

CAPTURING THE IMPACTS OF CONSUMER USE AND PRODUCT END OF LIFE IN LUXURY

2020

K E R I N G



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Introduction

One of the complex topics for sustainability in fashion and Luxury concerns the environmental impacts associated with consumer use and what happens to a product at the end of its life. There are many factors that can influence precisely how these impacts are generated, including product care, product life span and product second life. The choices made by the individual consumer determine energy consumption, water use and chemical release into waterways from product use, as well as how the product is disposed. The disposal of a product may be direct to landfill or incineration, or alternatively, the product's life may be extended through repairing, recycling or upcycling, or even delivery to a secondary market for resale.

Historically, the EP&L has measured and quantified the environmental impacts from all Kering's business activities within its own operations and across the supply chain, from raw material production to stores, otherwise known as 'cradle to gate'. These impacts cover GHG emissions, water use, water and air pollution, waste and land use (see methodology section for more information).

Kering has committed to extend the scope of the EP&L to cover the impacts occurring during the use of its products and at their disposal, encompassing the full life cycle of "cradle to grave". A pilot study was launched in 2015 focusing on the UK market and, following the publication of a white paper on the topic in October 2019, Kering launched an international survey to capture consumer care and disposal behaviours towards luxury products. This data has been used to calculate use phase and end of life impacts across a selection of Kering products and will provide the basis for incorporating these impacts into the annual EP&L calculation across the group. This white paper shares the results of this analysis and outlines the methodological approach and next steps.

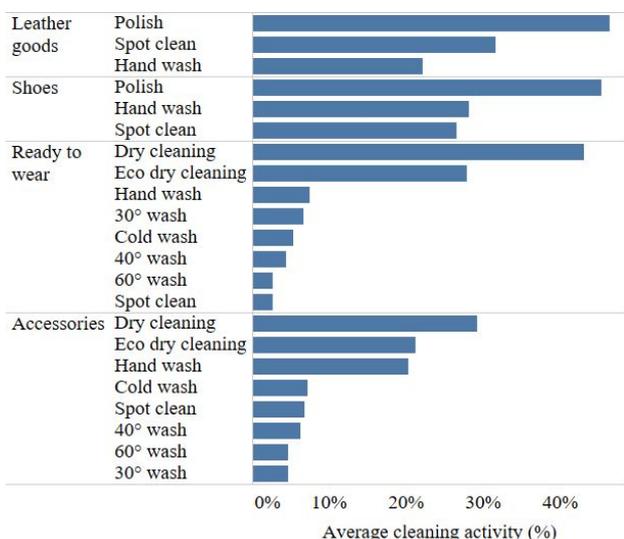


Fig. 1. The average cleaning method for each product category, as determined by the consumer survey

Findings from the consumer behaviour survey

In order to tackle the measurement of the environmental impact of use phase and end of life, Kering launched the first major survey of its kind to capture information on behaviour patterns of more than three thousand luxury fashion consumers across six countries (France, United Kingdom, Italy, China, USA, Japan). Respondents were asked questions about representative products they had purchased from four product categories: leather goods, ready to wear, shoes and accessories. The questions sought to understand the frequency of use of a product, the length of its life, whether it had become damaged and the consumers' preferences for cleaning, drying and crease removal of their items. Finally, respondents were asked how they chose to dispose of the item and how long it may have been left unused prior to disposal.

The results of the survey showed variation in behaviours between geographies and between products. In part this confirmed expected behaviours. For example, ready-to-wear and accessories products were most likely to be dry cleaned whereas leather goods and shoes were only said to be hand washed, spot cleaned or polished (Fig. 1).

The survey also provided interesting insights into consumer behaviour in different geographies that needed to be accounted for in the analysis. The majority of respondents from China reported keeping their products for 1-3 years. Only 6% kept products for 10 years or more compared to 31% and 33% for USA and Japan respectively. At the end of life for the products (averaged across all categories), 74% of respondents from Japan indicated that they would recycle, re-sell or donate the products. This rose to 92% in the USA. In the USA and UK, over 70% of products may receive a second life as a result of being given to a friend, charity shop or resold (Fig. 2).

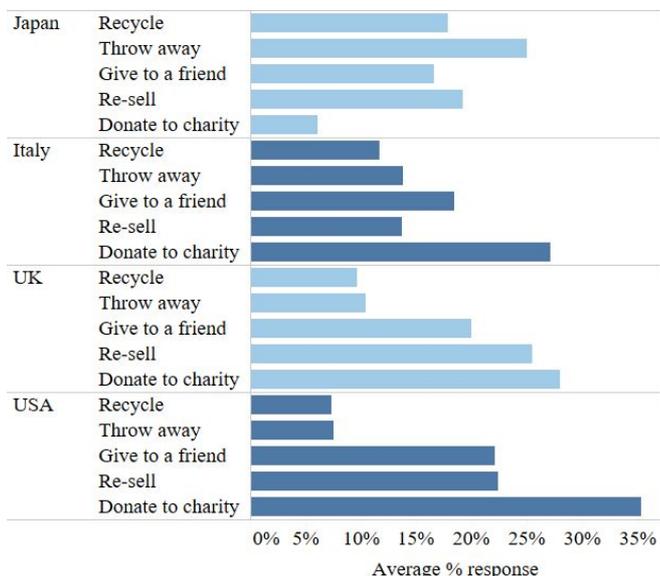


Fig. 2. The average disposal method of a product by country, as determined by the consumer survey



Results from two different perspectives

There are two ways of looking at the impacts of product use and end of life, either from the point of view of production or that of consumption:

1. Taking a **production perspective** allows one to consider the full lifetime impacts of the products that are produced in a fiscal year and can be combined with the production impacts to complete the EP&L for products produced in that year. Life cycle impacts outside the first year are discounted to a net present value.
2. A **consumption perspective** takes the useful life of a product into account by annualizing the impacts - dividing the full life cycle impacts by the years of use. This enables one to understand the impacts associated with one year of the products life and therefore compare products while accounting for the fact that some products have longer lifespans. A product with a longer useful life has a smaller overall impact.

Results from the production perspective

The production perspective allows for direct comparison with the EP&L results. The use phase and end of life impacts, in the scope of this study, equate to 8% of the total life cycle impacts across the representative products from ready-to-wear, shoes, leather goods and accessories.

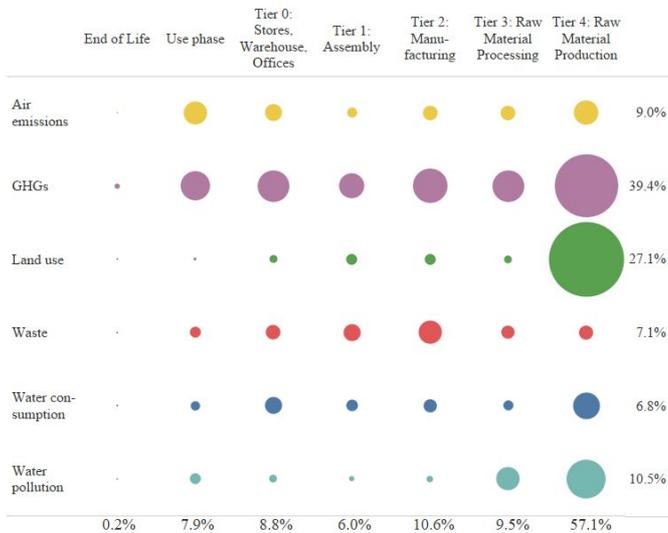


Fig. 3. Production perspective results for supply chain impacts, use and end of life by environmental impact group.

The majority of the use and end of life impact is focussed in the use phase (98%), with the largest environmental impact being greenhouse gas emissions. This is largely as a result of the electricity required to run cleaning, drying and crease removal activities.

The comparison between upstream and downstream impacts varies by product category. The raw material production impact for leather goods is over twenty times larger than that of the use phase, whereas for ready-to-wear, it is only twice as large. This is because leather goods use higher impact materials than ready-to-wear products, as well as having a lower use phase impact from less intensive activities such as spot cleaning.

Results from the consumption perspective

The consumption perspective allows for direct comparison between products by looking at one years worth of impact. Ready-to-wear products have the highest impact, at an average of €8.93 of environmental impact. Accessories have the lowest life cycle impact, at just €2.12 (Fig. 4).

Ready-to-wear products have a large annualized impact because they have the shortest expected useful life. Therefore, their supply chain impacts are distributed across a shorter lifetime compared to those of leather goods. Leather goods have a relatively high impact despite infrequent and non-intensive cleaning due to the impacts of raw materials being relatively high.

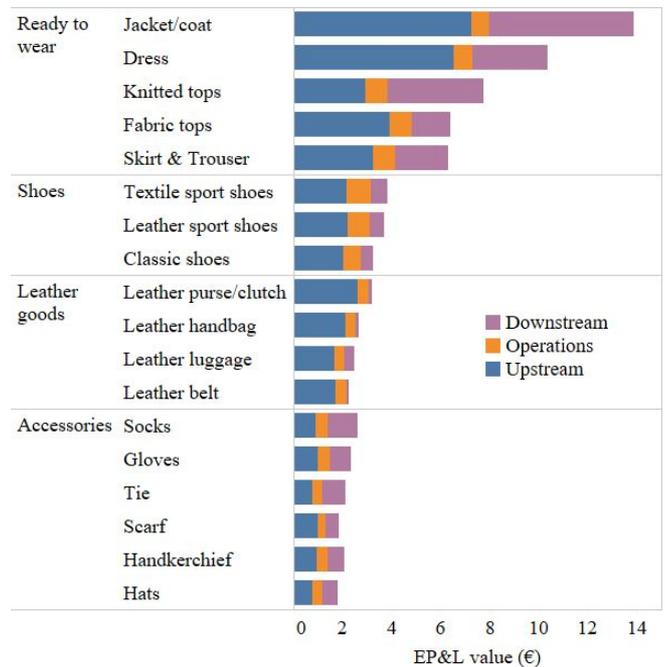


Fig. 4. The consumption perspective impact per product

Although this approach does not align with the current annual production view of the EP&L, it makes it easier to see the environmental impact from the perspective of the consumer and the products they purchase. Firstly, the choice of use phase activities greatly influences the overall impact of a product. By opting for a lower temperature of machine wash or line drying instead of tumble drying, consumers can reduce their impact. Secondly, by elongating the life of the products purchased, the annualized impact can be reduced considerably.

Improving the durability of products is a key challenge for the fashion industry. Considerable efforts are made by Kering brands to manufacture their products using the highest quality materials and production techniques, with the intention of increasing the lifetime of their products. This enables consumers to keep items for longer, or pass them on to the secondhand market. The consumer survey and assumptions developed for this preliminary analysis only account for one additional life for a product. However, it is possible that many products, particularly leather goods, will go on to have multiple lives. Recognising this, Kering brands are forming partnerships with secondary market platforms, such as [Gucci and the Real Real](#).



Beyond the grave: the impact of a second life

The consumer survey has shown that, on average, approximately 65% of luxury products are given to a friend, resold or donated to charity. Even accounting for the proportion of products on resale platforms, or in charity shops, that are not re-sold; a significant proportion of luxury products have a second use phase, or a “second life”, following their initial disposal.

The consumption perspective results, above, show the impact of products over a single lifetime, but this pilot has also considered the change in impact of adding a second life. This second life is assumed to be as long as the first, but is only relevant to the proportion of products that go on to have a new owner. Doubling the lifetime of these products, through re-use, reduces the average annualised EP&L cost from €5.46 to €2.87 (Fig. 5). The use phase impacts increase as a proportion of the total impact, but the large raw material and production impacts are distributed across more years of life.

From the perspective of a consumer the difference is even more stark. For an individual purchasing a product second hand, their impact is the additional use phase cost (€0.29) compared to the full value (€5.46) for purchasing the product new.

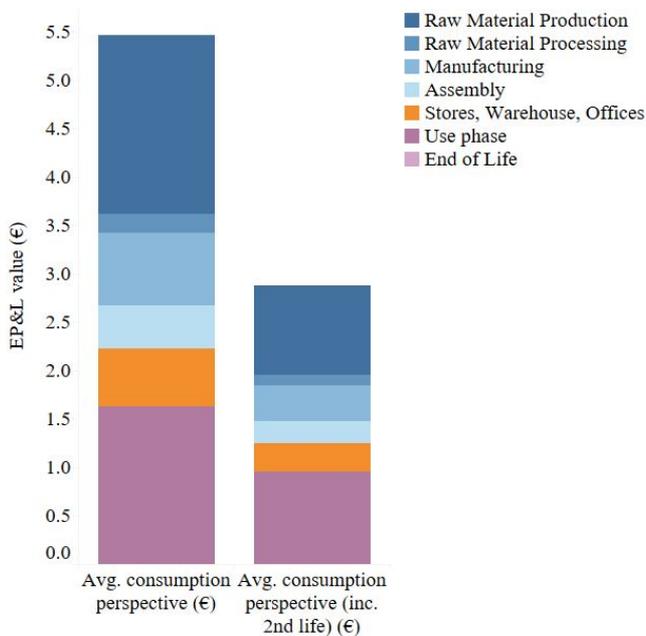


Fig. 5. The average product consumption perspective for a product with one life versus two lives.

Next steps for Kering and the EP&L

This pilot has successfully captured the use phase and end of life impacts for a selection of representative Kering products. Over the next year, Kering plan to integrate the consumer use phase and end of life approach into the EP&L methodology for all Kering brands with ready-to-wear, accessories, shoes and leather goods product categories. This will leverage the consumer survey responses from this pilot analysis, but will use product composition and sales data specific to the chosen representative products of each brand.

In addition to expanding the analysis to all brands, Kering have identified the following assumptions as areas for improvement in the next phase of work:

- This pilot did not include the impacts related to marine plastics and microfiber release from synthetic materials. Kering recognise these as pertinent drivers of environmental impact and so plan to develop a methodology for their inclusion.
- A key assumption has been that the use phase and end of life impacts occur in the country of sale. This omits the potential impact of consumers purchasing products whilst abroad but using them in their home country. In addition, recycled or donated clothes may be transported for their end of life to another country with different waste management practices. This impact is also not currently considered.
- Presently, only one extra life has been considered, although it is possible the luxury goods can go on to have multiple lives.

Kering also intend to explore the results of the pilot further to identify areas of material impact, where targeted interventions would help to reduce the EP&L value. For example, for the ready-to-wear product category the use phase and end of life impacts make up 23% of the total lifecycle impact (compared to 8% as the average across all categories) (Fig.6). Possible interventions could include a customer outreach programme or product care labels to build consumers awareness around how use phase activity choices influence the environmental impact of a product.

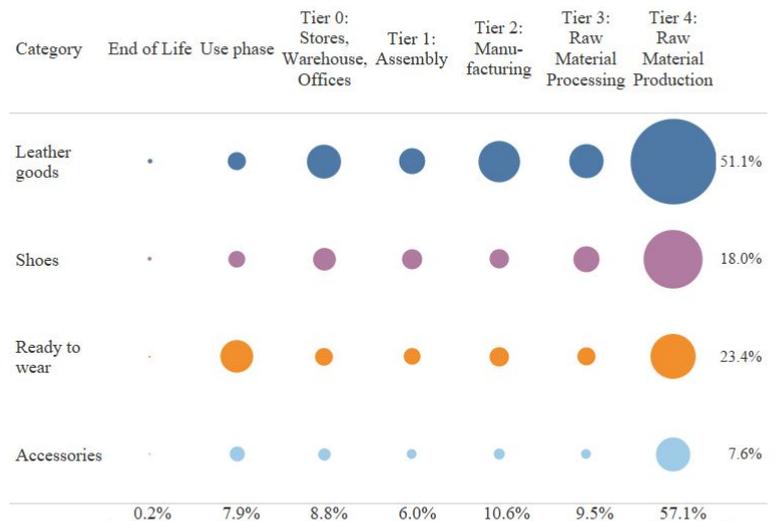


Fig.6. Production perspective results for supply chain impacts, use and end of life by product category.



APPENDIX

Details on the “cradle to grave” EP&L methodology

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Details on the “cradle to grave” EP&L methodology

The use phase and end of life impacts were calculated using information on average consumer behaviours collected from a consumer survey, Life Cycle Assessment (“LCA”) data for each use phase or end of life activity, data on product sales volumes and product weights, as well as PwC valuation coefficients to estimate a societal cost of the environmental impact.

What does a product lifetime look like?

The life of each representative product and its packaging was mapped out according to data from the consumer survey (Fig. 7). Consumers were asked if their product broke and if so, if they fixed it. This split the use phase routes into three: no breakage, breakage and repair or breakage and no repair. In the case of breakage and no repair, the product was assumed to be sent to landfill or incineration at the point of breakage, shortening its useful life. The other two routes allowed all options for disposal: landfill, incineration, recycling or second life, after a full useful life (as determined by the survey). As noted above, the impacts of ocean plastic waste and microfiber release were not analysed in this phase of work.

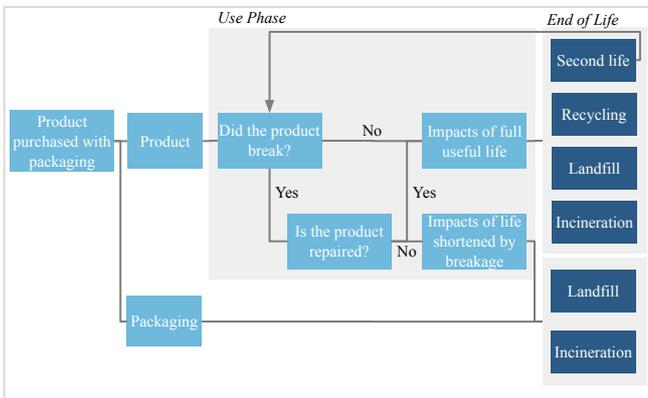


Fig. 7. Process map for the different routes a product can take through its use phase and end of life.

Product lifespan assumptions

Based on the consumer survey responses, an estimate of the length of life of each product in each country was estimated. The average lifespan of each product (not including second life) can be seen in Fig. 9.

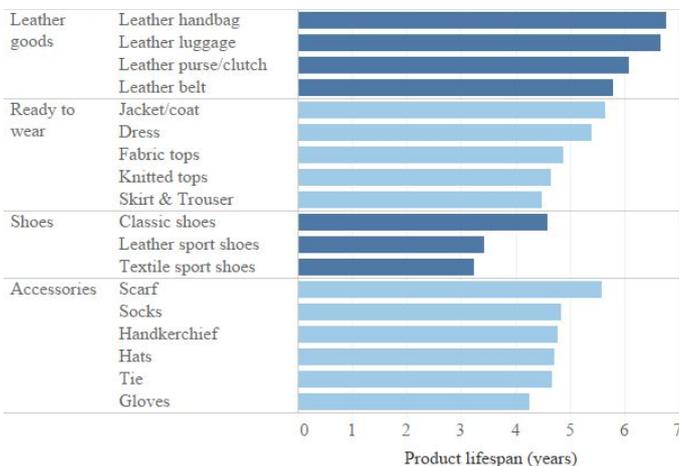


Fig. 9. The average length of life of each representative product, as determined by the consumer survey

The environmental intensity of a product’s use and end of life

LCA data was used to calculate the impact of each use phase and end of life activity per kg of product. For example, the machine washing calculation took into account the running of the machine at a certain temperature as well as the impact of the detergent. LCA data was collected for six representative countries: China, Japan, Italy, USA, UK and France. Where LCA data was not collected for a certain country, an electricity adjustment was applied to account for the differences in the grid mix in that country.

Fig. 8 displays the environmental intensity of cleaning 1kg of clothing in each of the LCA countries. There is large variation, with China showing the greatest impact. This is because China has a high grid emissions intensity. Further, in China the average washing load size is smaller, resulting in more electricity and water required to wash the same weight of clothing. In this way, the location of the use phase is a key determinant of environmental impact.

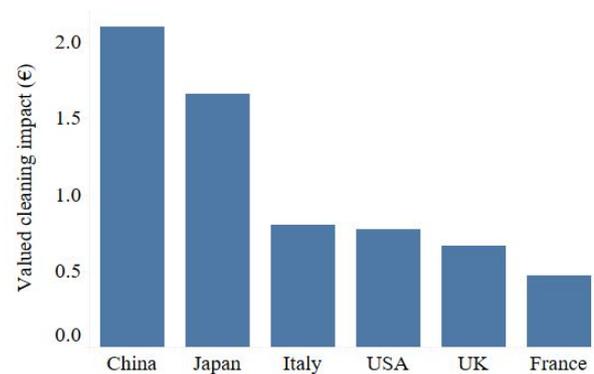


Fig. 8. The valued environmental impact of cleaning per kg clothing in the representative countries.

Valuing the change in natural capital

The EP&L seeks to value the impacts on people resulting from changes in the environment associated with Kering’s value chain. These impacts can be positive (profits) or negative (losses). We categorise environmental impacts into six areas:

1. Air pollution
2. Greenhouse gases (GHGs)
3. Land use and biodiversity
4. Waste
5. Water consumption
6. Water pollution

Each area has a unique valuation methodology that quantifies the cost to society of the environmental impact at a country level. The environmental intensities calculated from product use and end of life analysis had these country specific valuation coefficients applied. The valued results therefore represent an estimate of the change in wellbeing experienced by people as a result of Kering’s environmental impacts induced by the use and end of life of their products.



Building the perspectives

The Production perspective used the 2019 EP&L results to estimate the supply chain impact for the product categories in scope. The total use and end of life impact was calculated by assessing the impacts per year and then discounting the impacts outside the first year for the lifespan of the product. The total impact for each representative product was then multiplied by the number of products sold to understand the total use phase and end of life impact of products sold in 2019. The production perspective is the total of the supply chain, use phase and end of life impacts for each product category.

The Consumption perspective required calculating the raw material production impact of each product by taking the valued impact of each component material (from the 2019 EP&L), multiplied by the weight of that material in the product. Product assembly and sales impacts were apportioned based on the sales volume of the product.

The use phase and end of life impacts were not discounted in this perspective calculation. The final perspective was calculated for each product by adding the raw material production, product assembly, sales, use and end of life impacts and dividing them by the useful life of the product.

Data sources

Data type	Source
Lifecycle assessments	Consolidation of LCA elements on the use phase and end of life of textiles in several countries, PwC (2020)
Consumer survey	Kering survey (2019)
Valuation coefficients	Valuing corporate environmental impacts , PwC (2015)
Sales and product data	Kering data (2019)
The Real Real x Gucci collaboration	The RealReal x Gucci Promotes Circularity Fashion , Gucci (2020)



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