”
6.3.3 Standardisation

“We use LCAs to trigger action, which leads to genuine improvement in supplier operations, the quality of life of the farmers that supply our bottlers etc. Action is more important than data. If Defra is serious about introducing a single method, it must be on a voluntary basis to begin with to let companies get to grips with the new demands.”

“There are a number of emerging frameworks so any further development of new framework, protocol or specification should aim for as much alignment/harmonisation with others to avoid imposing administrative burdens. The materiality of aspects or impacts will vary considerably between organisations so flexibility and proportionality will be needed rather than rigid specification of how to measure specific aspects. Different audience groups need to be considered through tailored outputs or reports.”

“Standardisation can only be a good thing, but only if it actually helps businesses and consumers compare across the products or organisations. As I understand it, footprinting methods can’t be used for cross-comparison of this nature. Would a single method actually make a difference to this?”

“There is value in having flexible choice in footprinting. A single method would actually result in one-for-all that works for very few. We are pro-reporting, but businesses are best served by using such methods as a foundation from which they can build their own internal methods. Promoting this activity would be much more beneficial.”

“If we are all to use the same method then use a method that already exists rather than the time/cost of re-inventing the wheel. ISO14064 is an excellent model and fits in with existing management systems.”

“All footprinting methods are, in one way or another, excerpts from LCA studies, therefore, any such method should rely on LCA methodology. ISO 14025 would be an excellent starting point to build on in the sense that clear and well defined Product Category Rules to ensure comparable LCA studies and results would be sufficient to allow comparisons on footprints.”

“Moving to one single system would only make sense if others were deleted as a consequence otherwise this just leads to proliferation.”

“Although moving to a single PEF/OEF method would be ideal to pick up, those who have spent large sums to already do it to a different standard would lose out a fair amount. Some carbon footprints are done in collaboration with external consultants.”

“Standardisation is essential - an ISO is required, though every sector has its own issues to address, including the requirement to properly establish footprint boundaries.”

“Just that we need documentation in relation to guidelines and what is included/left out so the full industry is working on a level playing field. This will stop outlandish claims to try and win customers.”

“The prescription of other footprinting methods may compromise organisations that have headquarters both within the EU and externally. We are a part of a multinational which has its main HQ in the US and we therefore follow their lead. The most important element in footprinting is clarity and transparency.”
6.3.4 Other (sector) initiatives

“There might be a good opportunity to join this effort up with other sustainability actions around value chains e.g. CISCO/Granta materials product passports, myEcoCost etc. Before deciding on this it would make sense to contact the Industrial Strategy Groups.”

“Recommend that you review the new combined ITU-T, ETSI L1.410 standard for LCA of Information, Communications Technology when it is published in 2014. Data collection, supplier data confidentiality, sensitivity of analytical methods, methodology uncertainty and non-uniform application of assumption are just some of the challenges that continue to be significant issues for footprinting.”

“We have trialled Trucost EP&L and also water footprinting and found interesting results, including problems with methodologies in our sector. We are part of the Accounting 4 Sustainability network and on one of their subgroups looking at natural and social capital. This could offer a good selection of organisations to discuss your thinking further.”

“We have trialled Trucost EP&L and also water footprinting and found interesting results, including problems with methodologies in our sector. We are part of the Accounting 4 Sustainability network and on one of their subgroups looking at natural and social capital. This could offer a good selection of organisations to discuss your thinking further.”

“An ICT product is not well represented by a single value. Standards and methodologies (like those of ETSI and ITU which offer the highest accuracy for ICT) can be used as a basis for: identification of the key stages in a product’s lifecycle, high level aggregation of sector environmental data. The achievable accuracy when using footprinting standards is inherently not high enough to justify their use as a basis for policy measures influencing competition.”

“It would be great to align disparate guidelines in different countries, but the PEF/OEF method has an over-reliance on LCA. Whatever happens, guidance (e.g. PEF) should be aligned with sector-specific guidance (e.g. Higg Index). Industry spends time and effort getting this right, so it should be used in national/continental governance efforts.”

“The UK water industry has been carbon footprinting for several years and has a well-developed method based on sound principles. We would be reluctant to change our footprinting approach unless there was considerable benefit to doing so. We would be happy to discuss this further, although it is a subject that should be discussed with the UK water industry as a whole rather than with individual businesses because we would wish to maintain our consistent approach across the industry.”

“In the Food and drink sector, the consumers who will buy a product based on environmental credentials look at the performance of the company, not of the product. Total brand reputation is so much more important that the e.g. embodied CO₂ in the use phase of product X.”

“We make many different types of leather that use many different chemicals and go through many different processes; a simple average would not really be representative of energy or water use of each of our individual type of leather. The LWG protocol (is available on their website http://www.leatherworkinggroup.com/about/protocol.htm) has attempted to be able to quantify water and energy usage per unit area of leather produced which is compared with other tanneries.”
7 Survey Results by Sector

In this section of the report, analysis of the survey data is disaggregated by sector to see what differences in practice and opinions exists between different sectors. A breakdown of the survey participation by sector is shown in Figure 55. A breakdown of UK staff by sector is shown in Figure 56, which shows the relatively smaller size of the businesses in the food and drink and transport sectors compared to the other sectors.

**Figure 55: Participation in the survey, classified by sector**

**Figure 56: How many staff are employed by your business in the UK? – By sector**
7.1 Footprinting – Level of Uptake

7.1.1 General activity

The general level of footprinting uptake by sector is summarised in Figure 57 and Figure 58. Over 80% of the companies in the chemicals, electronics and utilities sectors use footprinting methods. This is in contrast to the less than 50% of businesses in the food and drink, textiles and services sectors that currently use footprinting methods.

*Figure 57: Does your business currently use one or more environmental footprinting methods to assess the impacts associated with your products and/or wider organisation? - Sector*

*Figure 58: Does your business currently use one or more environmental footprinting methods to assess the impacts associated with your products and/or wider organisation? - Sector*
### 7.1.2 Product footprinting

As for product footprinting specifically, the survey data revealed relatively low uptake within the textiles and food and drink sectors (Figure 59). A high prevalence of multiple methods was identified in the chemicals, electronics, engineering and services sectors.

**Figure 59: Does your business use single or multiple footprinting methods to assess the environmental impacts of your products or services? – Sector**

![Diagram: Do you use single or multiple product footprinting methodologies?](image)

**Figure 60: How many footprinting methods does your business use to assess the environmental impacts of your products or services? – Sector**

![Diagram: How many product footprinting methodologies do you use?](image)
What are the major differences between sectors?

It is clear, from both the survey results and the discussions at the stakeholder workshop, that there are some significant differences between sectors in terms of their current practices of environmental footprinting. (One must be a little careful not to over-interpret these sector results, given the small sample sizes.)

Different levels of uptake for footprinting

As the survey results showed, there appear to be significant higher levels of uptake for environmental footprinting in some sectors than for others.

Notably, over 80% of the companies in the chemicals, electronics and utilities sectors use footprinting methods. This is in contrast to the less than 50% of businesses in the food and drink, textiles and services sectors that currently use footprinting methods.

Some of these differences appear to be partly driven by company size. For example the food and drink and textiles sectors had a greater proportion of SMEs within the survey sample. Given the cost of environmental footprinting and the knowledge/skills required, it is therefore unsurprising that SMEs are a little less active in environmental footprinting.

Similarly, for bio-based products, such as food and drink and some textiles products, variability according to the season and sourcing strategies makes the benchmarking of products more tricky, which helps explain the more limited uptake for these sectors. The type of energy mix in the source country and fibre choice can greatly influence the results.

The workshop discussions also revealed that there are different drivers for each sector for environmental footprinting. For example, some sectors have a specific legal obligation to undertake environmental footprinting, such as energy-using products, energy generation and the automotive sectors. Most other sectors seem to be using footprinting methods on a voluntary basis, because of the benefits that they provide to their business.

Different methodologies used

It is also clear that there are some significant differences in the methods used between sectors. GHG Protocol and UK PAS 2050 are fairly widely applied across sectors. Some sectors have already collaborated to develop harmonised methodologies.

Specialist product footprinting methods seem to be more commonly used in the transport, utilities, textiles and electronics sectors:

- For utilities sector, regulatory drivers are important. Energy generation companies are often required to use multiple methods associated with EU ETS, CCAs, ROCs etc.
- For the textiles sector, impacts such as social conditions and eco-toxicity can be important factors to include within the environmental footprinting methodology. Specialist methods include SCAP, Sustainability Consortium and the Higg Index.
- For the electronics sector, measurement of energy use is key consideration, and there is already a high uptake of the ITU-T I.1410 standard. Emerging issues for this sector include conflict minerals and materials traceability.
- For the transport sector, it seems that companies often greatly adapt environmental footprinting methodologies to meet their own internal purposes.
However, with the notable exception of the chemicals sectors, most businesses do not apply multiple product footprinting methods to the same product (Figure 61). In terms of which methods are used, ISO 14044, GHG Protocol and UK PAS 2050 are fairly widely applied across sectors (Figure 62). Specialist product footprinting methods seem to be more commonly used in the transport, utilities, textiles and electronics sectors.

**Figure 61: Does your business use multiple footprinting methods to assess the environmental impacts associated with individual products and/or services? – Sector**

**Figure 62: Which of the following footprinting methods does your business currently use to assess the environmental impacts of your products and/or services? – Sector**
7.1.3 **Organisational footprinting**

The overall pattern of uptake of organisational footprinting between sectors is reasonably comparable to that for product footprinting (Figure 63). The most popular method in all sectors was the GHG Protocol (Figure 64).

**Figure 63: Does your business use single or multiple footprinting methods to assess the environmental impacts of your organisation? – Sector**

![Diagram showing the percentage of businesses using single or multiple organisational footprinting methodologies across different sectors.]

**Figure 64: Which of the following footprinting methods does your business currently use to assess the environmental impacts of your organisation? – Sector**

![Diagram showing the percentage of businesses using different organisational footprinting methodologies across different sectors.]

- Other
- ILCD Handbook
- Bilan Carbone
- Defra CDP
- UK Carbon Trust
- EU OEF
- GHG Protocol
- ISO 14064
7.2 Costs and Benefits of Footprinting

7.2.1 Staff costs

The survey data revealed few differences between sectors in the number of businesses that quantify the costs and benefits associated with footprinting. In terms of number of staff responsible for footprinting, this was highest in the utilities sector (both UK and worldwide), followed by the transport (worldwide) – see Figure 65 and Figure 66.

Figure 65: How many UK staff (by head count) are responsible for applying footprinting methods to assess product and/or organisational environmental impacts? – Sector

Figure 66: How many global staff (by head count) are responsible for applying footprinting methods to assess product and/or organisational environmental impacts? – Sector
7.2.2 Clarity of choice

As for clarity of choice, the businesses surveyed in the services, utilities, textiles and chemicals sectors all felt that footprinting provided their B2B customers with improved clarity of choice (Figure 67). For B2C customers it was the transport, services and textiles sectors that most felt that footprinting improved the clarity of choice (Figure 68).

Figure 67: Do your footprinting methods provide your B2B customers with improved clarity of choice regarding the environmental impacts of your products and/or wider organisation?

Figure 68: Do your footprinting methods provide your B2C customers with improved clarity of choice regarding the environmental impacts of your products and/or wider organisation?
7.2.3 Resource efficiency

There was widespread agreement across the sector that footprinting did make an impact on resource efficiency (Figure 69). However, the proportion that measured this impact varied considerably across the sectors (Figure 70).

Figure 69: Does the use of footprinting methods have any impact on your business' resource efficiency efforts (e.g. for materials, carbon, energy, water)? – Sectors

Figure 70: Does your business measure the effect on resource efficiency of using footprinting methods? – Sectors
Although most businesses overall did not think that there would be an impact on resource efficiency by using a single harmonised methodology, nearly half of the survey participants from the transport and engineering sectors thought there might be an impact (Figure 71).

**Figure 71: Would a single common footprinting method (i.e. the EC’s PEF/OEF framework) have any impact on your business' resource efficiency efforts?**

### 7.2.4 EC PEF/OEF methods

In most sectors, businesses did not favour a transition to using the EC PEF/OEF methods in place of the all other existing methods (Figure 72).

**Figure 72: Do you think the UK should transition to using the PEF/OEF methods, and in so doing replace the use of all other existing footprinting methods?**
Annexe A: Industry Survey Template

Defra have commissioned a project concerning environmental footprinting activities in the UK. Part of this project involves a wide survey of UK businesses (and international businesses with UK operations) to better understand the types of footprinting methods that they use. The timing of this survey reflects the increasing intensity with which the European Commission (EC) is testing its own Product Environmental Footprint (PEF) and Organisation Environmental Footprint (OEF) methods, as part of its wider Single Market for Green Products Initiative (see here for more information). This survey will also help Defra understand whether a transition to the EC’s proposed PEF/OEF framework would affect UK businesses, and ultimately whether they would be for or against such a transition. The survey covers topics such as the types of footprinting methods used, benefits or costs to the business of using these methods, experiences with cross-border trade in the EU and any impacts that these footprinting methods have on consumer choice. The survey should take no longer than 10 minutes to complete.

* 1. Your name:
* 2. Your job title:

____________________________________________________________________

* 3. Your email address:

____________________________________________________________________

* 4. Business name:

____________________________________________________________________

* 5. Business headquarters post/zip code:

____________________________________________________________________

* 6. In which sector does your business operate (please select the closest fit)? (Select one option)

- Banking
- Buildings (including energy using products, housing, furniture and DIY products)
- Clothing
- Food and Drink
- Pharmaceuticals (including cosmetic and household products)
- Tourism
- Transport
- Utilities (including energy generation and ICT infrastructure)
**UK Assessment of Footprinting Methods**

---

**page 2**

* 7. Does your business have operations (e.g. factories, offices, branches) and/or sell products or services in the UK? (Select one option)

- [ ] Yes  Go to Page No. 3
- [ ] No  Stop, you have finished the survey

---

**page 3**

* 8. What is your business' UK turnover? (Select one option)

- [ ] <£1 million
- [ ] <£10 million
- [ ] <£100 million
- [ ] <£1 billion
- [ ] >£1 billion

* 9. How many staff are employed by your business in the UK? (Select one option)

- [ ] <10
- [ ] <50
- [ ] <250
- [ ] <1,000
- [ ] <10,000
- [ ] >10,000

* 10. How many operational sites (e.g. factories, offices, branches) business have in the UK? (Select one option)

- [ ] <10
- [ ] <100
- [ ] <1,000
- [ ] >1,000
* 11. Does your business have non-UK operations (e.g. factories, offices, branches) and/or sell products or services outside of the UK? (Select one option)

- Yes  Go to Page No. 5
- No   Go to Page No. 6

* 12. What is your business' total turnover (including UK)? (Select one option)

- <£1 million
- <£10 million
- <£100 million
- <£1 billion
- >£1 billion

* 13. How many staff are employed by your business in total (including UK)? (Select one option)

- <10
- <50
- <250
- <1,000
- <10,000
- >10,000

* 14. How many operational sites (e.g. factories, offices, branches) business have in total (including UK)? (Select one option)

- <10
- <100
- <1,000
- >1,000
* 15. Does your business currently use one or more environmental footprinting methods (e.g. ISO 14044, ISO 14064, ISO 14067, UK PAS 2050, GHG Protocol) to assess the impacts associated with your products and/or wider organisation? (Select one option)

- Yes  Go to Page No. 7
- No  Go to Page No. 21

* 16. Does your business use footprinting methods (e.g. ISO Standards; UK PAS2050 Standard; Greenhouse Gas Protocol) to assess the environmental impacts of your products or services (you'll be asked about organisational impacts later on)? (Select one option)

- Yes  Go to Page No. 8
- No  Go to Page No. 9
* 17. Which of the following footprinting methods does your business currently use to assess the environmental impacts of your products and/or services?

- [ ] ISO 14044
- [ ] ISO 14067
- [ ] GHG Protocol
- [ ] EU PEF
- [ ] UK PAS 2050
- [ ] BPX 30-323
- [ ] ILCD Handbook
- [ ] Other (please specify) ______________

* 18. Does your business use multiple footprinting methods to assess the environmental impacts associated with individual products and/or services (e.g. 2 methods applied to 1 product)? (Select one option)

- [ ] Yes
- [ ] No
* 19. If your business has an internal system for assessing environmental impacts of products and/or services, is it based on any of the following footprinting methods? (Select one option)

- ISO 14044
- ISO 14067
- GHG Protocol
- EU PEF
- UK PAS 2050
- BPX 30-323
- ILCD Handbook

We do not have an internal system for assessing the environmental impacts of our products/services.

Other (please specify) ________________

* 20. Does your business use footprinting methods (e.g. ISO Standards; UK PAS2050 Standard; Greenhouse Gas Protocol) to assess the environmental impacts of your organisation? (Select one option)

- Yes  Go to Page No. 10
- No   Go to Page No. 11
21. Which of the following footprinting methods does your business currently use to assess the environmental impacts of your organisation?

- [ ] ISO 14064
- [ ] GHG Protocol
- [ ] EU OEF
- [ ] UK Carbon Trust Standard
- [ ] Defra CDP
- [ ] Bilan Carbone
- [ ] ILCD Handbook
- [ ] Other (please specify) ______________

22. If your business has an internal system for assessing the environmental impacts of your organisation, is it based on any of the following footprinting methods? (Select one option)

- [ ] ISO 14064
- [ ] GHG Protocol
- [ ] EU OEF
- [ ] UK Carbon Trust Standard
- [ ] Bilan Carbone
- [ ] ILCD Handbook
- [ ] We do not have an internal system for assessing the environmental impacts of our organisation
- [ ] Other (please specify) ______________
23. How many UK staff (by head count) are responsible for applying footprinting methods to assess product and/or organisational environmental impacts? (Select one option)

- Zero
- <10
- <20
- <30
- <40
- <50
- >50
- Not sure

24. How many total staff (by head count, including those in the UK) are responsible for applying footprinting methods to assess product and/or organisational environmental impacts? (Select one option)

- Zero
- <10
- <20
- <30
- <40
- <50
- >50
- Not sure

25. Does your business quantify the costs/benefits of using footprinting methods? (Select one option)

- Yes
- No
26. In which of the following categories are the costs/benefits of footprinting methods quantified?

- Financial
- Compliance
- Environmental/Sustainability
- Operations
- Other (please specify) ____________

27. Are there (or have there been) markets and/or regions that your business cannot trade in because relevant footprinting or labelling methods have not been used? (Select one option)

- Yes Go to Page No. 15
- No Go to Page No. 16
28. Please state the market(s)/region(s) and the footprinting or labelling method(s) required

____________________________________________________________________

____________________________________________________________________

29. What is/was the annual financial impact on your business of this trade restriction? (Select one option)

- Zero
- <£10,000
- <£50,000
- <£100,000
- <£500,000
- >£500,000
- Not sure

30. Does your business have Business to Business (B2B) customers? (Select one option)

- Yes  Go to Page No. 17
- No   Go to Page No. 18
* 31. Do your existing footprinting methods provide your B2B customers with improved clarity of choice regarding the environmental impacts associated with your products and/or wider organisation? (Select one option)

- Yes
- No

* 32. Does your business have Business to Consumer (B2C) customers? (Select one option)

- Yes Go to Page No. 19
- No Go to Page No. 20

* 33. Do your existing footprinting methods provide your B2C customers with improved clarity of choice regarding the environmental impacts associated with your products and/or wider organisation? (Select one option)

- Yes
- No
* 34. Does the use of footprinting methods have any impact on your business' resource efficiency efforts (e.g. for materials, carbon, energy, water)? (Select one option)

- Yes
- No
- Not sure

* 35. Does your business measure the effect on resource efficiency of using footprinting methods? (Select one option)

- Yes
- No
- Not sure

* 36. Would a single common footprinting method (i.e. the European Commission's PEF/OEF framework) have any impact on your business' resource efficiency efforts? (Select one option)

- Yes
- Go to Page No. 30
- No
- Go to Page No. 30
- Not sure
- Go to Page No. 30
* 37. Why does your business not use environmental footprinting methods (select all that apply)?

- [ ] Not relevant to our products/services/business
- [ ] Too time-consuming
- [ ] Too expensive
- [ ] No demand from the markets/regions that we operate in
- [ ] No demand from our customers
- [ ] Does not help with our own sustainability platform/agenda
- [ ] Other (please specify) __________

* 38. Has your business estimated the potential costs/benefits of using footprinting methods? (Select one option)

- [ ] Yes  Go to Page No. 22
- [ ] No  Go to Page No. 23
* 39. In which of the following categories have the costs/benefits of using footprinting methods been estimated?

- [ ] Financial
- [ ] Compliance
- [ ] Environmental/Sustainability
- [ ] Operations
- [ ] Other (please specify) ________________

* 40. Are there (or have there been) markets and/or regions that your business cannot trade in because relevant footprinting or labelling methods have not been used? (Select one option)

- [ ] Yes  Go to Page No. 24
- [ ] No  Go to Page No. 25
* 41. Please state the market(s)/region(s) and the footprinting or labelling method(s) required

____________________________________________________________________
____________________________________________________________________

* 42. What is/was the annual financial impact on your business of this trade restriction? (Select one option)

- Zero
- <£10,000
- <£50,000
- <£100,000
- <£500,000
- >£500,000
- Not sure
* 43. Does your business have Business to Business (B2B) customers? (Select one option)

- Yes [ ] Go to Page No. 26
- No [ ] Go to Page No. 27

* 44. Do your current environmental efforts (i.e. other than footprinting) provide your B2B customers with the information they require regarding the environmental impacts associated with your products and/or wider organisation? (Select one option)

- Yes [ ]
- No [ ]

* 45. Does your business have Business to Consumer (B2C) customers? (Select one option)

- Yes [ ] Go to Page No. 28
- No [ ] Go to Page No. 29
* 46. Do your current environmental efforts (i.e. other than footprinting) provide your B2C customers with the information they require regarding the environmental impacts associated with your products and/or wider organisation? (Select one option)

- Yes
- No

* 47. Do you think your business' resource efficiency efforts (e.g. for materials, carbon, energy, water) are impacted by not using footprinting methods? (Select one option)

- Yes
- No
- Not sure
* 48. Do you think the UK should transition to using the PEF/OEF methods, and in so doing replace the use of all other existing footprinting methods? (Select one option)

- Yes [ ] Go to Page No. 31
- No [ ] Go to Page No. 32
- Not sure [ ] Go to Page No. 32

* 49. On what basis could the transition to the PEF/OEF methods be made? (Select one option)

- Voluntary trials
- Mandatory trials
- Voluntary permanent
- Mandatory permanent
- Not sure
* 50. Would your business be willing to participate in a 1-day workshop (organised by Defra) to discuss further the aspects raised in this survey? (Select one option)

- Yes
- Willing to discuss this
- No

* 51. Do you have any specific recommendations for Defra regarding the use of footprinting methods in the UK?

____________________________________________________________________
____________________________________________________________________
____________________________________________________________________

For further information regarding this project, please contact Dan Skinner (project consultant) at dan.skinner@oakdenehollins.co.uk or on +44 1296 423915.
Annexe B: Exploratory Literature Review

This exploratory literature review was completed by Augustin Chanoine and Sandeep Pahal of BIO by Deloitte.

Survey method

The research methodology for the literature review has two elements:

1. First, given the time constraint for this project, information from industry associations was reviewed. This was viewed as the most efficient way to collect relevant, centralised data, as industry associations often play an important role to gather and mutualise public communication on environmental declarations.

2. Second and in parallel, a search for information was conducted through examination of the relevant labelling schemes.\(^{19}\)

The information presented in the tables has been analysed before its inclusion in the report. The findings are also summarised in terms of the leverage of the scheme on the market, the different types present, and similarities/differences among/between the UK and the EU.

Template structure

Each sector is broken down into three tables to facilitate examination. The first table presents a brief look at the sector’s market. The second is for product-based schemes\(^{19}\), and the third examines organisation-based schemes.

The structure of the template is as follows:

- All information in the same column pertains to the scheme listed in the row entitled ‘Name of scheme’.
- The ‘Other information’ row examines the scheme within the EU context.
- The row entitled ‘Geography’ specifies whether the scheme is used internationally, within Europe, only within the UK, or within another country (for example, Der Blauer Engel in Germany).
- The approximate cost to obtain certification only includes third party verification and registration fees (where available) and does not include costs associated with data collection.
- The row entitled ‘Scheme Market in UK’ describes the companies that use the scheme listed, and market share information for that company when available.

Limited information has been identified for the banking or tourism sectors, due to the time constraints affecting the completion of the literature review.

---

\(^{19}\) ‘Scheme’ here means an approved certification mark or a framework used by companies in order to make an environmental declaration.
# Buildings

<table>
<thead>
<tr>
<th>Sector</th>
<th>Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total UK Market</td>
<td>£90 billion in value added (6.7 % of the UK economy) ²⁰</td>
</tr>
<tr>
<td>Exports</td>
<td>Exports in construction have a trade surplus of about £590 million in 2011</td>
</tr>
<tr>
<td></td>
<td>Exports in architecture and quantity surveying services have a trade surplus of about £530 million in 2011 ²⁰</td>
</tr>
<tr>
<td>Imports</td>
<td></td>
</tr>
<tr>
<td>Total EU Market</td>
<td>UK made up 8 % of construction enterprises in the EU-27 in 2010 ²⁰</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Product</th>
<th>Methodology</th>
<th>Name of scheme</th>
<th>Geography</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PAS 2050</td>
<td>Carbon Trust²⁹</td>
<td>UK</td>
</tr>
<tr>
<td></td>
<td>ISO 14025 with Product Category Rules</td>
<td>Environmental Product Declaration (EPD)²²</td>
<td>International</td>
</tr>
<tr>
<td></td>
<td>BREEAM (Building Research Establishment Environmental Assessment Method)</td>
<td>BREEAM</td>
<td>International (Mostly UK)</td>
</tr>
<tr>
<td></td>
<td>Uses ‘SAP’ rating (Standard Assessment Procedure)²¹</td>
<td>Energy Performance Certificates</td>
<td>European</td>
</tr>
</tbody>
</table>


²¹ Energy Key. “EPC ratings explained Energy Performance Certificates bands.” [http://www.energykey.co.uk/epc.html](http://www.energykey.co.uk/epc.html)

<table>
<thead>
<tr>
<th>Product Methodology</th>
<th>PAS 2050</th>
<th>ISO 14025 with PCRs</th>
<th>BREEAM</th>
<th>Uses ‘SAP’ rating</th>
</tr>
</thead>
</table>
| Single or multiple criteria | Single: Calculation of GHG emissions | Multi: Complete LCA and the impact categories measured are: Acidification potential Eutrophication potential Global warming potential Photochemical oxidant creation potential | Multi: “A BREEAM assessment uses recognised measures of performance, which are set against established benchmarks, to evaluate a building’s specification, design, construction and use. The measures used represent a broad range of categories and criteria from energy to ecology. They include aspects related to energy and water use, the internal environment (health and well-being), pollution, transport, materials, waste, ecology and management processes.” | Multi: | - information about a property’s energy use and typical energy costs as well as
- recommendations about how to reduce energy use and save money
- energy efficiency rating from A (most efficient) to G (least efficient) and it is valid for 10 years. |
| Approximate cost for certification | Cost estimate on request | Price for 1 EPD €1,500; also annual fee of €500 for micro €1,000 for SME €2,500 for large companies | “The Assessor's fee will vary depending on what services you require from them. You may wish for them to offer BREEAM related consultancy advice in addition to carrying out and guiding you through the formal BREEAM assessment and certification process.” | Costs can range from around £60 to £120. |
| Scheme Market in UK | Carbon Footprinting scheme used by: Holcim (product: cement) | Companies that use this scheme: Bitumen Waterproofing | 3,711 buildings are BREEAM certified | Required whenever a property is built, sold, or rented. Exceptions are: |

---

23 BREEAM. “What is BREEAM?” [http://www.breeam.org/about.jsp?id=66](http://www.breeam.org/about.jsp?id=66)
24 BREEAM. “Frequently asked questions.” [http://www.breeam.org/page.jsp?id=27#BREEAM12](http://www.breeam.org/page.jsp?id=27#BREEAM12)
<table>
<thead>
<tr>
<th>Product Methodology</th>
<th>PAS 2050</th>
<th>ISO 14025 with PCRs</th>
<th>BREEAM</th>
<th>Uses ‘SAP’ rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kingfisher[^26] (various products – make up 10.5% of retail sales)</td>
<td>Association (1 product) Accsys Technologies PLC (1 product) British Gypsum Saint-Gobain (5 products)</td>
<td></td>
<td></td>
<td>• places of worship • temporary buildings used for &lt;2 years • stand-alone buildings with total useful floor space of &lt;50 m² • industrial sites, workshops and non-residential agricultural buildings that don’t use a lot of energy • some buildings due to be demolished • holiday accommodation rented out for &lt;4 months a year or let under licence • listed buildings • residential buildings used for &lt;4 months a year.</td>
</tr>
<tr>
<td>Low Carbon Building Certification: University of St Andrews West Lothian Bathgate Partnership Centre</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Other information**

- PAS 2050 is a methodology widely used worldwide.
- There are 75 total construction products using this scheme.
- Other countries that use this scheme: Czech Republic, Italy (most products are owned by Italian companies), Spain, Sweden, Japan, Israel
- Used in the following countries: Germany, Netherlands, Norway, Spain, Sweden, and Austria
- BREEAM has also developed internationally usable criteria used in over 50 countries and has certified over 250,000 buildings[^28]

[^27]: GreenBook Live. “BREEAM certified projects.”
<table>
<thead>
<tr>
<th>Organisation</th>
<th>Methodology</th>
<th>Name of scheme</th>
<th>Geography</th>
<th>Single or multiple criteria</th>
<th>Approximate cost for certification</th>
<th>Scheme Market in UK</th>
<th>Other information</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ISO 14064-1:2006</td>
<td>CEMARS® (Certified Emissions Measurement and Reduction Scheme)</td>
<td>UK</td>
<td>Single: calculation of GHG emissions</td>
<td>Cost estimates are only given after application</td>
<td>Companies in the UK that use this scheme&lt;sup&gt;30&lt;/sup&gt;: Alltask, BAM Group, Barhale Construction, Black and Veatch Contracting, C Spencer, Cape Intermediate Holdings, Carillion UK, The Clancy Group, Claret Civil Engineering, Colas, Costain Group, Daniel Contractors, DCT Civil Engineering, Farns Group, I &amp; H Brown, J Murphy and Sons, Keltbray Pectel, Kier Group, Laing O'Rourke, May Gurney Integrated Services, McNicholas Construction (Holdings), Morgan Sindall Group, Nomenca Limited, North Midland Construction, Pick Everard, RJC UK, Skanska UK, Stockton Drilling, William Hare Group</td>
<td>CEMARS is present in Chile, New Zealand, the United Arab Emirates, and the UK.</td>
</tr>
</tbody>
</table>
Clothing

UK companies do not use EPD, CEMARS, or RobecoSAMS schemes.

<table>
<thead>
<tr>
<th>Sector</th>
<th>Clothing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total UK Market</td>
<td>Fashion directly contributes nearly £21 billion to the UK economy(^{32})</td>
</tr>
<tr>
<td>Exports</td>
<td>£3.9 bn of clothing and footwear a year(^{33})</td>
</tr>
<tr>
<td>Imports</td>
<td>90% of UK clothing is imported(^{34})</td>
</tr>
<tr>
<td></td>
<td>£14.6 bn of imported garments(^{33})</td>
</tr>
<tr>
<td>Total EU Market</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Methodology</th>
<th>Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAS 2050</td>
<td></td>
</tr>
<tr>
<td>Carbon Trust</td>
<td></td>
</tr>
<tr>
<td>UK</td>
<td></td>
</tr>
<tr>
<td>Single:</td>
<td></td>
</tr>
<tr>
<td>Calculation of GHG emissions</td>
<td></td>
</tr>
<tr>
<td>Estimates given on request.</td>
<td></td>
</tr>
<tr>
<td>Carbon Footprinting scheme used by: Continental Clothing(^{35}) (product: cotton t-shirt)</td>
<td></td>
</tr>
<tr>
<td>PAS 2050 is a methodology widely used worldwide</td>
<td></td>
</tr>
</tbody>
</table>


\(^{34}\)Defra. 2010. “Sustainable Clothing Action Plan (updated 21 Feb 2010).”

### UK Assessment of Footprinting Methods

<table>
<thead>
<tr>
<th>Organisation</th>
<th>Methodology</th>
<th>Name of scheme</th>
<th>Geography</th>
<th>Single or multiple criteria</th>
<th>Approximate cost for certification</th>
<th>Scheme Market in UK</th>
<th>Other information</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>GHG Protocol</td>
<td>Carbon Trust</td>
<td>UK</td>
<td>Single: Calculation of GHG emissions</td>
<td>Estimate on request</td>
<td>Used by several UK companies: John Lewis, Marks &amp; Spencer, Next, Sports Direct, Asda, Tesco, Sainsbury’s and Boots.</td>
<td>The international equivalent is the GHG Protocol. However, no clothing companies use this scheme.</td>
</tr>
<tr>
<td></td>
<td>Carbon Neutral</td>
<td></td>
<td>International</td>
<td>Single: Calculation of GHG emissions and offset measures to achieve carbon neutrality</td>
<td></td>
<td>5 companies: Marks &amp; Spencer, Ted Baker, Asos, Chinti and Parker, and Vans</td>
<td>Also used internationally by 1 company: True Textiles (USA). Work with more than 350 companies in 35 countries</td>
</tr>
</tbody>
</table>

---


**Food and drink**

The food and drink sector includes retailers.

<table>
<thead>
<tr>
<th>Sector</th>
<th>Food and Drink</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total UK Market</td>
<td>£96.1 bn(^{39})</td>
</tr>
<tr>
<td>Exports</td>
<td>Food and non-alcoholic drink exports were £12.1 bn in 2012(^{40})</td>
</tr>
<tr>
<td>Imports</td>
<td>~50 %</td>
</tr>
<tr>
<td></td>
<td>25 countries together accounted for 90 % of UK food supply(^{39})</td>
</tr>
<tr>
<td>Total EU Market</td>
<td></td>
</tr>
</tbody>
</table>

---


## UK Assessment of Footprinting Methods

<table>
<thead>
<tr>
<th>Methodology</th>
<th>“All assessments quantify greenhouse gas emissions in accordance with internationally recognised protocols.”[^1]</th>
<th>PAS 2050</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of scheme</td>
<td>Carbon Neutral</td>
<td>Carbon Trust</td>
</tr>
<tr>
<td>Geography</td>
<td>International</td>
<td>UK</td>
</tr>
<tr>
<td>Single or multiple criteria</td>
<td>Calculation of GHG emissions and offset measures to achieve carbon neutrality</td>
<td>Single: Calculation of GHG emissions</td>
</tr>
<tr>
<td>Approximate cost for certification</td>
<td></td>
<td>Carbon Trust Carbon Reduction Label and Footprinting: Kingsmill (three top-selling loaves - Soft White, Tasty Wholemeal and 50/50) Carbon Trust Footprinting: Tesco (over 100 products, including food and beverage)</td>
</tr>
<tr>
<td>Scheme Market in UK</td>
<td>Icelandic Glacial[^2]</td>
<td></td>
</tr>
<tr>
<td>Other information</td>
<td>Work with more than 350 companies in 35 countries[^3]</td>
<td>PAS 2050 is a methodology widely used worldwide</td>
</tr>
</tbody>
</table>


### Methodology

“All assessments quantify greenhouse gas emissions in accordance with internationally recognised protocols.”

### For organisations that measure, manage and reduce water use year on year\(^4\)

<table>
<thead>
<tr>
<th>Organisation</th>
<th>GHG Protocol</th>
<th>Corporate Sustainability Assessment (CSA)(^4)</th>
<th>ISO 14064-1:2006</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Name of scheme</strong></td>
<td>Carbon Neutral</td>
<td>Carbon Trust</td>
<td>Carbon Trust</td>
</tr>
<tr>
<td><strong>Geography</strong></td>
<td>International</td>
<td>UK</td>
<td>UK</td>
</tr>
<tr>
<td><strong>Single or multiple criteria</strong></td>
<td>Single: Calculation of GHG emissions and offset measures to achieve carbon neutrality.</td>
<td>Estimate on request</td>
<td>Estimate on request</td>
</tr>
<tr>
<td><strong>Approximate cost for certification</strong></td>
<td>Estimates are given on request</td>
<td>Estimates are given on request</td>
<td>Cost estimates are only given after application</td>
</tr>
</tbody>
</table>


\(^5\) Disclaimer: Information more precise was not found in preliminary search. [http://www.carbontrust.com/client-services/footprinting/footprint-certification/carbon-trust-water-standard](http://www.carbontrust.com/client-services/footprinting/footprint-certification/carbon-trust-water-standard)

\(^6\) An industry specific questionnaire featuring approximately 80-100 questions (depending on the industry, which are defined based on the Global Industry Classification System (GICS)) on financially relevant economic, environmental, and social factors. This information is then integrated into financial analysis for asset management products. [http://yearbook.robecosam.com/files/rs_data/pdf/RobecoSAM_CSA_methodology_bochure.pdf](http://yearbook.robecosam.com/files/rs_data/pdf/RobecoSAM_CSA_methodology_bochure.pdf)
<table>
<thead>
<tr>
<th>Methodology/scheme</th>
<th>Organisation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Scheme Market in UK</strong></td>
<td><strong>Corporate Sustainability Assess.</strong></td>
</tr>
<tr>
<td>Methodology/</td>
<td>UK companies using</td>
</tr>
<tr>
<td>scheme</td>
<td>this scheme:</td>
</tr>
<tr>
<td></td>
<td>M&amp;S, Kallo</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Other information</strong></td>
<td><strong>Other information</strong></td>
</tr>
<tr>
<td>M&amp;S and Kallo are the only Food and Drink Sector companies to use this scheme</td>
<td>Work with more than 350 companies in 35 countries</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**Chemicals**

The chemicals sector includes: Basic chemicals; Pharmaceuticals; Paints and coating; Perfumes and toilet preparations; Soap, detergents and cleaning products; Agrochemicals; and Man-made fibres.

No UK chemical companies use EPD, CEMARS, and RobecoSAM schemes.

<table>
<thead>
<tr>
<th>Sector</th>
<th><strong>Chemicals</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total UK Market</td>
<td>Sales chemical industry in 2010 £54.9 bn</td>
</tr>
<tr>
<td></td>
<td>Contributes 1.4 % to GDP</td>
</tr>
</tbody>
</table>
|                      | More than 95 % of all manufactured products in the UK contain inputs from the chemical industry

| Exports              | £294 bn                                                                       |
|                      | One of the largest exporting sectors                                           |
|                      | Mostly pharmaceuticals

| Imports              | EU has 25 % of global market at £407 bn                                        |

---

52 Dr Paul Gilbert et al. 2013. “The chemical industry in the UK – market and climate change challenges.”
<table>
<thead>
<tr>
<th><strong>Product</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Methodology</strong></td>
<td>Third party verification; CSPs (Charter Sustainability Procedures) and KPIs (Key Performance Indicators)(^\text{53})</td>
</tr>
<tr>
<td><strong>Name of scheme</strong></td>
<td>The A.I.S.E. charter for sustainable cleaning(^\text{54})</td>
</tr>
<tr>
<td><strong>Geography</strong></td>
<td>European</td>
</tr>
<tr>
<td><strong>Single or multiple criteria</strong></td>
<td>Multiple criteria; focus on sustainability of product CSPs: Raw material selection and safety evaluation Resource use (energy, water, raw materials, and packaging materials)</td>
</tr>
<tr>
<td><strong>Approximate cost</strong></td>
<td>There are no registration costs for companies which are members of an A.I.S.E. National Association The Licence is free of charge unless not a member of A.I.S.E. then supplier has to pay an annual administration fee of €1,500(^\text{55})</td>
</tr>
<tr>
<td><strong>Scheme Market in UK</strong></td>
<td>9 Manufacturers; 1 Distributer</td>
</tr>
<tr>
<td><strong>Other information</strong></td>
<td>A.I.S.E. counts more than 200 companies committed to the Charter, covering 85 % of the market in Europe(^\text{56})</td>
</tr>
</tbody>
</table>

---

\(^{53}\) Maybe more similar to EMAS/ISO 14001 than an environmental declaration scheme.


## UK Assessment of Footprinting Methods

<table>
<thead>
<tr>
<th>Organisation</th>
<th>Methodology</th>
<th>Name of scheme</th>
<th>Geography</th>
<th>Approximate cost</th>
<th>Scheme Market in UK</th>
<th>Other information</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>GHG Protocol</td>
<td>Carbon Trust</td>
<td>UK</td>
<td>Estimate on request</td>
<td>Carbon Reduction Label: 1 company – GrowHow, Carbon Survey: 1 company – Univar</td>
<td>The GHG protocol has not evaluated any chemicals sector companies</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Carbon Trust</td>
<td>UK</td>
<td>Estimate on request</td>
<td>Water Standard: 1 company – AkzoNobel</td>
<td>The European Water Stewardship is still in pilot form, but evaluates the water footprint of companies</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Carbon Trust</td>
<td>International</td>
<td>Estimate on request</td>
<td>–</td>
<td>All companies in the chemicals sector using this scheme are in UK. Work with more than 350 companies in 35 countries</td>
</tr>
</tbody>
</table>

“All assessments quantify greenhouse gas emissions in accordance with internationally recognised protocols.”


UK Assessment of Footprinting Methods

**Transport**

Does not include aviation.

<table>
<thead>
<tr>
<th>Sector</th>
<th>Transportation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total UK Market</td>
<td>£59 bn⁶⁴</td>
</tr>
<tr>
<td>Exports</td>
<td>1,275,000 vehicles⁶⁴</td>
</tr>
<tr>
<td>Imports</td>
<td></td>
</tr>
<tr>
<td>Total EU Market</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Methodology</th>
<th>Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tests whether vehicles have well-to-wheel GHG emissions equal to or less than the LCEB target for their given maximum passenger capacity⁶⁵</td>
<td>ISO 14025 with Product Category Rules</td>
</tr>
<tr>
<td>Name of scheme</td>
<td>LCEB Certificates⁶⁶</td>
</tr>
</tbody>
</table>

---


<table>
<thead>
<tr>
<th>Product</th>
<th>Methodology/scheme</th>
<th>Geography</th>
<th>Single or multiple criteria</th>
<th>Approximate cost</th>
<th>Scheme Market in UK</th>
<th>Other information</th>
</tr>
</thead>
<tbody>
<tr>
<td>LCEB Certificates</td>
<td>ISO 14025 with PCRs</td>
<td>International</td>
<td>Single: Calculation of GHG emissions</td>
<td>Price for 1 EPD €1,500; + annual fee: €500 for micro, €1,000 for SME €2,500 for large companies</td>
<td>UK has over 800 certified low carbon buses (LCEBs)</td>
<td>The EU does not have low carbon bus certification</td>
</tr>
<tr>
<td>ISO 14025 with PCRs</td>
<td></td>
<td></td>
<td>Multi: Complete LCA and the impact categories measured are: Acidification, Eutrophication, global warming and photochemical oxidant creation potentials</td>
<td></td>
<td>Companies in the UK which use this scheme: Bombardier (6 products)</td>
<td>European companies which use this scheme: ALSTOM Transport Deutschland GmbH (1 product) AnsaldoBreda S.p.A (1 product) Construcciones y Auxiliar de Ferrocarriles S.A (3 products)</td>
</tr>
<tr>
<td>Passenger Car Regulations</td>
<td></td>
<td>European</td>
<td>Multi: fuel efficiency and CO₂ emissions</td>
<td></td>
<td>Mandatory for all new cars; voluntary for used cars</td>
<td>EU Directive 1999/94/EC requires new car fuel consumption and CO₂ emissions data to be made freely available to consumers and was transposed into UK law with the UK Passenger Car (Fuel Consumption and CO₂ Emissions Information) Regulations.</td>
</tr>
<tr>
<td>EU Tyre Labelling Regulation</td>
<td></td>
<td>European</td>
<td>Multi: wet grip, fuel efficiency and external noise. There is a 7.5 % improvement of fuel economy and 30 % better braking distance between best and worst rated car tyres⁶⁴</td>
<td></td>
<td>Mandatory for all new tyres and for all new vehicles</td>
<td>EU Tyre Labelling Regulation 1222/2009</td>
</tr>
</tbody>
</table>
## UK Assessment of Footprinting Methods

<table>
<thead>
<tr>
<th>Organisation</th>
<th>ISO 14064-1:2006</th>
<th>GHG Protocol&lt;sup&gt;69&lt;/sup&gt;</th>
<th>Corporate Sustainability Assessment (CSA)&lt;sup&gt;70&lt;/sup&gt;</th>
<th>Odette Reporting Guidelines for GHG Reporting (freight activities)&lt;sup&gt;64&lt;/sup&gt;</th>
<th>Jury&lt;sup&gt;71&lt;/sup&gt;</th>
<th>“All assessments quantify greenhouse gas emissions in accordance with internationally recognised protocols.”&lt;sup&gt;72&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of scheme</td>
<td>CEMARS&lt;sup&gt;64&lt;/sup&gt;</td>
<td>Carbon Trust&lt;sup&gt;73&lt;/sup&gt;</td>
<td>RobecoSAM</td>
<td>Odette</td>
<td>Der Blauer Engel/The Blue Angel&lt;sup&gt;74&lt;/sup&gt;</td>
<td>Carbon Neutral</td>
</tr>
<tr>
<td>Geography</td>
<td>UK</td>
<td>UK</td>
<td>International</td>
<td>European</td>
<td>Germany</td>
<td>International</td>
</tr>
<tr>
<td>Approx. cost</td>
<td>Cost estimates are given after application</td>
<td>Estimate on request</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

<sup>69</sup> WRI/WBCSD Corporate Value Chain Standard

<sup>70</sup> An industry specific questionnaire featuring 80-100 questions defined based on the Global Industry Classification System (GICS) on financially relevant economic, environmental, and social factors. This information is then integrated into financial analysis for asset management products. [http://yearbook.robecosam.com/files/rs_data/pdf/RobecoSAM_CSA_methodology_bochure.pdf](http://yearbook.robecosam.com/files/rs_data/pdf/RobecoSAM_CSA_methodology_bochure.pdf)

<sup>71</sup> The award of the Blue Angel is preceded by a review of the entire lifecycle of the products. [Carbonneutral. “Carbon footprinting assessments.” http://www.carbonneutral.com/our-services/carbon-footprint-assessments](http://www.carbonneutral.com/our-services/carbon-footprint-assessments)


<table>
<thead>
<tr>
<th>Methodology</th>
<th>Organisation</th>
<th>GHG Protocol</th>
<th>Corporate Sustainability Assess.</th>
<th>Odette Reporting</th>
<th>Jury</th>
<th>Carbon Neutral</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISO 14064-1:2006</td>
<td>Companies using this scheme are: BMW and Volvo - 2012 sold 159,320 units, which accounts for 8% of the total vehicle units sold in UK. Other companies include: Europcar; Eurostar HS1, F Sherwood &amp; Sons</td>
<td>Stagecoach group uses this scheme. Stagecoach group has a market share of around 20% of the UK bus market, and also has about 12.3% of the UK rail market. Toyota also uses this scheme.</td>
<td>RobecoSAM Silver Class: Royal Mail Group&lt;br&gt;Sustainability Yearbook Members: Firstgroup PLC</td>
<td>Odette is a pan-European collaboration and services platform for the entire automotive supply chain.</td>
<td>Jury</td>
<td>3 companies use this scheme in the UK: Avis, Radio Taxis, Carey Worldwide Chauffeured Services. Work with more than 350 companies in 35 countries.</td>
</tr>
<tr>
<td>GHG Protocol</td>
<td>CEMARS is present in Chile, New Zealand, the United Arab Emirates, and the UK. The international equivalent is the GHG Protocol. European companies that use the GHG Protocol scheme: Daimler Chrysler, Volkswagen</td>
<td>RobecoSAM is a widely used sustainability auditing service globally, and in UK and Europe. Companies include: Bronze Class: Abertis Infraestructuras SA Atlantia SpA Sustainability Yearbook Members: Deutsche Post, Fraport AG Frankfurt Airport Services, TNT Express</td>
<td>Odette is an independent third-party auditing service. Work with more than 350 companies in 35 countries.</td>
<td>Is mostly used in Germany.</td>
<td>Jury</td>
<td>3 companies use this scheme in the UK: Avis, Radio Taxis, Carey Worldwide Chauffeured Services. Work with more than 350 companies in 35 countries.</td>
</tr>
</tbody>
</table>

75 CEMARS. “High level classification of CEMARS registered organisations by primary business activity.”
77 “Toyota and the environment.” [http://www.toyota.co.uk/environment/sales-and-marketing](http://www.toyota.co.uk/environment/sales-and-marketing)
Utilities

The utilities market in the UK is controlled by the ‘big six’ (with 90% share of domestic costumers); British Gas, EDF Energy, E.ON UK, npower, Scottish Power, and SSE. RobecoSAM has no UK companies listed for utilities. No product schemes were found.

<table>
<thead>
<tr>
<th>Sector</th>
<th>Utilities</th>
</tr>
</thead>
</table>
| Total UK Market | The total direct contribution of the sector to the UK economy in 2011 (measured by contribution to GDP) was £20.6 bn  
|                 | The turnover in the Energy sector in 2011 was estimated to be £89 bn |
| Exports         | nuclear exports at £700 m                                                |
| Imports         | Imports 72.52 Mtoe electricity (2010)                                    |
| Total EU Market |                                                                          |

| Methodology | ISO 14064-1:2006; PAS 2050:2008                                           |
| Geography   |                                                                           |
| Single or multiple criteria | Single: Calculation of GHG emissions, offset measures to achieve carbon neutrality. |
| Organisation |                                                                        |
| Name of scheme | Carbon Neutral                     | CEMARS®                      | Carbon Trust  |
| Geographical Scope | International                  | UK                           |               |
| GHG Protocol |                                                                                   |
| Name of scheme | Carbon Neutral                     | CEMARS®                      | Carbon Trust  |
| Geographical Scope | International                  | UK                           |               |
| GHG Protocol |                                                                                   |
| Name of scheme | Carbon Neutral                     | CEMARS®                      | Carbon Trust  |
| Geographical Scope | International                  | UK                           |               |
| GHG Protocol |                                                                                   |

\[\text{Disclaimer: more precise information was not found in preliminary search.}\]

82 http://www.carbontrust.com/our-clients/n/npower
<table>
<thead>
<tr>
<th>Organisation</th>
<th>Cost estimates are only given after application</th>
<th>Estimate on request</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approximate cost for certification</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scheme Market in UK</td>
<td>1 company: EDF with an UK Electricity Market Share in 2011 of 15.7 %&lt;sup&gt;83&lt;/sup&gt;</td>
<td>UK companies that use this scheme: Anglian Water Services, Northern Powergrid, Southern Water, South West Water, Scottish and Southern Energy, United Utilities, Adler and Allan, Aggreko Northern Europe, Balfour Beatty Utility Solutions, Central Group, Compass Power Solutions, Enterprise, Global Water Conservation, Hargreaves Industrial Services, Industrial Vales, Instalcom, Integrated Water Services, KAEFER C&amp;D, Morrison Utility Services, MWH Treatment, PJD Group, Powerteam Electrical Services, Rotary Equipment Services, West Coast Network Services</td>
</tr>
<tr>
<td>Other information</td>
<td>EDF is only utilities company who uses this scheme. Work with more than 350 companies in 35 countries&lt;sup&gt;84&lt;/sup&gt;</td>
<td>The GHG protocol is a way to calculate GHG emissions. It is used in Europe in the utilities sector by a few energy companies: Birka Energi, ENDESA, N.V. Nuon Renewable Energy&lt;sup&gt;85&lt;/sup&gt;</td>
</tr>
</tbody>
</table>


UK Assessment of Footprinting Methods

Cross-sector results

The main type of environmental declaration scheme for all sectors is based on greenhouse gas emissions calculation, whether it be reduction, off-setting, or footprinting.

The most commonly applied methodologies are the GHG Protocol, PAS 2050, and ISO 14064-1:2006. Some schemes use less well defined methodologies.

Buildings

Exports remain a small part of the construction sector. Product schemes are mostly focused on building efficiency and are applied to buildings themselves. There are a very limited number of products used for construction that apply a scheme (Holcim’s concrete underwent carbon footprinting for example). The most widely used scheme is BREEAM.

At the organisational level, the only two schemes used deal with greenhouse gas emissions. CEMARS® is the most widely used, with over 25 companies.

Construction products elsewhere in Europe use EPD® at a higher rate than in the UK and, while BREEAM is a UK scheme based on UK legislation, Germany, Netherlands, Norway, Spain, Sweden, and Austria are other European countries using the scheme for buildings.

CEMARS® is not used outside the UK, and the GHG protocol (a globally used initiative) has only been applied to cement companies.

Clothing

The clothing sector exports very little, but imports a great deal. The only product scheme is carbon footprinting, and is used for only one product – a cotton t-shirt.

Only two organisational schemes are used, and both are related to greenhouse gas emissions. Carbon Trust is the most widely used and is used by big names.

It seems that UK clothing sector is unique in adopting organisational and product based schemes when compared to the EU.

Food and drink

The food and drink sector does not export much and relies heavily on imports. There are two types of product schemes used, and both deal with greenhouse gas emissions. Carbon Trust is the most used carbon footprinting scheme, and is used by the supermarket Tesco. However, most supermarket chains do not perform carbon footprinting for their products.

There are five prevalent organisational schemes for this sector, most of which deal with greenhouse gas emissions (CEMARS®, Carbon Trust, and Carbon neutral). One scheme deals with water use (Carbon Trust Water Standard) and the last scheme deals with sustainable business practices (RobecoSAM). The spread of use of the schemes is pretty even, with two to three companies per scheme. Some companies used multiple schemes (Tesco uses both Carbon Trust and RobecoSAM for example). Most supermarket giants use a scheme. However, very few food and drink manufacturers do.

CEMARS® is not used outside the UK, and the GHG protocol (a globally used initiative) has yet to be applied to the food and drink sector. The only food companies that use Carbon Neutral are UK companies despite the fact that it is a globally recognised scheme.
Chemicals

The chemicals sector is one of the largest exporting sectors in the UK, exporting more than £290 billion in 2013 made up mostly by pharmaceuticals. This sector is not a big user of schemes.

Only one product scheme exists, and for only two product types in chemicals (perfumes and toilet preparations; soap, detergents and cleaning products), the A.I.S.E. Charter for sustainable cleaning.

Organisations are mostly concerned with greenhouse gas emissions schemes. However, no schemes are widely applied and most have around two companies applying the scheme.

The A.I.S.E. Charter for sustainable cleaning is very widely used throughout Europe. Other scheme types are not widely used elsewhere.

Transport

The transport sector has four main schemes for products. Two are mandatory labels required by European Directives (Tyre labelling, Fuel and Energy Efficiency Labelling). The Environmental Product Declaration (EPD®) is used in the UK for train transport, and the UK has its own scheme for labelling low carbon buses.

Organisational schemes are used by many car companies; often the same company will apply to multiple schemes. Three schemes evaluate carbon emissions. Carbon neutral is used by taxi and ride sharing companies, whereas car manufacturers tend to focus on carbon reduction measures (CEMARS®, Carbon Trust).

CEMARS® is not used outside the UK. Germany uses GHG protocol and the German environmental label, Der Blauer Engel, is used all over Europe. The UK appears to be unique in using environmental declarations for carbon free buses. However EPD® is used by other European countries for trains.

Utilities

The utilities market in the UK is controlled by the ‘big six’ (with 90% share of domestic customers), British Gas, EDF Energy, E.ON UK, npower, Scottish Power, and SSE. Some energy is imported, and very little is exported (nuclear energy being the biggest export).

No product schemes were found for this sector. Organisational schemes deal uniquely with greenhouse gas emissions, with the overwhelming majority using CEMARS®. Of the ‘big six’, EDF uses Carbon Neutral and npower uses Carbon Trust; the other four do not appear to use any schemes.

Sweden, The Netherlands, and Spain are the other European countries which use organisational schemes. However, they use the GHG Protocol and not the UK schemes.
Annexe C: Workshop Agenda and Invitation

Stakeholder Workshop
Date: Monday 24th November 2014, 09:30-12:30
Venue: Room C3, BIS Conference Centre, 1 Victoria Street, SW1H 0ET, London.

Project Background
The UK Government Department for Environment Food and Rural Affairs (Defra) are conducting a project to better understand the costs and benefits to UK businesses of transition to the single product and organisational lifecycle method currently being trialled by the European Commission.

Specific benefits listed include: savings to business of applying a single lifecycle methodology; opportunities for cross-border trading of green products; clarity of consumer choice; improvements to resource efficiency. Whilst the European Commission aim for this single lifecycle method to replace the numerous others that are used across Europe, little research has been done in the UK to understand the impacts that such a transition would have on different UK business sectors.

Defra therefore contracted the services of Oakdene Hollins to talk to UK businesses about the current methods used to quantify product and organisational lifecycle impacts. As part of this study, an industry survey was conducted to ask businesses which footprinting methodologies they use (if any) and what benefits they identify from their application.

Study Findings
In total, 88 organisations participated in the survey across a range of target sectors. The headline survey results show that 57% of responding businesses use at least one footprinting methodology, with 30% of businesses currently applying multiple methodologies for product footprinting.

The main benefit identified was in realising improvements to resource efficiency. No companies noted any restrictions on cross-border trading of green products because of footprinting methodologies. The more detailed findings will be presented at the workshop.

Workshop Objectives
This workshop focuses on gathering further evidence on what footprinting methodologies are used and why? Defra wishes to hear directly from UK businesses to listen and gain greater understanding of the key issues, ahead of forming its policy in this area. The agenda for the workshop is overleaf.
Workshop Agenda

09:30 Arrival and registration

10:00 Welcome and introduction, Clare Southworth (Defra)
10:10 Outline of the project objectives, Lee Davies and John Walsh (Defra)
10:20 Overview survey findings, Peter Willis & Adrian Chapman (Oakdene Hollins)

11:00 Break-out discussion groups to discuss key questions:
   • What key benefits do companies realise from footprinting?
   • How tangible are these benefits versus the cost implications?
   • Why do companies use multiple footprinting methodologies?
   • Do companies use multiple methodologies for the same product?
   • What potential benefits would a single methodology offer?
   • What are some of the other key issues to consider?
   • How do footprinting practices vary by sector?

12:00 Plenary session to feedback discussions
12:30 Lunch

Afternoon Invitation

Note: This workshop focuses on evidence gathering. A second, larger, policy-related workshop will be held in the afternoon, 13:30-17:00, where Defra and the European Commission will provide an update on the European Commission footprinting pilots, with an opportunity for Q&A, discussion and feedback on future impacts and involvement. The attendees of the morning workshop are also invited to attend the second policy-related workshop, but spaces are limited and will be allocated on a first come first served basis.

RSVP

If you are interested in attending the workshop please RSVP by Friday 7th November to:

Peter Willis, Senior Economist, Oakdene Hollins
Pembroke Court, 22-28 Cambridge Street, Aylesbury, Buckinghamshire, HP20 1RS
Tel: +44 (0)1296 423915 Email: peter.willis@oakdenehollins.co.uk

Please make clear whether you are also interested in attending the afternoon workshop in your reply.
About the Authors:

Paul Vaughan MSc AIEMA CPFA, Principal Consultant
Product lifecycle management and environmental labelling are Paul’s key areas of expertise. He is engaged with Defra delivering the EU Ecolabel to the UK.

Peter Willis MSc, Senior Economist
Our economics expert, Peter has considerable experience in developing an evidence base for government policy or business strategy, such as market analysis. He has provided support to Ecolabel projects and led numerous strategic studies on raw materials supply. Peter is a member of the UK Royal Economic Society.

Adrian Chapman PhD MRSC, Senior Consultant
Adrian has a PhD in Green Chemistry and experience in technology transfer. His research has included case studies on the environmental impact of recycling and reuse strategies for a range of products. He is a lifecycle assessment practitioner, using SimaPro and EcoInvent, and is registered by the Carbon Trust to carry out carbon footprint analyses to PAS 2050 methodology.

Dan Skinner MSc PhD, Technical Consultant
Dan is a practitioner of SimaPro software for performing LCAs. He has a background in computer programming and data analysis, including extensive experience of SQL and VBA scripting. His MSc is in the Science of Natural Hazards from the University of Bristol and his PhD in Environmental Risk Analysis is from Cranfield University.

Oakdene Hollins Ltd
Ardenham Court
Oxford Road
Aylesbury
Buckinghamshire
HP19 8HT

+44(0)1296 423915
admin@oakdenehollins.co.uk

www.oakdenehollins.co.uk
www.remanufacturing.org.uk
www.infinifile.org.uk

Registered in England no: 2937129