Sustainable clothing

A practical guide to enhancing clothing durability and performance
Introduction: Sustainable Clothing Guide

Working together – taking practical action

With the whole clothing industry working together, we can all have a significant impact on the sustainability of clothing across its lifecycle. This will reduce the environmental footprint of clothing and transform the clothing industry, saving around £3 billion per year from the cost of resources used in making and cleaning clothes.

The most significant opportunity for savings is to increase the active life of clothes.

In this guide

This guide has been researched and developed with industry to provide a useful resource for the clothing industry. It will share best practice on how to design, produce and sell sustainable clothing that lasts longer and that can be easily re-used and recycled.

The content of the manual will develop over a period of time. The first section focusses on producing clothing that lasts longer by looking at the simple steps that can be taken to improve durability.

Extending the life of clothes by an extra nine months of active use would reduce carbon, water, and waste footprints by around 20–30% each.

Source: Valuing your clothes report
Producing better quality clothes that last longer brings real benefit to manufacturers and retailers, and to customers.

As well as reducing the environmental footprint, durability helps to drive quality which:
• safeguards against garment failure;
• strengthens brand reputation; and
• cements customer satisfaction and loyalty.

In this section you will find ideas, inspirational case studies and practical tools to help you produce more durable clothing and make a real difference to the environmental impact of clothing.

Find out more at www.wrap.org.uk/textiles
What does durability mean?
What does durability mean?

For some brands, ‘durability’ and ‘quality’ are interchangeable; in this guide we refer to two types of durability.

**Physical durability**
Garment design and construction to create products that can resist damage and wear. For a knitwear garment, for example, physical durability might be determined by the degree of pilling which occurs over time; for socks, the gauge may be colour fading.

**Emotional durability**
Garment design that takes into account relevance and desirability to the consumer – does it still fit, or is it no longer to their taste?

For a consumer, the durability of a product is measured by how long the product provides a useful service to them. Expectations for individual items vary; ties, jackets, blazers, coats and outdoor wear are expected to last for over five years, while underwear and tights have an active life of less than three years.

Based on research, women are more likely to say that clothes are no longer in active use because they don’t fit or are not to their taste; wear and tear is more of an issue for younger people; and older people are more likely to store items or not get around to disposing of them.
Active life of clothing by acquisition, occasion, and key subgroup

<table>
<thead>
<tr>
<th>Clothing acquisition</th>
<th>Active life of clothing</th>
<th>Clothing occasion</th>
<th>Demographic profile</th>
</tr>
</thead>
<tbody>
<tr>
<td>New</td>
<td>0 years</td>
<td>Casual outside home</td>
<td>Women</td>
</tr>
<tr>
<td>Second hand</td>
<td></td>
<td>Casual in home</td>
<td>Men</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Formal for work</td>
<td>18–34yrs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Day or evening out</td>
<td>35–54yrs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sports/outdoors</td>
<td>55yrs+</td>
</tr>
<tr>
<td></td>
<td>5+ years</td>
<td>Formal for an occasion</td>
<td>&lt;£10k</td>
</tr>
</tbody>
</table>

Source: Clothing Longevity Summary Report
Is clothing durability bad for business?

At a time when many clothing business models are based on frequent, low-cost purchases, manufacturing for durability may seem counter-productive.

However, this view misses the business opportunity that comes with taking the lead. Clothing designed to withstand wear and tear and to appeal to the customer for longer also helps to promote brand loyalty, confidence, and customer satisfaction.

In a saturated marketplace, quality and durability will help retain customers while attracting new buyers from your competitors.

In a saturated marketplace, quality and durability will help retain customers while attracting new buyers from your competitors.
Getting started: making clothing more durable
Getting started: making clothing more durable

How do I get started?
Implementing techniques which make clothing more durable starts at the design stage and requires buy-in from stakeholders throughout your supply chain.

An introductory workshop for some of the following colleagues can be a useful way to get started.

Stakeholders within the manufacturing sector
- Operational directors/managers
- Quality managers
- Procurement managers
- Supply chain directors/managers
- Category managers
- Shift and process managers
- H&S managers
- Finance managers

Stakeholders within the retail sector
- Store managers
- Quality managers
- Procurement managers
- Supply chain directors/managers
- Category managers
- Finance managers
- Buyers

Key questions to consider:
- What does clothing durability mean to your organisation (e.g. long lasting, quality, customer satisfaction)?
- Does your organisation currently address clothing durability? If so, how?
- How might you measure physical and emotional durability?
- Who else should you engage to get discussions started?
- Who needs to make the change?

George Case study
George arranged a successful workshop with a range of representatives including buyers, the design team, and sourcing and quality departments. The aim was to highlight the benefits of durability (which at George is referred to as ‘quality’) and to build connections between key stakeholders who could influence development, while at the same time promoting existing initiatives and exploring new opportunities.

Find out more
Design and technology considerations

Designers and technologists have a key role to play to improve clothing sustainability. They should work together to ensure they select the most suitable materials (yarns, fabrics and components) from reputable suppliers who understand the brand’s performance requirements. Researching and identifying the most suitable processes is also key to ensure the final product performs well.

Design

The design stage is pivotal to the eventual durability of a garment, with choices about style and cut, fit, fibre and yarn, construction and trimmings all having an impact on the final product. Physical durability is often governed by the weakest link in the chain – perhaps not the chosen fabric or fibre, but a poorly specified aspect of construction or manufacturing.

Key points

☑ Early choices about style and cut, fit, fibre and yarn, construction and trimmings all have a big impact on the final product.

☑ Introduce specifications for all production tasks and materials.

Cath Kidston
Case study

Cath Kidston created a template for fabric and yarn specifications to share with suppliers. The aim was to show a clear link between raw material specification and the resulting product, which would lead to improvement and, finally, greater durability. Cath Kidston plans to record the changes in order to map and learn from the experiences, enabling it to replicate the work across its product range.

Find out more

A good way to improve durability – and potentially reduce costs and returns – is to introduce specifications for all production tasks and materials.
Style and cut

The clothing industry boasts a wealth of technical know-how and production expertise around classic or simply-styled items. This experience can aid production quality and reduce costs.

Tailored and semi-tailored garments last longer because they frame the form well aesthetically, while oversized knits and kimono shapes that can be worn with a belt are versatile and ‘comfortable’ and, therefore, potentially wearable for longer.

From a fashion perspective, ‘classic’ styles (e.g. the little black dress, tailored shirts, pencil skirts, chino-style trousers, v-neck jumpers) will tend to be longer lasting, especially if core colours such as black, white, navy, grey or red are used.

Key points

- Tailored and semi-tailored garments last longer.
- Think ‘classic’ styles.

Fit

Customers do not come in standard sizes and all have the same preferences in terms of comfort and fit.

One way to embrace these differences is to offer built-in size adjustment. This might involve the use of strategic fastenings, for example, to increase or decrease the size or length of side seams or hems.

Key points

- Comfort and fit are important.
- Adjustable fastenings allow for in-built adjustment.

Uniqlo Example

When Uniqlo collaborated with designer brand Jil Sander to create the +J collection, the aim was to produce timeless pieces of outerwear, shirts and jumpers. Uniqlo uses advanced materials, reflecting a desire to produce innovative products which can be worn for a long time to come.

LifeWear

The clothing industry boasts a wealth of existing know-how that can be used to aid production quality and reduce costs.
Raw materials

Since fabric quality depends on many variables, such as fibre type, yarn blends, yarn structure, fabric construction, dyeing and finishing, fabrics with the same description (e.g. ‘100% cotton’) often vary greatly in performance and durability.

Wool is typically perceived as ‘hard-wearing’, yet the way it is processed, used and cared for has a significant impact on its durability. In some cases, ‘better quality’ does not mean hard-wearing but instead refers to excellent drape, lustre or softness to the touch.

One way that design teams can influence the durability of a garment is to identify key standards the fabric must meet – and then task buyers to source fabrics that have been tested to meet these standards.

Specifying standards that align with the way the product will be used can act as a safety net, ensuring that component failures do not undermine the benefits of a well-specified fabric.

For example, specifying collarbones and collar tip construction that minimise abrasion, or the use of woven rather than non-woven interlinings and the use of button whipping, can all ensure that shirt durability is maximised.

Key points

- Processes, usage and care impacts significantly on durability.
- Identify key standards of the fabric.

One way to influence the durability of a garment is to specify key standards that the fabric must meet.
Colouration and dye selection

Colour is one of the most important influences when customers are choosing new clothes; it also plays a significant role in deciding when a garment has reached the end of its life.

Dye selection, methods of application and processing conditions (e.g. pH, temperature and use of levelling agents) all have a huge impact on colour fastness.

The choice of a cheap or unsuitable dye, or cutting corners in dye application, have a significant effect on the durability of a garment, so correctly specifying dye use and application should be a key part of product specification.

By working closely with dyestuff manufacturers and suppliers it is possible to select dyes that best meet the performance requirements of the garment.

Using standard test methods to determine the characteristics of the selected dye prior to bulk production is quick and cheap to complete. For example, fading due to the action of washing powders can be tested via oxidative bleaching tests.

These tests, as part of an established quality management system, can be employed on bulk production to ensure the consistency of dyeing quality.

Colour fading (particularly of cotton fabrics) is also caused by an optical effect due to surface disruption. Abrasion of fabrics tends to bring loose fibres to the surface; these fibres then alter the way in which light is reflected off the surface, giving the impression of fading even though no loss of colour has occurred.

Minimising surface disruption is one way to reduce the apparent fading of garments and extend the life of products.

Technical support for dyestuff selection, testing and performance can be requested from a number of dyestuff manufacturers.

Key points

- Colour plays a significant role in deciding when a garment has reached the end of its life.
- Dye selection and methods all have a huge impact on colour fastness.
- Minimising surface disruption is one way to reduce the apparent fading of garments and extend the life of products.

George at Asda Example

George garment designers decide on the colour for each item based on research around key seasonal colour trends, fashion ranges, catwalk collections or, in the case of schoolwear, the colour requirements of schools. To improve the quality and durability of school knitwear, George uses a special dyeing and finishing process that maintains the colour of the garment even after repeated washing and wearing. This means it will look newer for longer.
Fabric finishing
Finishing processes are used to improve the look, performance, or ‘hand’ (feel) of the finished textile or clothing.

Mechanical and chemical treatments produce a range of effects including:
• fabric stiffening or softening;
• scouring and bleaching;
• hydrophobic treatments to produce waterproofing or stain resistance;
• pre-shrinking or ‘sanforising’; and anti-pilling treatments such as bio-polishing; and
• treatments applied to non-garment textiles such as flame retardancy and anti-microbial treatments.

Many finishing treatments can affect performance and durability, or help extend the active use of a garment. Understanding likely impacts and giving clear instructions on where and how the final product will be used, therefore, needs to be an integral part of an overall product specification.

For many brands and retailers, greater use of cotton and cotton blends in knitwear and knitted fabrics has led to a rise in the number of garments prematurely returned or disposed of due to pilling.

Pilling is caused by abrasion that disrupts the fabric surface, causing unsightly bobbles of entangled fibres. Treating fabrics with an additional process called bio-polishing can reduce the abrasion that causes pilling, to extend the life of the product.

Key points
- Mechanical and chemical treatments produce a range of finishing effects.
- How the product will be used impacts on the type of finishing that needed.
- Bio-polishing can reduce the abrasion that causes pilling, to extend the life of the product.

Understanding likely impacts and giving clear instructions on where and how the final product will be used needs to be an integral part of an overall product specification.

Novozymes Example
Enzymes are increasingly used in the textile industry and have proved to be very successful in reducing pilling for many fabric types, including knitted jerseys and woven cotton. Independent analysis has shown bio-polishing can significantly reduce the occurrence of pilling and there is evidence that, as a result, the lifetime of a product could be increased by up to 20%. Novozymes is one of a number of companies that has developed bio-polishing technology based on enzyme finishes.

Find out more
Manufacturing

Designers have numerous stitch types, sewing threads, machine models and settings to choose from, as well as an array of methods for garment construction. Each technique will be best suited to a particular fabric or garment type and can be exploited to achieve greater durability.

Trimmings or lesser components also play their part – quality and the way that components are attached need to be given special consideration to give the finished garment the longest possible life.

Co-ordinating design and manufacture to align specifications will also improve the durability of the product. For example, choosing the correct stitch density for seams will minimise fabric slippage and puckering, while making sure that the correct operating procedures are in place for the application of linings helps to avoid delamination.

Key points

- Various sewing techniques can be used on particular fabrics to enhance durability.
- Consider how trimmings are attached.
- Co-ordinating design and manufacture to align specifications will also improve the durability of the product.

Flint and Tinder Example

Inspired by a factory visit that opened their eyes to the link between product durability and manufacturing issues (such as combining unsuitable fabrics, or stitching which leads to faster wear and tear), the founders of Flint and Tinder made it their mission to offer a hooded sweatshirt that could last a lifetime. The 10-year hoodie, 100% American-made, is manufactured from high quality domestic materials, utilising reinforced stitching for extreme durability, and heavy weight Lycra ribs to retain shape. The garment is guaranteed to last a decade and comes with a free of charge mending service.
Product testing

A number of industry standard tests now exist for fabrics and garments. These cover physical testing, colour fastness, chemical testing and flammability and can form part of a product specification. Physical tests include: seam rupture; tear strength; burst strength; pilling; abrasion; elasticity; and seam slippage.

Colour fastness is assessed on a scale of 1 (poor) to 5 (excellent), and a good measure might be ‘4–5 after 20 washes’.

Tests include:
- subjecting garments to domestic laundering,
- commercial laundering and dry-cleaning; rubbing (wet and dry);
- chlorinated and sea water;
- hydrophobicity (drop test); and
- phenolic yellowing; and testing for print durability.

Not all tests are appropriate for all garments, and durability quality levels will be dependent on matching product type with its expected use (to determine, for instance, how many cycles in an abrasion test are required). There is no absolute single standard for all products.

Many standards relate to the process and equipment, while the assessment criteria can be subjective, as well as depending on how and where the product will be used.

For example, a ball gown would be expected to be commercially cleaned occasionally, whereas a swimsuit needs to be colourfast in a variety of water conditions with multiple uses.

Standards may be British (BSI), European (CEN) or international (ISO), and even retailer-specific. Marks & Spencer, for example, led the development of clothing technology standards.

The use of clearly defined testing protocols for components and manufacturing elements can be built into product specifications to ensure the consistency of quality leading to stable product durability.

Key points

- A number of industry standard tests now exist for fabrics and garments.
- There is no absolute single standard for all products.
- Each product specification should include clearly defined testing protocols.

George at Asda

George products are inspected for quality at specialist inspection centres. Assessment is performed by specialist quality inspectors working to George quality standards. Checks include making sure that there are no faults in the fabric, that seams are sewn correctly, there are no loose threads, and that the garments are pressed properly. Packaging and presentation are also checked.

As a result, only goods that meet George at Asda’s quality standards are shipped. If a quality problem is discovered, the supplier is given the opportunity to rework the product in the manufacturing country.

This is much faster and cheaper than shipping potentially faulty goods to the UK and then back to the manufacturing country for alteration. Based on inspection results, suppliers are rated according to their quality performance, which helps them improve standards in the future.

George.

1. The latter two relate to safety and legal requirements and are not referred to below unless they impact upon the durability of the garment.
Wearer trials

A good way to find out how suitable a fabric may be for its intended use is through pre-production wearer trials.

This method can be used to assess a range of issues that directly affect the durability of the garment, such as: how well it withstands washing; susceptibility to staining; durability of fabric; and understanding of care instructions.

By conducting such trials over a reasonable time period, manufacturers can identify any issues and take appropriate steps, such as changing fabric quality, to resolve them.

Key points

- Pre-production wearer trials can be used to assess fabric suitability.
- Issues can be identified from trials and appropriate steps taken.

Cath Kidston
Case study

Cath Kidston carried out wearer trials on core products, including a cardigan, jumper and baby grow. The objective was to understand the impacts of wear on the garments in order to better understand product lifecycles. Over the two-week trial, each garment was worn for 200 hours. The results were used to better understand where pilling occurred and under what circumstances the baby grow experienced colour fade. At the same time, wearer trials were also undertaken on equivalent items produced by competitors to compare quality and durability.
Actions to enhance clothing durability
## Actions to enhance clothing durability

The WRAP report Design for Longevity² identified the top five actions for eight key product categories, which have been summarised here:

### Children’s clothing
1. Designing-in a growth allowance.
2. Selecting fabrics and components that are proven to offer durability and colour fastness.
3. Applying fabric finishes to reduce the likelihood of staining.
4. Designing garments for multi-functionality (such as reversible coats).
5. Reinforcing weak areas or areas liable to extra stress, such as elbows and knees.

### Occasion wear
1. Using classic styles, innovatively, to help transcend fashion fads.
2. Ensuring high quality fabrics are used when designing garments.
3. Designing garments that are multi-functional, to give the customer the option to wear different parts of the outfit with other clothes.
4. Facilitating alteration through adjustable waistbands, generous seams or additional buttons.
5. Selecting materials and components that can withstand the chemicals used in the dry-cleaning process.

### Knitwear
1. Using quality yarn and fibres to improve the strength and colour fastness of knitted garments.
2. Ensuring care and laundry advice is clear and simple.
3. Taking steps to preserve the quality of knitted fabric (including colour fastness) and garment manufacture throughout production.
4. Providing guidance to design for re-use and encouraging consumers to down-cycle old garments.
5. Focusing on classic design and loose shapes.

### Tailoring
1. Using high quality outer fabric and ensuring lining and interlining are compatible.
2. Applying classic styles, cut and colours, and building-in features to allow easy adjustment to size and shape.
3. Including clear guidance and advice on the care label.
4. Where possible, utilising detachable elements, such as collars or linings, which can be replaced when worn.
5. Providing a specialist aftercare service, as well as mending and repair advice.

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² Design for Longevity report, WRAP
### Denim

1. Using ozone bleaching, laser engraving and resin finishes to create the desired effects with a lower environmental impact.

2. Enhancing fabric strength and surface quality by applying sustainable dyeing, bleaching and surface treatments.

3. Applying traditional, robust manufacturing methods and mass customisation strategies to products.

4. Educating consumers about the unique characteristics of denim and how to care for it and repair, re-use or repurpose it.

5. Creating emotional attachment through ethical sourcing and production, or no-waste and craft design approaches.

### Sportswear

1. Using durable material, with reinforced seams on areas where rubbing or chafing occurs.

2. Providing care instructions that encourage airing of clothes or washing promptly after use.

3. Encouraging longer attachment to items through the use of wearable technology or personalisation.

4. Adding soil-resistant or antibacterial finishes to reduce problems from body perspiration and odour.

5. Selecting warp-knitted fabrics with open fabric structures (e.g. nets and mesh) to help the transport of moisture.
Casualwear
Garment types in this category include t-shirts, sweatshirts, leggings, trousers, shorts, skirts, blouses and shirts.

1. Selecting high-quality fabric and testing rigorously for performance, including colour fastness and pilling.
2. Providing clear and simple care and laundry instructions.
3. Designing-in adjustable features to accommodate fluctuations in body shape.
4. Where appropriate, designing garments with detachable parts which can be replaced when they become soiled or worn.
5. Providing styling guidance for the consumer to encourage longer use and potential re-use.

Underwear
Garment types in this category include mens and ladies pants, sock, tights and other hosiery.

1. Using more durable fabrics, trims and construction methods.
2. Removing seams, where possible, and recognising that comfort is crucial for prolonged daily wear.
3. Scheduling in time for multiple fittings during the design process to ensure that underwear fits well and supports where necessary.
4. Providing expert advice on fit on product packaging and at point of sale.
5. Designing underwear to be easy to launder.

The report also suggests the following actions to increase durability:
• providing basic repair kits including threads or yarn, buttons and instructions;
• providing factsheets to customers in-store, online or in accompanying packaging;
• enhancing product care and labelling information;
• using elastomeric yarns in knitted structures to enhance the recovery of stretch fabrics, particularly at cuff and hem ribs;
• using acrylic yarns to produce long lasting garments that are inexpensive, hard wearing and particularly suitable for lower-cost garments and knitwear likely to experience heavy use, such as childrenswear;
• exploring fibre dyeing, which can sometimes be used in preference to yarn dyeing for assurance of colourfastness when using some types of fibre (i.e. wool or cotton); and,
• applying pre-shrinking treatments to fabric as a finishing process.
Love Your Clothes customer engagement programmes

Customer education and messaging

Given a little direction, customers would be able to gauge the quality and potential durability of garments before they buy.

Instructions include:

- evaluating seams, including advice on looking for loose threads and broken stitches. Consumers could be made aware that a higher density of stitches per inch is generally better, that stitching should be relatively tight, and that serged seams or double straight seams are usually stronger and may last longer than an equivalent with single straight seams;
- examining garment linings and reinforcement. For example, looking at facing around zips, buttons, or other high-use areas;
- understanding that fibre content will play a role in clothing durability. For example, natural fibres may last longer and launder more easily in some garment applications than synthetic alternatives;
- reading care instructions, and ensuring that they are followed – garments should be dry cleaned when necessary, cold washed and/or dried flat if appropriate; and
- looking for stains, rips, and other obvious damage caused in store or in transit before sale.

www.loveyourclothes.org.uk

"Giving customers clear advice will help them to choose more durable products."

John Lewis Partnership (JLP) Case study

The Selling Partner Learning Guide provides JLP Selling Partners with information to be communicated to customers on the shop floor. The Learning Guide has been updated to include messaging from WRAP’s Love Your Clothes campaign, which is used to assist the Selling Partners to share three key messages which support clothing durability:

- making the connection between clothing that is more durable and higher quality, and the environmental impact of those garments in comparison to disposable fashion;
- explaining how the use of the right detergent and lower washing temperatures can affect the life expectancy of clothes and reduce the environmental impacts of washing, wearing and disposal; and
- giving customers the opportunity to extend the life of clothes (particularly linking to in-store haberdashery departments to demonstrate how simple changes to garments can increase the lifetime of clothes).

Find out more

John Lewis
Wash and wear guidance

The way that people wash their clothes at home has the potential to change the characteristics of fibres and fabrics and, as a result, to reduce durability.

Despite marketing campaigns, evidence suggests that many people still do not colour sort washing and often launder delicate fabrics at the wrong temperature.

Improving care information on labels, packaging and point of purchase or online information portals is a low cost way to increase durability.

Research suggests that consumers are often receptive to warnings about the potential impact of not following care instructions.

Advice could include:

- wash coordinating products together (for example suits, twin-sets or lingerie), and remove accessories before washing;
- dry clean garments when necessary;
- consider steam clean options;
- wash when necessary rather than after each wear;
- airing garments as a means of freshening;
- avoid rubbing stains and marks to avoid causing damage to the fabric;
- avoid the use of solvents for spot cleaning as they can cause discolouration;
- store appropriately, for example on hangers; using any garment loops or other features provided; folding, and removing from sunlight when not in use;
- use moth balls when storing;
- use a specialist laundry bag for delicate items; and
- iron garments at the right temperature and reverse those with motifs to avoid damage.

Research suggests that consumers are often receptive to warnings about the potential impact of not following care instructions, such as the risk of shrinkage if garments are washed at too high a temperature, or the risk of discolouration resulting from unsorted washing loads.

Extended wash tests help to identify the point at which garments fail. In recent research, a range of core products was washed and dried according to the care label.

The tests proved very useful for showing the point at which garments failed against specified performance criteria – socks and t-shirts underwent 50 wash cycles, shirts and jeans 40, and cashmere knitwear 20. Certain problems were not evident until later washes and, in the case of shirts, 40 washes was insufficient to reveal significant deterioration.

3. Valuing our clothes report, WRAP
The table below is a guide to the wear and wash frequencies that may help designers and manufacturers set up their own testing regime.

<table>
<thead>
<tr>
<th></th>
<th>Knitwear</th>
<th>Shirt</th>
<th>Jeans</th>
<th>Socks</th>
<th>T-shirt</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Current lifetime estimate (years)</td>
<td>3.7</td>
<td>3.6</td>
<td>3.1</td>
<td>1.8</td>
<td>3.3</td>
</tr>
<tr>
<td>B Target lifetime (years)</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>2.5</td>
<td>4.5</td>
</tr>
<tr>
<td>C Average wear days per year</td>
<td>30</td>
<td>16</td>
<td>75</td>
<td>50</td>
<td>25</td>
</tr>
<tr>
<td>D Implied wear days per month</td>
<td>2.5</td>
<td>1.3</td>
<td>6.2</td>
<td>4.2</td>
<td>2.1</td>
</tr>
<tr>
<td>E Total days of wear for the target lifetime</td>
<td>150</td>
<td>80</td>
<td>300</td>
<td>125</td>
<td>112.5</td>
</tr>
<tr>
<td>F Hours of wear for the target lifetime</td>
<td>1,800</td>
<td>960</td>
<td>3,600</td>
<td>1,500</td>
<td>1,350</td>
</tr>
<tr>
<td>G Estimated days of wear per wash</td>
<td>5</td>
<td>2</td>
<td>10</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>H Hours of wear per wash</td>
<td>60</td>
<td>24</td>
<td>120</td>
<td>24</td>
<td>24</td>
</tr>
<tr>
<td>I Average number of washes for the target lifetime</td>
<td>30</td>
<td>40</td>
<td>30</td>
<td>62</td>
<td>56</td>
</tr>
</tbody>
</table>

i WRAP data from the Longevity Protocol, page 9

ii Based on lifetime increase of one third

iii Working assumption (audited by industry interviews)

iv Calculation: Row C/12

v Calculation: Row B x Row C

vi Calculation: Row E x 12 (assumed average 12 hours wear per day)

vii Working assumption (validated by industry interviews)

viii Calculation: Row G x 12

ix Calculation: Row F / Row H

Stella McCartney Case study

Stella McCartney Ltd has developed relationships with key tailors and dry cleaners in the locality of a store to help customers care for their clothes appropriately. To understand the environmental impacts of dry cleaning before developing partnerships and undertaking customer communications campaigns, the company commissioned research to establish which solvents chains of dry cleaners use and how these are managed.

Find out more
Repair and alteration support

Although most people are able to sew a button on, research suggests that fewer now have the skills to make more complicated repairs such as altering a hem or darning holes. Instead, people may store or discard items in disrepair or in need of alteration.

However, at a national level, TV shows such as The Great British Sewing Bee have helped promote clothing repair and alteration as a hobby activity and lifestyle choice.

This trend could be supported through the provision of basic repair kits – including threads or yarn, buttons and instructions – in garment packaging and/or on product labels. It can also be supported by factsheets offered in-store, online or in packaging.

Where self-repair or alteration may not be appropriate, some brands and retailers are entering into national agreements with chains of tailors.

Patagonia Example

Patagonia believes in offering its customers the chance to have their items repaired to extend product life. Since 2012, its repair department has mended 65,000 items. Taking the idea of repair one step further, Patagonia is also empowering the consumer to repair clothing themselves, by launching a new repair programme in collaboration with iFixit. Customers can download free, easy-to-follow online repair guides for Patagonia clothing and are also offered an Expedition Sewing Kit for on-the-spot emergency repairs.
Re-use support
A number of brands and retailers have formed partnerships with charities to support and encourage consumer re-use by:
• providing in-store take back options;
• promoting the delivery of second hand clothing to charity shops;
• incentivising re-use through the use of money off vouchers for new products; and
• supporting workplace-based used clothing amnesties; and working with community-based organisations for re-use of specific clothing items such as sportswear.

Research shows that raising awareness of a number of re-use options increases collections of textiles across the board, rather than moving clothes from one re-use outlet (such as a charity shop) to another (such as a textile bring-bank). Therefore, promoting one or more options for re-use can boost the active life of a wide range of clothing.

Muka Kids Example
Muka Kids’ model is built on the principle of creating highly durable unisex clothes that can be taken back in order to be re-used by other customers. It calls this process ‘regooding’. In addition to a garment being re-used by others, the customer returning it can receive a discount on a larger size. Furthermore, any proceeds will go towards supporting women in India achieve financial and work independence.

Explore options to encourage re-use by working with charities or promoting re-use through a voucher or store-based scheme.

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4. Valuing our clothes report, WRAP
Key questions and appendix
Key questions to consider in your organisation:

- How do choices about the design and cut of a garment impact on its durability?
- Can fit adjustments be incorporated into garment design?
- How are non-fabric components contributing to product failures that reduce durability, and how can these be addressed?
- How are choices about fibres, colour, dye selections, fabric finishes and construction impacting on product failures which reduce durability and how can they be addressed?
- What can be learned about garments from wearer trials?
- What can be learned about garments from product tests?
- What wash and wear information is available to customers and is it widely understood?
- What information and supporting material is available to support customers with repair and re-use of clothing items?
- What additional information could be provided to consumers to educate them on ways to extend product durability?
Appendix

Further information to help drive change
This appendix signposts to guides and other support materials to help clothing designers and manufacturers improve the durability of garments within their range.

Clothing Longevity Protocol
Offers good practice guidelines designed to encourage the manufacture of longer lasting garments, to screen out items which fail prematurely, to protect brand value and to reduce the environmental impact of the clothing sector.

How to use the Clothing Longevity Protocol
A guide on how to integrate the Clothing Longevity Protocol into your business.

Design for Longevity
Guidance on increasing the active life of clothing.

Clothing Longevity: Measuring Active Use
Improving understanding of how long people keep and regularly wear their clothes.

Sustainable Clothing Action Plan
WRAP leads the Sustainable Clothing Action Plan (SCAP). SCAP’s ambition is to improve the sustainability of clothing across its lifecycle. By bringing together business, government and the charities and social enterprises, we have developed industry-wide targets to reduce resource use and secure recognition for good practice.

Clothing Knowledge Hub
The Sustainable Clothing Action Plan Knowledge Hub showcases new initiatives, processes and technologies which can reduce the environmental impact of clothing. The Hub has an area on durability and longevity, covering: physical durability, emotional durability, versatility and co-creation.

Valuing Our Clothes
WRAP’s ground breaking report provides the first big picture look at the financial and environmental impacts of clothing. Valuing Our Clothes is a summary of the key findings of a major technical report, plus evidence from a survey of consumer behaviour.
WRAP’s vision is a world in which resources are used sustainably.

Our mission is to accelerate the move to a sustainable resource-efficient economy through re-inventing how we design, produce and sell products; re-thinking how we use and consume products; and re-defining what is possible through re-use and recycling.

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The examples used in this guide are based on publicly available information (accessed Feb–Mar 2015). Case studies were generated as a result of specific trials carried out by WRAP and the named organisations during January to July 2015.