



LIBERTY GLOBAL®

PRODUCT SUSTAINABILITY SCORECARD

IMPROVING THE SUSTAINABILITY PERFORMANCE OF EVERY NEW CUSTOMER PRODUCT





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EXECUTIVE SUMMARY



What is the Product Sustainability Scorecard?

A tool to measure and improve the sustainability performance of Liberty Global's customer products.

Why is the scorecard important?

Embedding sustainability into our product development process will allow Liberty Global to deliver more sustainable products, mitigate risk, improve operational excellence and innovation, and maintain brand value.

How was the scorecard developed?

Liberty Global and sustainability consultancy Thinkstep have collaborated to create the Product Sustainability Scorecard.

How does the scorecard work?

The Product Sustainability Scorecard works by identifying our products' most important environmental and social impacts.

Each impact area (e.g. resource consumption) contains questions about the characteristics of the product across the lifecycle stages

The answers to the questions provide two types of results:

- A score out of 10 for each impact area – this is used internally to tell us if we're ontrack and where we need to focus our efforts to improve the overall sustainability performance of the product
- Comparable measures of impact that demonstrate if the product is more sustainable than the last

What are the results of the first product?

Liberty Global's first global connectivity product, now distributed in 21 country operations, was used to test the Product Sustainability Scorecard.

When compared to the previous wifi hub distributed in the UK, for example, the Connect Box / Hub 3.0 delivers increased wifi capabilities, and new features such as Internet of Things and telephony, yet it is more energy and resource efficient:

- 15% more energy efficient¹ during use - avoiding enough electricity to power over 7,000 UK homes each year²
- Avoiding¹ 173 metric tons of plastics, metals and electronics and saving 40 metric tons of paper from documentation and 311 metric tons of cardboard from packaging

What next?

The Hub 3.0 results form a baseline to measure future broadband products against. Our aim is to improve the sustainability performance of our products relative to this baseline.

¹ Energy and resource efficiency is calculated based on relative performance of the products that takes into account increases in functionality.

² Based on average UK household energy consumption (Source: DECC, 2015).

PRODUCT SUSTAINABILITY SCORECARD

AN INTRODUCTION

Our Environmental Statement addresses the environmental impacts generated through our business. Now we have launched “sustainability by design” into our product development process. This program is underpinned by the Product Sustainability Scorecard; a unique tool to measure product environmental and social sustainability.

Our goal is to ensure that as we develop products, we integrate sustainability into the development process, right from the beginning. This means creating products that millions of customers across the world will love and that have an environmental and social story we can all be proud of.

This tool enables us to measure the impacts of our products so that we can improve their sustainability performance with each product iteration.

With the Product Sustainability Scorecard, we are now able to compare products in a like-for-like manner and demonstrate improvements made throughout the product development cycle – considering everything from packaging design to the accessibility of the user interface.

THREE IMPORTANT THINGS TO REMEMBER ABOUT THE PRODUCT SUSTAINABILITY SCORECARD

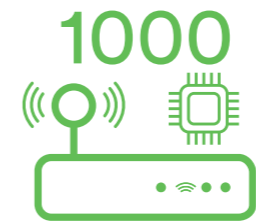
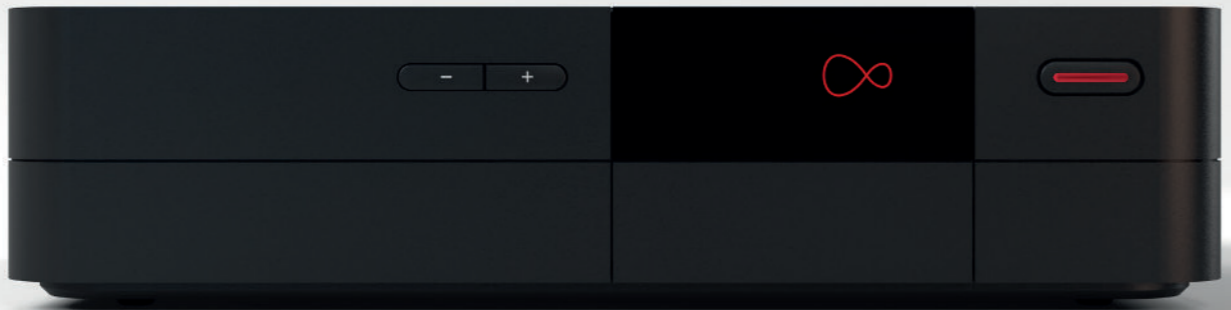
- * **It reflects both environmental and social impacts**
- * **It underpins the commitment, outlined in our Environmental Statement, to address the environmental impacts generated through our business**
- * **It will influence the design and development of our products right from the initial concept**

CONTEXT

WHY IT'S IMPORTANT TO CREATE THE PRODUCT SUSTAINABILITY SCORECARD

Our products serve over 25 million cable customers in more than 30 countries and, given the scale of the product manufacturing operation, improving the sustainability performance of our products is not an easy challenge.

By creating the Product Sustainability Scorecard, we can ensure that we focus on the right areas to improve the environmental and social impacts of future products.



EACH PRODUCT HAS AROUND A THOUSAND COMPONENTS



THESE COMPONENTS COME FROM AROUND 50 DIFFERENT SUPPLIERS



THESE INDIVIDUAL COMPONENTS ARE SOURCED FROM SEVERAL DIFFERENT COUNTRIES INCLUDING CHINA, JAPAN, USA, GERMANY, THAILAND AND TAIWAN

PROCESS

DESIGNING THE PRODUCT SUSTAINABILITY SCORECARD

When we set about designing our scorecard we asked three big questions. The answers gave us the basis for the Product Sustainability Scorecard.

1. **What environmental and social issues are most relevant for customer products?**

This helped us to identify our impact areas e.g. climate change.

2. **What specific activities in the life cycle influence these issues?**

The answers to this gave us the categories within the impact areas to measure against. e.g. power consumption.

3. **How can we measure the performance of these categories?**

This gave us the specific questions to score the categories against. e.g. power consumption in active use.

To answer these questions, we carried out a range of internal and external reviews that included:

- External benchmarking of impact areas against other companies and sectors
- Life Cycle Assessment on our previous broadband box, the Super Hub 2

- Review of relevant standards and guidelines, including the EU's eco-design requirements
- Internal and external stakeholder interviews to identify the most important impact areas. For example, we interviewed our own product development and design leads and consulted the advisory panel at Thinkstep
- Technical review conducted by WRAP, the not-for-profit promoting sustainable resource use

“WRAP’s mission is to accelerate the move to a sustainable, resource-efficient economy and we’re pleased to see Liberty Global taking such a proactive and methodical approach to sustainability. This gave us the specific questions to score the categories against. e.g. power consumption in active use.”

We reviewed Liberty Global’s Product Sustainability Scorecard in detail and believe it will play a key role in identifying the environmental and social impacts of their customer products, further delivering progress towards their goal of creating more sustainable products.

- Norah Lewis, Technical Specialist, WRAP

STRUCTURE

THE IMPACT AREAS THAT CREATE THE PRODUCT SUSTAINABILITY SCORECARD

We identified the most important social and environmental impact areas.

For each of these impact areas, we looked at how they are relevant to our customer products. These issues form the basis of the products' sustainability performance and the structure of the Product Sustainability Scorecard.



IMPACT ON NATURAL ENVIRONMENT

Reviewing where and how our suppliers source the components that make up our products, to avoid harming biodiversity and degrading the robustness and quality of ecosystems.



SUPPLY CHAIN

Ensuring the suppliers who make our products have stringent policies and practices in place. Covering conflict minerals, labor and business practices, sustainable sourcing etc.



RESOURCE CONSUMPTION

Promoting circular economy principles, especially where rare and non-renewable elements are present.



CLIMATE CHANGE

Reducing power consumption of products in use and standby modes to improve energy efficiency and decrease greenhouse gas (GHG) emissions.



PRODUCT RESPONSIBILITY

Ensuring products are accessible for everyone to use and support safe browsing and viewing help to keep young people safe online.



WASTE

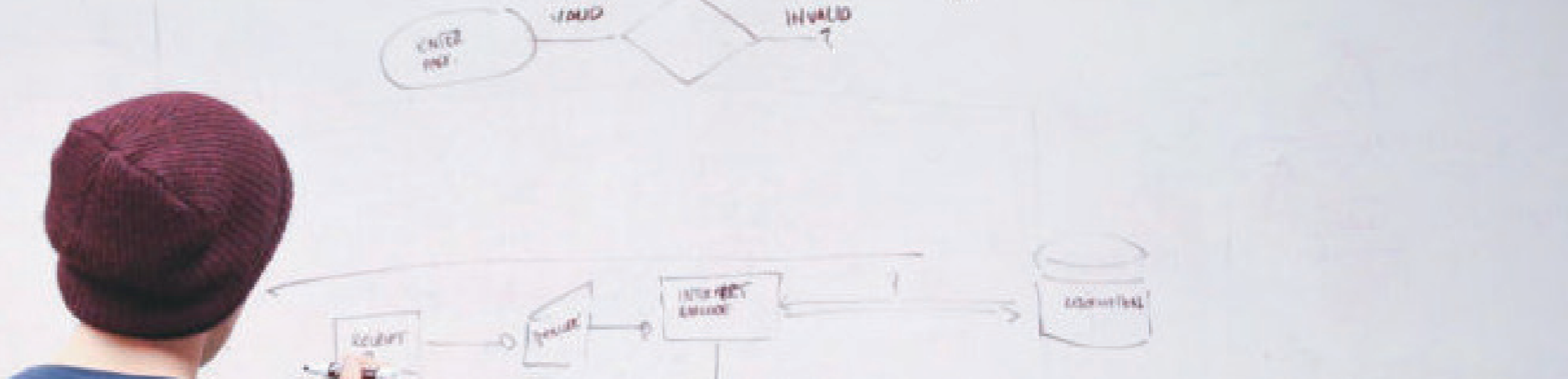
Increasing equipment refurbishment and recycling and improving resource efficiency.

METHODOLOGY

HOW THE RESULTS ARE CALCULATED

Each impact area contains a set of questions mapped to a specific lifecycle stage of the product. Questions are scored individually out of 10.

There are over 80 questions in the Product Sustainability Scorecard and they are scored in different ways.



Some questions are based on 'absolute performance' of the product.



What is the % of product that can be recycled at end of life?



Are tools available to support safe browsing and restriction of access to adult content?



Are auto sleep and standby options activated by default?

Other questions are based on 'relative performance' according to the functionality compared to the previous version of the product.



What is the power consumption during normal use?



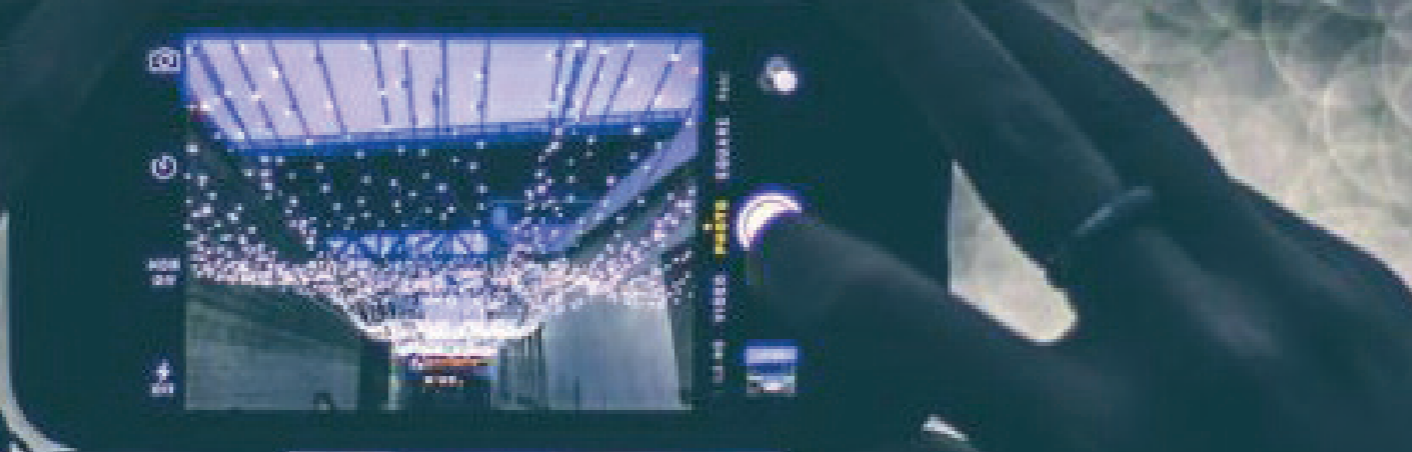
What proportion of the product (by mass) can be recycled?



What is the packaging mass?

METHODOLOGY

HOW THE RESULTS ARE CALCULATED



The answers to the questions within each impact area provide two types of results.

1. An internal measure of progress

Each of the questions within each impact area is scored individually out of 10 and weighted according to its importance (see page 8 for more information on how we determined the weightings).

The sum of the weighted scores for all questions in an impact area give the overall score for that area, which is also out of 10.

When we're developing a new product, we will use the impact area scores to identify where we're improving the sustainability performance of the product and where we need to focus efforts.

Impact	Resource Consumption	
Lifecycle Stage	Product & Manufacturing	Packaging
Question	What is the mass of electronic components & boards in this product?	What percentage of the product is made of recycled content?
Response	100g	>90%
Score pre-weighting	8	10
Question weighting	40%	2.5%
Score	3.2	0.3

2. Impact reduction measures

By comparing the characteristics of the product against to the previous model, using both absolute and relative comparisons, we can demonstrate improvement across environmental and social impact measures such as power consumption, raw material use and accessibility.





WEIGHTING

HOW WE DECIDE WHICH IMPACT AREAS AND QUESTIONS ARE MOST IMPORTANT

There is no standard protocol to follow when designing a holistic sustainability scorecard for customer electronic products. So in order to decide the weightings for the impact areas and the questions within those impact areas, we considered a range of factors:

- How other external organisations weigh their issues, such as the EPA Science Advisory Board
- The global versus the local scale and impact of the issue
- Stakeholder expectations about which issues should be more of a focus
- The level of information available on the issues

Impact Area Weighting

resource consumption impact on the natural environment



Example: The 'Resource consumption' impact area has a higher weighting than 'Impact on the natural environment'. This is because the former has a higher impact when looking at lifecycle assessment results and is more of a focus of stakeholders, who are concerned about end of life impacts. The latter incorporates issues like the toxicity of chemicals used in production processes and emissions to air and water, but these are typically localized issues.

Question Weighting

energy consumption during
maximum use idle use



Example: For climate change, the 'energy consumption during maximum use' question accounts for 48% of the total score for that impact area, whereas 'idle use' accounts for 32% because that reflects the consumption split in a typical user scenario.

CASE STUDY

VIRGIN MEDIA UK - ARE OUR PRODUCTS PERFORMING MORE SUSTAINABLY?

We used the Product Sustainability Scorecard to assess the Connect Box, marketed as Hub 3.0 in the UK. This box delivers increased wifi capabilities, and new features such as Internet of Things and telephony. The assessment found that the Connect Box is more energy and resource efficient than the previous connectivity box in distributed in the market. In fact, it is:

- 15%¹ more energy efficient during use - avoiding enough electricity to power over 7,000² UK homes each year.
- Avoids 173 metric tons of plastics, metals and electronics and saves 40 metric tons of paper from documentation and 311 metric tons of cardboard from packaging.

¹ Energy and resource efficiency is calculated based on relative performance of the products that takes into account increases in functionality.

² Based on average UK household energy consumption (Source: DECC, 2015).



311 METRIC TONS
CARDBOARD
& PACKAGING

40 METRIC TONS
PAPER
SAVED

173 METRIC TONS
PLASTICS,
METALS &
ELECTRONICS
AVOIDED

WHAT'S NEXT?

WE'RE NOT DONE YET

Our first Product Sustainability Scorecard forms the baseline for all future broadband products to be measured against.

Many teams at Liberty Global will be involved in ensuring the scorecard is embedded into our processes to drive an improvement in the sustainability performance of our products.

1. IMPACT ON THE ENVIRONMENT

We continue to work with our suppliers to improve their environmental impacts and utilize their expertise in lifecycle thinking and eco-design.

2. RESOURCE CONSUMPTION

We focus on reducing the weight of electronics relative to the functionality of the product, and introduce recycled content into the product casing.

3. CLIMATE CHANGE

40% of the energy our routers use in 24 hours is from their idle modes, so we're going to focus on making them more efficient.

4. WASTE

We further advance our ability to refurbish, reuse and recycle our products by making it even easier to disassemble products into constituent parts.

5. SUPPLY CHAIN

We work with our suppliers to secure the highest standards in all areas of social issues such as labor rights and fair business practices.

6. PRODUCT RESPONSIBILITY

We maintain our high standard by ensuring all our products are accessible and are used in a responsible way, and look to improve where and when possible.